

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

FORM 20-F

REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2020

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Date of event requiring this shell company report

For the transition period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number: 001-38764

**APTORUM GROUP LIMITED**

(Exact Name of Registrant as Specified in its Charter)

N/A

(Translation of Registrant's Name into English)

Cayman Islands

(Jurisdiction of Incorporation or Organization)

Ian Huen, Chief Executive Officer

Aptorum Group Limited

17 Hanover Square, London W1S 1BN, United Kingdom

Tel: +44 20 8092 9299

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(Address of principal executive offices and Name, Telephone, E-mail and/or Facsimile number and  
Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Class A Ordinary shares, par value \$1.00	APM	NASDAQ Global Market

Securities registered or to be registered pursuant to Section 12(g) of the Act:

None

(Title of Class)

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act:

None

(Title of Class)

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report.

Class A Ordinary Shares: 11,584,324

Class B Ordinary Shares: 22,437,754

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes  No

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. Yes  No

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes  No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes  No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company. See definition of "large accelerated filer," "accelerated filer," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer  Accelerated filer  Non-accelerated filer   
Emerging growth company

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards<sup>+</sup> provided pursuant to Section 13(a) of the Exchange Act.

<sup>+</sup> The term "new or revised financial accounting standard" refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP  International Financial Reporting Standards as issued by the International Accounting Standards Board  Other

\* If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow. Item 17   
Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes  No

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## INTRODUCTION

Unless the context otherwise requires, in this annual report on Form 20-F references to:

- “505(b)(2) Application” refers to an application for which one or more of the investigations relied upon by the applicant for approval “were not conducted by or for the applicant and for which the applicant has not obtained a right of reference or use from the person by or for whom the investigations were conducted” (21 U.S.C. 355(b)(2)).
- “Acticule” refers to Acticule Life Sciences Limited, an 80% owned subsidiary of Aptorum Group.
- “Aeneas Group” refers to Aeneas Limited and its subsidiaries. Aeneas Limited is 76.8% owned by Jurchen Investment Corporation. Because Mr. Huen, our CEO, holds 100% equity interest in Jurchen Investment Corporation, we refer Aeneas Group as a fellow subsidiary of Aptorum Group.
- “AML” refers to Aptorum Medical Limited, a 92% owned subsidiary of Aptorum Group, as of the date of this report.
- “AML Clinic” refers to an outpatient medical clinic operated by AML under the name of Talem Medical.
- “Aptorum Group,” “Company,” “we,” “Group” and “us” refer to Aptorum Group Limited, a Cayman Islands exempted company with limited liability whose principal place of business is in Hong Kong.
- “Aptorum Non-Therapeutics Group” refers to the Company’s non-therapeutics segment that encompasses: diagnostics projects including the novel molecular-based rapid pathogen identification and detection diagnostics (“RPIDD”) technology, natural supplement products including NativusWell<sup>®</sup>, and the AML Clinic.
- “Aptorum Therapeutics Group” refers to the Company’s therapeutics segment that is operated through its wholly-owned subsidiary, Aptorum Therapeutics Limited, a Cayman Islands exempted company with limited liability, whose principal place of business is in Hong Kong and its indirect subsidiary companies, whose principal places of business are in the United Kingdom, Singapore and Hong Kong.
- “At The Market Offering” or “ATM Offering” refers to the offering and sale of the Company’s Class A Ordinary Shares, offered pursuant to the prospectus supplement and the accompanying prospectus to the registration statement on Form F-3 (File No. 333-235819), in which H.C. Wainwright & Co., LLC (“Wainwright”), acted as the Company’s sales agent in accordance with certain at the market offering agreement (the “Sales Agreement”), dated as of March 26, 2021, by and between the Company and Wainwright.
- “Bond” refers to the \$15,000,000 convertible bond the Company originally issued to Peace Range (as hereinafter defined) in the Bond Offering, but which has since been repurchased by one of the Company’s wholly owned subsidiaries, Aptorum Investment Holding Limited, pursuant to that certain Bond Repurchase Agreement dated April 24, 2019 between the Company, Peace Range and Aptorum Investment Holding Limited, and which has matured and been redeemed on October 25, 2019.
- “Bond Offering” refers to the Company’s private offering of the Bond that closed on April 25, 2018.
- “cGCP” refers to Current Good Clinical Practice as adopted by the applicable regulatory authority.
- “cGLP” refers to Current Good Laboratory Practice as adopted by the applicable regulatory authority.
- “cGMP” refers to Current Good Manufacturing Practice as adopted by the applicable regulatory authority.

- “Class A Ordinary Shares” refers to the Company’s Class A Ordinary Shares, par value \$1.00 per share.
- “Class B Ordinary Shares” refers to the Company’s Class B Ordinary Shares, par value \$1.00 per share.
- “CMC” refers to chemical, manufacturing and control.
- “Covar” refers to Covar Pharmaceuticals Incorporated, a contract research organization engaged by the Company.
- “CROs” refers to contract research organizations.
- “CTA” refers to Clinical Trial Application.
- “EEA” refers to the European Economic Area.
- “EMA” refers to the European Medicines Agency.
- “EMEA” refers to Europe, the Middle East and Africa.
- “EPO” refers to the European Patent Organization or the European Patent Office operated by it.
- “European Patent” refers to patents issuable by the EPO.
- “EU” refers to the European Union.
- “Exchange Act” refers to the U.S. Securities Exchange Act of 1934, as amended.
- “FDA” refers to U.S. Food and Drug Administration.
- “FDCA” refers to the U.S. Federal Food, Drug and Cosmetic Act.
- “Fiscal year” refers to the period from January 31 of each calendar year to December 31 of the following calendar year.
- “HKD” refers to Hong Kong Dollars.
- “Hong Kong” or “H.K.” refers to Hong Kong Special Administrative Region of the People’s Republic of China.
- “Hong Kong Doctors” refers to the doctors in Hong Kong under the employment of AML Clinic.
- “IND” refers to Investigational New Drugs.
- “IP” refers to intellectual property.
- “IPO” or “Offering” means the initial public offering by the Company of 761,419 Class A Ordinary Shares consummated on December 17, 2018.
- “Jurchen” refers to Jurchen Investment Corporation, a company wholly-owned by our CEO, Ian Huen, and a holding company of Aptorum Group.
- “Lead Projects” refers to ALS-4 and SACT-1 and RPIDD.
- “Major Patent Jurisdictions” refers to the United States, member states of the European Patent Organization and the People’s Republic of China.

- “Nativus” refers to Nativus Life Sciences Limited, a wholly-owned subsidiary of Aptorum Group.
- “NMPA” refers to China’s National Medical Products Administration and its predecessor, the China Food and Drug Administration.
- “NDA” refers to a New Drug Application issued by the FDA.
- “Ordinary Shares” refers to the Class A Ordinary Shares and Class B Ordinary Shares collectively.
- “PRC” and “China” refer to the People’s Republic of China.
- “Registered Direct Offering” means the registered direct offering by the Company of 1,351,350 Class A Ordinary Shares and warrants to purchase up to 1,351,350 Class A Ordinary Share consummated on February 28, 2020.
- “Restructure” refers to the Company’s change from an investment fund with management shares and non-voting participating redeemable preference shares to a holding company with operating subsidiaries, effective as of March 1, 2017.
- “Registration Statement” refers to the Company’s Registration Statement on Form F-1 (File No. 333-227198) for the sale of up to 3,493,969 Class A Ordinary Shares (including Class A Ordinary Shares underlying certain warrants and a bond, as fully described therein) which initially filed on September 5, 2018 and became effective on December 3, 2018.
- “R&D” refers to research and development.
- “R&D Center” refers to an in-house pharmaceutical development center located in Hong Kong Science and Technology Park.
- “Securities Exchange Commission,” “SEC,” “Commission” or similar terms refer to the Securities Exchange Commission.
- “Sarbanes-Oxley Act” refers to the Sarbanes-Oxley Act of 2002.
- “Securities Act” refers to the Securities Act of 1933.
- “Series A Notes” refers to Series A convertible notes, at a purchase price of \$10,000 per note, sold in the Series A Note Offering.
- “Series A Note Investors” refers to the investors who purchased Series A Notes.
- “Series A Note Offering” refers to the private offering of Series A Notes, pursuant to Regulation S or Regulation D, as promulgated under the Securities Act that closed on May 15, 2018.
- “UK” refers to the United Kingdom.
- “United States,” “U.S.” and “US” refer to the United States of America.
- “Videns” refers to Videns Incorporation Limited, a wholly-owned subsidiary of Aptorum Group.
- “US\$,” “U.S. dollars,” or “dollars” are to the legal currency of the United States.

Discrepancies in any table between the amounts identified as total amounts and the sum of the amounts listed therein are due to rounding.

This annual report on Form 20-F includes our audited consolidated balance sheets as of December 31, 2020 and 2019, and the related consolidated statements of operations and comprehensive income (loss), equity and cash flows for the years ended December 31, 2020, 2019 and 2018.

Our operations and equity are funded in U.S. dollars and we currently incur the majority of our expenses in U.S. dollars or in H.K. dollars. H.K. dollar is currently pegged to the U.S. dollar; however, we cannot guarantee that such peg will continue to be in place in the future. Our exposure to foreign exchange risk primarily relates to the limited cash denominated in currencies other than the functional currencies of each entity and limited revenue contracts dominated in H.K. dollars in certain PRC operating entities. We do not believe that we currently have any significant direct foreign exchange risk and have not hedged exposures denominated in foreign currencies or any other derivative financial instruments.

**Part I**

**Item 1. IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISERS**

Not Applicable.

**Item 2. OFFER STATISTICS AND EXPECTED TIMETABLE**

Not Applicable.

**Item 3. KEY INFORMATION**

A. Selected Financial Data

The following summary consolidated balance sheets as of December 31, 2020 and 2019, and consolidated statements of operations and comprehensive income (loss) for the years ended December 31, 2020 and 2019 and 2018, have been derived from our audited consolidated financial statements included elsewhere in this annual report. The following summary consolidated balance sheet as of December 31, 2018 have been derived from our audited consolidated financial statements which are not included in this annual report.

You should not view our historical results as an indicator of our future performance.

The following table presents our summary consolidated statements of operations and comprehensive income (loss) for the years ended December 31, 2020, 2019 and 2018.

Selected Consolidated Statements of Operations and Comprehensive Income (Loss)  
(In U.S. Dollars, except number of shares)

	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
<b>Revenue</b>			
Healthcare services income	\$ 911,509	\$ 535,166	\$ 383,450
<b>Operating expenses</b>			
Cost of healthcare services	(1,015,023)	(794,545)	(318,011)
Research and development expenses	(11,586,923)	(6,939,051)	(3,101,432)
General and administrative fees	(4,853,488)	(7,373,425)	(4,919,626)
Legal and professional fees	(2,854,225)	(3,405,705)	(1,811,770)
Other operating expenses	(877,391)	(220,891)	(560,709)
Total expenses	<u>(21,187,050)</u>	<u>(18,733,617)</u>	<u>(10,711,548)</u>
<b>Other income (loss), net</b>			
Gain (loss) on investments in marketable securities, net	25,241,556	(81,839)	501,522
Gain on non-marketable investments	-	1,147,190	-
(Loss) gain on investments in derivatives, net	(199,031)	87,599	(974,444)
Gain on use of digital currencies	-	46,717	-
Gain on extinguishment of convertible debts	-	1,198,490	-
Changes in fair value of warrant liabilities	-	(866,300)	124,726
Interest expense, net	(243,628)	(3,699,672)	(4,458,191)
Rental income	30,894	16,868	-
Sundry income	365,917	232,460	-
Total other income (loss), net	<u>25,195,708</u>	<u>(1,918,487)</u>	<u>(4,806,387)</u>
<b>Net income (loss)</b>	4,920,167	(20,116,938)	(15,134,485)
Net loss attributable to non-controlling interests	2,146,687	1,430,176	302,762
Deemed dividend related to warrants down round provision	(755,514)	-	-
<b>Net income (loss) attributable to Aptorum Group Limited</b>	<u>\$ 6,311,340</u>	<u>\$ (18,686,762)</u>	<u>\$ (14,831,723)</u>
Net income (loss) per share attributable to Aptorum Group Limited*			
- Basic	\$ 0.20	\$ (0.64)	\$ (0.53)
- Diluted	<u>\$ 0.20</u>	<u>\$ (0.64)</u>	<u>\$ (0.53)</u>
Weighted-average shares outstanding*			
- Basic	31,135,882	29,008,445	27,909,788
- Diluted	<u>31,534,473</u>	<u>29,008,445</u>	<u>27,909,788</u>
<b>Net income (loss)</b>	\$ 4,920,167	\$ (20,116,938)	\$ (15,134,485)
<b>Other comprehensive income (loss)</b>			
Unrealized loss on investments in available-for-sale securities	-	-	(1,122,251)
Exchange differences on translation of foreign operations	58,848	(10,897)	5,345
Other comprehensive income (loss)	<u>58,848</u>	<u>(10,897)</u>	<u>(1,116,906)</u>
<b>Comprehensive income (loss)</b>	4,979,015	(20,127,835)	(16,251,391)
Comprehensive loss attributable to non-controlling interests	2,146,687	1,430,176	302,762
Deemed dividend related to warrants down round provision	(755,514)	-	-
<b>Comprehensive income (loss) attributable to the shareholders of Aptorum Group Limited</b>	<u>6,370,188</u>	<u>(18,697,659)</u>	<u>(15,948,629)</u>

\* The shares and per share data are presented at a weighted average basis to reflect the nominal share issuance.

The following table presents our summary consolidated balance sheets as of December 31, 2020, 2019 and 2018.

	<b>As of December 31, 2020</b>	<b>As of December 31, 2019</b>	<b>As of December 31, 2018</b>
Cash and restricted cash	\$ 3,625,356	\$ 5,293,173	\$ 26,107,238
Total current assets	33,656,815	8,032,881	28,722,941
Total assets	44,231,316	23,954,218	45,074,640
Total current liabilities	3,868,694	2,674,675	12,184,865
Total liabilities	6,079,023	9,102,466	12,328,738
Total equity attributable to the shareholders of Aptorum Group Limited	41,834,151	16,361,208	33,114,435
Non-controlling interests	(3,681,858)	(1,509,456)	(368,533)
Total equity	38,152,293	14,851,752	32,745,902
Total liabilities and equity	\$ 44,231,316	\$ 23,954,218	\$ 45,074,640

#### Exchange Rate Information

Our operations and equity are funded in U.S. dollars and we currently incur the majority of our expenses in U.S. dollars or in H.K. dollars. H.K. dollar is currently pegged to the U.S. dollar; however, we cannot guarantee that such peg will continue to be in place in the future.

If we are exposed to foreign currency exchange risk as our results of operations, cash flows maybe subject to fluctuations in foreign currency exchange rates. For example, if a significant portion of our clinical trial activities may be conducted outside of the United States, and associated costs may be incurred in the local currency of the country in which the trial is being conducted, which costs could be subject to fluctuations in currency exchange rates. We currently do not engage in hedging transactions to protect against uncertainty in future exchange rates between particular foreign currencies and the U.S. dollar. A decline in the value of the U.S. dollar against currencies in countries in which we conduct clinical trials could have a negative impact on our research and development costs. Foreign currency fluctuations are unpredictable and may adversely affect our financial condition, results of operations and cash flows.

The following table sets forth information concerning exchange rates between the H.K. dollar and the United States dollar for the periods indicated.

	<b>Period Ended December 31, (1)</b>	<b>Average (2)</b>
2016	7.7534	7.7618
2017	7.8128	7.7950
2018	7.8305	7.8376
2019	7.7894	7.8335
2020	7.7534	7.7562
2021 (through April 9, 2021)	7.7783	7.7657
January, 2020	7.7665	7.7725
February, 2020	7.7927	7.7757
March, 2020	7.7513	7.7651
April, 2020	7.7514	7.7512
May, 2020	7.7513	7.7519
June, 2020	7.7501	7.7501
July, 2020	7.7500	7.7509
August, 2020	7.7501	7.7502
September, 2020	7.7500	7.7500
October, 2020	7.7548	7.7503
November, 2020	7.7522	7.7526
December, 2020	7.7534	7.7519
January, 2021	7.7531	7.7533
February, 2021	7.7567	7.7529
March, 2021	7.7746	7.7651
April, 2021	7.7783	7.7776

(1) The exchange rates reflect the noon buying rate in effect in New York City for cable transfers of H.K. dollar.

(2) Annual averages are calculated from month-end rates. Monthly averages are calculated using the average of the daily rates during the relevant period.

**B. Capitalization and Indebtedness**

Not applicable.

**C. Reasons for the Offer and Use of Proceeds**

Not applicable.

## D. Risk Factors

### Risks Related to the Preclinical and Clinical Development of Our Drug Candidates

*We currently do not generate revenue from product sales and may never become profitable; unless we can raise more capital through additional financings, of which there can be no guarantee, our principal source of revenue will be from AML Clinic, which may not be substantial.*

Our ability to generate revenue and become profitable depends upon our ability to successfully complete the development of, and obtain the necessary regulatory approvals for, the drug candidates in our Lead Projects and any future drug candidates we may develop, as we do not currently have any drugs that are available for commercial sale. We expect to continue to incur losses before commercialization of our drug candidates and any future drug candidates. None of our drug candidates has been approved for marketing in the U.S., Europe, the PRC or any other jurisdictions and may never receive such approval. Our ability to generate revenue and achieve profitability is dependent on our ability to complete the development of our drug candidates and any future drug candidates we develop in our portfolio, obtain necessary regulatory approvals, and have our drugs products under development manufactured and successfully marketed, of which there can be no guarantee. Although AML Clinic commenced operations in June 2018 and we have received some revenue from such operations, even at full capacity, AML Clinic may not bring enough revenue to support our operation and R&D. Thus, we may not be able to generate a profit until our drug candidates become profitable.

Even if we receive regulatory approval and marketing authorization for one or more of our drug candidates or one or more of any future drug candidates for commercial sale, a potential product may not generate revenue at all unless we are successful in:

- developing a sustainable and scalable manufacturing process for our drug candidates and any approved products, including establishing and maintaining commercially viable supply relationships with third parties;
- launching and commercializing drug candidates following regulatory approvals and marketing authorizations, either directly or with a collaborator or distributor;
- obtaining market acceptance of our drug candidates as viable treatment options;
- addressing any competing technological and market developments;
- negotiating and maintaining favorable terms in any collaboration, licensing or other arrangement into which we may enter to commercialize drug candidates for which we have obtained required approvals and marketing authorizations; and
- maintaining, protecting and expanding our portfolio of IP rights, including patents, trade secrets and know-how.

In addition, our ability to achieve and maintain profitability depends on timing and the amount of expenses we will incur. Our expenses could increase materially if we are required by the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities to perform studies in addition to those that we currently have anticipated. Even if our drug candidates are approved for commercial sale, we anticipate incurring significant costs associated with the commercial launch of these products.

Our ability to become and remain profitable depends on our ability to generate revenue. Even if we are able to generate revenues from AML Clinic or the sale or sublicense of any products we may develop or license, we may not become profitable on a sustainable basis or at all. Our failure to become and remain profitable would decrease the value of our Company and adversely affect the market price of our Class A Ordinary Shares, which could impair our ability to raise capital, expand our business or continue our operations.

***AML Clinic's operations may be our principal source of revenue for the foreseeable future and most likely, without additional financing, such revenue will not be sufficient for us to carry out all of our plans.***

As stated above, we have not generated any revenue and do not foresee generating any revenue from our drug candidates in the near future. Effective as of March 2018, we leased the property in Central, Hong Kong that is the home to AML Clinic, which commenced operations in June 2018.

Until our therapeutic candidates produce revenue, our principal source of revenue is from AML Clinic, but it is not sufficient by itself to fund our other operations. We believe that available cash, together with the efforts from management plans and actions described elsewhere in this report, should enable the Company to meet presently anticipated cash needs for at least the next 12 months after the date that the financial statements are issued and the Company has prepared the consolidated financial statements on a going concern basis. However, the Company continues to have ongoing obligations and it expects that it will require additional capital in order to execute its longer-term development plan. If the Company encounters unforeseen circumstances that place constraints on its capital resources, management will be required to take various measures to conserve liquidity, which could include, but not necessarily be limited to, deferring some of its research and seeking to dispose of marketable securities. Management cannot provide any assurance that the Company will raise additional capital if needed.

***We depend substantially on the success of the drug candidates being researched as our current Lead Projects, which are in the preclinical stage of development. The preclinical development, IND-enabling, CTA-enabling, and clinical trials of our drug candidates may not be successful. If we are unable to license or sublicense, sell or otherwise commercialize our drug candidates, or experience significant delays in doing so, our business will be materially harmed.***

Our business and the ability to generate revenue related to product sales, if ever achieved, will depend on the successful development, regulatory approval and licensing or sublicensing or other commercialization of our drug candidates or any other drug candidates we may develop. We have invested a significant amount of financial resources in the development of our drug candidates and we may invest in other drug candidates. The success of our drug candidates and any other potential drug candidates will depend on many factors, including but not limited to:

- successful enrollment in, and completion of, studies in animals and clinical trials;
- other parties' ability in conducting our clinical trials safely, efficiently and according to the agreed protocol;
- receipt of regulatory approvals from the FDA, NMPA, EMA, Health Canada and other comparable regulatory authorities for our drug candidates;
- our ability to establish commercial manufacturing capabilities by making arrangements with third-party manufacturers;
- reliance on other parties to conduct our clinical trials swiftly and effectively;
- launch of commercial sales of our drug candidates, if and when approved;
- obtaining and maintaining patents, trade secrets and other IP protection and regulatory exclusivity, as well as protecting our rights in our own IP;
- ensuring that we do not infringe, misappropriate or otherwise violate patents, trade secrets or other IP rights of other parties;
- obtaining acceptance of our drug candidates by doctors and patients;
- obtaining reimbursement from third-party payors for our drug candidates, if and when approved;
- our ability to compete with other drug candidates and drugs; and
- maintenance of an acceptable safety profile for our drug candidates following regulatory approval, if and when received.

We may not achieve regulatory approval and commercialization in a timely manner or at all. Significant delays in obtaining approval for and/or to successfully commercialize our drug candidates would materially harm our business and we may not be able to generate sufficient revenues and cash flows to continue our operations.

***Preclinical development is a long, expensive and uncertain process, and we may terminate one or more of our current preclinical development programs.***

Traditionally, drug discovery and development is a time-consuming, costly and high-risk business. On average, the cost of launching a new drug is estimated to approach US\$2.6 billion and can take around 12 years to make it to the market (4 key benefits of drug repositioning. (n.d.). Retrieved from <http://www.totalbiopharma.com/2012/07/04/4-key-benefits-drug-repositioning/>). Despite the huge expenditures, only approximately 1 in 1,000 potential drugs is graduated to human clinical trials after pre-clinical testing in the United States, (Norman, G. A. Drugs, Devices, and the FDA: Part 1. JACC: Basic to Translational Science, 1(3), 170-179, 2016) and nearly 86.2% of drug candidates entering phase 1 trials fails to achieve drug approval. (Wong C. H., Siah K. W. & Lo A. W. (2019, April), "Estimation of clinical trial success rates and related parameters," retrieved from <https://academic.oup.com/biostatistics/article/20/2/273/4817524>). Even after a drug is commercialized, there are just too many factors affecting the sales of pharmaceutical products, including unmet need/burden of disease (68.2%), clinical efficacy (47.3%), comparator choice (36.4%), safety profile (36.4%), and price (35.5%) (Sendyona, S., Odeyemi, I., & Maman, K. "Perceptions and factors affecting pharmaceutical market access: Results from a literature review and survey of stakeholders in different settings" Journal of Market Access & Health Policy, 4(1), 31660, 2016). In the end, on average, only 20% of approved new drugs generate revenues that exceed the average R&D investment. (Rosenblatt, M. (2014, December 19) "The Real Cost of "High-Priced" Drugs," retrieved from <https://hbr.org/2014/11/the-real-cost-of-high-priced-drugs>). We may determine that certain preclinical product candidates or programs do not have sufficient potential to warrant the allocation of resources toward them. Accordingly, we may elect to terminate our programs for and, in certain cases, our licenses to, such product candidates or programs. If we terminate a preclinical program in which we have invested significant resources, we will have expended resources on a program that will not provide a full return on our investment and missed the opportunity to have allocated those resources to potentially more productive uses.

***Management has discretion to terminate the development of any of our projects at any time.***

In light of the costs, both in time and expense, as well as the preclinical results and general business considerations, management may decide not to continue developing a particular preclinical program without announcement. Management will always base its decision on what it believes to be the most efficient use of the Company's resources to provide the most value to its shareholders. As a result, investors may not always be aware of the termination of a previously announced study or trial. The Company will continue to provide update on its active preclinical projects in its SEC filings and/or press releases, as appropriate.

***We may not be successful in our efforts to identify or discover additional drug candidates. Due to our limited resources and access to capital, we must continue to prioritize development of certain drug candidates; such decisions may prove to be wrong and may adversely affect our business.***

Although we intend to explore other therapeutic opportunities in addition to the drug candidates that we are currently developing, we may fail to identify other drug candidates for a number of reasons. For example, our research methodology may be unsuccessful in identifying potential drug candidates or those we identify may be shown to have harmful side effects or other undesirable characteristics that make them unmarketable or unlikely to receive regulatory approval.

Research programs to pursue the development of our drug candidates for additional indications and to identify new drug candidates and disease targets require substantial technical, financial and human resources whether or not we ultimately are successful. Our research programs may initially show promise in identifying potential indications and/or drug candidates, yet fail to yield results for clinical development for a number of reasons, including but not limited to:

- the research methodology used may not be successful in identifying potential indications and/or drug candidates;
- potential drug candidates may, after further study, be shown to have harmful adverse effects or other characteristics that indicate they are unlikely to be effective drugs; or

- it may take greater human and financial resources to identify additional therapeutic opportunities for our drug candidates or to develop suitable potential drug candidates through internal research programs than we will possess, thereby limiting our ability to diversify and expand our drug portfolio.

Because we have limited financial and managerial resources, we have chosen to focus at present on our three Lead Projects, which may ultimately prove to be unsuccessful. As a result of this focus, we may forego or delay pursuit of opportunities with other drug candidates, or for other indications that later prove to have greater commercial potential or a greater likelihood of success. Even if we determine to pursue alternative therapeutic or diagnostic drug candidates, these other drug candidates or other potential programs may ultimately prove to be unsuccessful. In short, our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities.

Accordingly, there can be no assurance that we will ever be able to develop suitable potential drug candidates through internal research programs. This could materially adversely affect our future growth and prospects.

***If we encounter difficulties enrolling patients in our clinical trials, our clinical development activities could be delayed or otherwise adversely affected.***

Although we obtained CTA approval from Health Canada to initiate a clinical trial for one of our Lead Projects, there can be no assurance, timely completion of clinical trials in accordance with their protocols depends, among other things, on our ability to enroll a sufficient number of patients who meet the trial criteria and remain in the trial until its conclusion. We may experience difficulties enrolling and retaining appropriate patients in our clinical trials for a variety of reasons, including but not limited to:

- the size and nature of the patient population;
- patient eligibility criteria defined in the clinical protocol;
- the size of study population required for statistical analysis of the trial's primary endpoints;
- the proximity of patients to trial sites;
- the design of the trial and changes to the design of the trial;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;
- competing clinical trials for similar therapies or other new therapeutics exist and will reduce the number and types of patients available to us;
- clinicians' and patients' perceptions as to the potential advantages and side effects of the drug candidate being studied in relation to other available therapies, including any new drugs or treatments that may be approved for the indications we are investigating;
- our ability to obtain and maintain patient consents;
- patients enrolled in clinical trials may not complete a clinical trial; and
- the availability of approved therapies that are similar to our drug candidates.

Even if we are able to enroll a sufficient number of patients in our clinical trials, delays in patient enrollment may result in increased costs or may affect the timing or outcome of the planned clinical trials, which could prevent completion of these trials and adversely affect our ability to advance the development of our drug candidates.

***Clinical drug development involves a lengthy and expensive process and could fail at any stage of the process. We have limited experience in conducting clinical trials and results of earlier studies and trials may not be reproduced in future clinical trials.***

For our drug candidates, clinical testing is expensive and can take many years to complete, while failure can occur at any time during the clinical trial process. The results of studies in animals and early clinical trials of our drug candidates may not predict the results of later-stage clinical trials. Drug candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through studies in animals and initial clinical trials. In some instances, there can be significant variability in safety and/or efficacy results between different trials of the same drug candidate due to numerous factors, including changes in trial procedures set forth in protocols, differences in the size and type of the patient populations (including genetic differences), patient adherence to the dosing regimen and the patient dropout rate. Results in later trials may also differ from earlier trials due to a larger number of clinical trial sites and additional countries and languages involved in such trials. In addition, the design of a clinical trial can determine whether its results will support approval of a drug candidate, and flaws in the design of a clinical trial may not become apparent until the clinical trial is well advanced and significant expense has been incurred.

A number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in advanced clinical trials due to lack of demonstrated efficacy or adverse safety profiles, notwithstanding promising results in earlier trials. Clinical trials of potential products often reveal that it is not practical or feasible to continue development efforts. Furthermore, if the trials we conduct fail to meet their primary statistical and clinical endpoints, they will not support the approval from the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities for our drug candidates. If this occurs, we would need to replace the failed study with new trials, which would require significant additional expense, cause substantial delays in commercialization and materially adversely affect our business, financial condition, cash flows and results of operations.

***If clinical trials of our drug candidates fail to demonstrate safety and efficacy to the satisfaction of the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities, or do not otherwise produce positive results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our drug candidates.***

Before applying for and obtaining regulatory approval for the sale of any of our drug candidates, we must conduct extensive clinical trials to demonstrate the safety and efficacy of our drug candidates in humans. Clinical testing is expensive, difficult to design and implement, can take many years to complete and may fail. A failure of one or more of our clinical trials can occur at any stage of testing and successful interim results of a clinical trial do not necessarily predict successful final results.

We and our CROs are required to comply with current Good Clinical Practices (“cGCP”) requirements, which are regulations and guidelines enforced by the FDA, NMPA, EMA, Health Canada and other comparable regulatory authorities for all drugs in clinical development. Regulatory authorities enforce these cGCP through periodic inspections of trial sponsors, principal investigators and trial sites. Compliance with cGCP can be costly and if we or any of our CROs fail to comply with applicable cGCP, the clinical data generated in our clinical trials may be deemed unreliable and the FDA, NMPA, EMA, Health Canada or comparable regulatory authorities may require us to perform additional clinical trials before approving our marketing applications.

We may experience numerous unexpected events during, or as a result of, clinical trials that could delay or prevent our ability to receive regulatory approval or commercialize our drug candidates, including but not limited to:

- regulators, institutional review boards (“IRBs”) or ethics committees may not authorize us or our investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- clinical trials of our drug candidates may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon drug development programs;
- the number of patients required for clinical trials of our drug candidates may be larger than we anticipate, enrollment may be insufficient or slower than we anticipate or patients may drop out at a higher rate than we anticipate;

- our contractors and investigators may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- we might have to suspend or terminate clinical trials of our drug candidates for various reasons, including a lack of clinical response or a determination that participants are being exposed to unacceptable health risks;
- regulators, IRBs or ethics committees may require that we or our investigators suspend or terminate clinical research for various reasons, including non-compliance with regulatory requirements;
- the cost of clinical trials of our drug candidates may be greater than we anticipate;
- the supply or quality of our drug candidates or other materials necessary to conduct clinical trials of our drug candidates may be insufficient or inadequate; and
- our drug candidates may cause adverse events, have undesirable side effects or other unexpected characteristics, causing us, our investigators, or regulators to suspend or terminate the trials.

If we are required to conduct additional clinical trials or other testing of our drug candidates beyond those that we currently contemplate, if we are unable to successfully complete clinical trials of our drug candidates or other testing, if the results of these trials or tests are not positive or are only modestly positive or if they raise safety concerns, we may:

- be delayed in obtaining regulatory approval for our drug candidates;
- not obtain regulatory approval at all;
- obtain approval for indications that are not as broad as intended;
- have a drug removed from the market after obtaining regulatory approval;
- be subject to additional post-marketing testing requirements;
- be subject to restrictions on how a drug is distributed or used; or
- be unable to obtain reimbursement for use of a drug.

Delays in testing or approvals may result in increases in our drug development costs. We do not know whether any clinical trials will begin as planned, will need to be restructured, or will be completed on schedule, or at all. Clinical trials may produce negative or inconclusive results. Moreover, these trials may be delayed or proceed less quickly than intended. Delays in completing our clinical trials will increase our costs, slow down our drug candidate development and approval process, and jeopardize our ability to commence product sales and generate revenues and we may not have sufficient funding to complete the testing and approval process. Any of these events may significantly harm our business, financial condition and prospects, lead to the denial of regulatory approval of our drug candidates or allow our competitors to bring drugs to market before we do, impairing our ability to commercialize our drugs if and when approved.

Significant clinical trial delays also could shorten any periods during which we have the exclusive right to commercialize our drug candidates or allow our competitors to bring products to market before we do, impair our ability to commercialize our drug candidates and may harm our business and results of operations.

***We may in the future conduct clinical trials for our drug candidates in sites outside the U.S. and the FDA may not accept data from trials conducted in such locations.***

We may in the future conduct certain of our clinical trials outside the U.S. Although the FDA may accept data from clinical trials conducted outside the U.S. for our New Drug Application (“NDA”), acceptance of this data is subject to certain conditions imposed by the FDA. There can be no assurance the FDA will accept data from any of the clinical trials we conduct outside the U.S. If the FDA does not accept the data from any of our clinical trials conducted outside the U.S., it would likely result in the need for additional clinical trials in the U.S., which would be costly and time-consuming and could delay or prevent the commercialization of any of our drug candidates.

## Risks Related to Obtaining Regulatory Approval for Our Drug Candidates

*The regulatory approval processes of the FDA, NMPA, EMA, Health Canada and other comparable regulatory authorities are lengthy, time-consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for our current drug candidates or any future drug candidates we may develop, our business will be substantially harmed.*

We cannot commercialize drug candidates without first obtaining regulatory approval to market each drug from the FDA, NMPA, EMA, Health Canada or comparable regulatory authorities. Before obtaining regulatory approvals for the commercial sale of any drug candidate for a target indication, we must demonstrate in studies in animals and well-controlled clinical trials, and, with respect to approval in the United States and other regulatory agencies, to the satisfaction of the FDA, NMPA, EMA, Health Canada or comparable regulatory authorities, that the drug candidate is safe and effective for use for that target indication and that the manufacturing facilities, processes and controls are adequate.

The time required to obtain approval from the FDA, NMPA, EMA, Health Canada and other comparable regulatory authorities is unpredictable but typically takes many years following the commencement of studies in animals and clinical trials and depends upon numerous factors, including the substantial discretion of the regulatory authorities.

In addition, approval policies, regulations or the type and amount of clinical data necessary to gain approval can differ among regulatory authorities and may change during the course of the development of a drug candidate. We have not obtained regulatory approval for any drug candidate. It is possible that neither our existing drug candidates nor any drug candidates we may discover or acquire for development in the future will ever obtain regulatory approval. Even if we obtain regulatory approval in one jurisdiction, we may not obtain it in other jurisdictions.

Our drug candidates could fail to receive regulatory approval from any of the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities for many reasons, including but not limited to:

- disagreement with regulators regarding the design or implementation of our clinical trials;
- failure to demonstrate that a drug candidate is safe and effective or safe, pure and potent for its proposed indication;
- failure of clinical trial results to meet the level of statistical significance required for approval;
- failure to demonstrate that a drug candidate's clinical and other benefits outweigh its safety risks;
- disagreement with regulators regarding our interpretation of data from studies in animals or clinical trials;
- insufficiency of data collected from clinical trials of our drug candidates to support the submission and filing of a New Drug Application ("NDA"), or other submission or to obtain marketing approval;
- the FDA, NMPA, EMA, Health Canada or a comparable regulatory authority's finding of deficiencies related to the manufacturing processes or facilities of third-party manufacturers with whom we contract for clinical and commercial supplies; and
- changes in approval policies or regulations that render our preclinical studies and clinical data insufficient for approval.

Any of the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities may require more information, including additional preclinical studies or clinical data, to support approval, which may delay or prevent approval and our commercialization plans, or we may decide to abandon the development program. If we were to obtain approval, regulatory authorities may approve any of our drug candidates for fewer or more limited indications than we request. Regulatory authorities also may grant approval contingent on the performance of costly post-marketing clinical trials, or may approve a drug candidate with a label that is not desirable for the successful commercialization of that drug candidate. In addition, if our drug candidate produces undesirable side effects or involves other safety issues, the FDA may require the establishment of a Risk Evaluation Mitigation Strategy ("REMS"), or NMPA, EMA, Health Canada or other comparable regulatory authorities may require the establishment of a similar strategy. Such a strategy may, for instance, restrict distribution of our drug candidates, require patient or physician education, or impose other burdensome implementation requirements on us.

***Regulatory approval may be substantially delayed or may not be obtained for one or all of our drug candidates if regulatory authorities require additional time or studies to assess the safety or efficacy of our drug candidates.***

We currently do not have any drug candidates that have gained approval for sale by the FDA, NMPA or EMA, Health Canada or other regulatory authorities in any other country, and we cannot guarantee that we will ever have marketable drugs. Our business is substantially dependent on our ability to complete the development of, obtain marketing approval for and successfully commercialize drug candidates in a timely manner. We cannot commercialize drug candidates without first obtaining marketing approval from the FDA, NMPA, EMA, Health Canada and comparable regulatory authorities. In the U.S., we hope to file INDs for the drug candidates from our Lead Projects and, subject to the approval of IND, Phase 1 clinical trials in humans. Even if we are permitted to commence such clinical trials, they may not be successful and regulators may not agree with our conclusions regarding the data generated by our clinical trials.

We may be unable to complete development of our drug candidates or initiate or complete development of any future drug candidates we may develop on our projected schedule. While we believe that our existing cash will likely enable us to complete the preclinical development of at least one of our current Lead Projects, the full clinical development, manufacturing and launch of that drug candidate, will take significant additional time and likely require funding beyond the existing cash. In addition, if regulatory authorities require additional time or studies to assess the safety or efficacy of our drug candidates, we may not have or be able to obtain adequate funding to complete the necessary steps for approval for our drug candidates or any future drug candidates.

Preclinical studies in animals and clinical trials in humans to demonstrate the safety and efficacy of our drug candidates are time-consuming, expensive and take several years or more to complete. Delays in preclinical or clinical trials, regulatory approvals or rejections of applications for regulatory approval in the U.S., Europe, the PRC or other markets may result from many factors, including but not limited to:

- our inability to obtain sufficient funds required to conduct or continue a trial, including lack of funding due to unforeseen costs or other business decisions;
- regulatory reports for additional analysts, reports, data, preclinical studies and clinical trials;
- failure to reach agreement with, or inability to comply with conditions imposed by the FDA, NMPA, EMA, Health Canada or other regulators regarding the scope or design of our clinical trials;
- regulatory questions regarding interpretations of data and results and the emergence of new information regarding our drug candidates or other products;
- delay or failure in obtaining authorization to commence a clinical trial or inability to comply with conditions imposed by a regulatory authority regarding the scope or design of a clinical trial;
- withdrawal of clinical trial sites from our clinical trials as a result of changing standards of care or the ineligibility of a site to participate in our clinical trials;
- unfavorable or inconclusive results of clinical trials and supportive non-clinical studies, including unfavorable results regarding effectiveness of drug candidates during clinical trials;
- difficulty in maintaining contact with patients during or after treatment, resulting in incomplete data;
- our inability to obtain approval from IRBs or ethics committees to conduct clinical trials at their respective sites;
- our inability to enroll and retain a sufficient number of patients who meet the inclusion and exclusion criteria in a clinical trial;
- our inability to conduct a clinical trial in accordance with regulatory requirements or our clinical protocols;

- clinical sites and investigators deviating from trial protocol, failing to conduct the trial in accordance with regulatory requirements, withdrawing from or dropping out of a trial, or becoming ineligible to participate in a trial;
- failure of our clinical trial managers to satisfy their contractual duties or meet expected deadlines;
- manufacturing issues, including problems with manufacturing or timely obtaining from third parties sufficient quantities of a drug candidate for use in a clinical trial;
- ambiguous or negative interim results, or results that are inconsistent with earlier results;
- feedback from the FDA, NMPA, EMA, Health Canada, an IRB, data safety monitoring boards, or comparable entities, or results from earlier stage or concurrent studies in animals and clinical trials, regarding our drug candidates, including which might require modification of a trial protocol;
- unacceptable risk-benefit profile or unforeseen safety issues or adverse side effects; and
- a decision by the FDA, NMPA, EMA, Health Canada, an IRB, comparable entities, or the Company, or recommendation by a data safety monitoring board or comparable regulatory entity, to suspend or terminate clinical trials at any time for safety issues or for any other reason.

Changes in regulatory requirements and guidance may also occur, and we may need to amend clinical trial protocols submitted to applicable regulatory authorities to reflect these changes. Amendments may require us to resubmit clinical trial protocols to IRBs or ethics committees for re-examination, which may increase the costs or time required to complete a clinical trial.

If we experience delays in the completion of, or the termination of, a clinical trial, of any of our drug candidates, the commercial prospects of our drug candidates will be harmed, and our ability to generate product sales revenues from any of those drug candidates will be delayed. In addition, any delay in completing our clinical trials will increase our costs, slow down our drug candidate development and approval process, and jeopardize our ability to commence product sales and generate revenues. Any of these occurrences may harm our business, financial condition and prospects significantly. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our drug candidates.

If we are required to conduct additional clinical trials or other studies with respect to any of our drug candidates beyond those that we initially contemplated, if we are unable to successfully complete our clinical trials or other studies or if the results of these studies are not positive or are only modestly positive, we may be delayed in obtaining regulatory approval for that drug candidate, we may not be able to obtain regulatory approval at all or we may obtain approval for indications that are not as broad as intended. Our product development costs will also increase if we experience delays in testing or approvals, and we may not have sufficient funding to complete the testing and approval process. Significant clinical trial delays could allow our competitors to bring their products to market before we do and impair our ability to commercialize our drugs, if and when approved. If any of this occurs, our business will be materially harmed.

***Our drug candidates may cause undesirable adverse events or have other properties that could delay or prevent their regulatory approval, limit the commercial profile of an approved label, or result in significant negative consequences following any regulatory approval.***

Undesirable adverse events caused by our drug candidates or any future drug candidates we may develop could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities. Results of our potential clinical trials could reveal a high and unacceptable severity or prevalence of adverse effects. In such event, our trials could be suspended or terminated and the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities could order us to cease further development of, or deny approval of, our drug candidates for any or all target indications. Drug-related adverse events could also affect patient recruitment or the ability of enrolled subjects to complete the trial, could result in potential product liability claims and may harm our reputation, business, financial condition and business prospects significantly.

Additionally, if any of our current or future drug candidates receives regulatory approval, and we or others later identify undesirable side effects caused by such drugs, a number of potentially significant negative consequences could result, including but not limited to:

- suspending the marketing of the drug;
- having regulatory authorities withdraw approvals of the drug;
- adding warnings on the label;
- developing a REMS for the drug or, if a REMS is already in place, incorporating additional requirements under the REMS, or to develop a similar strategy as required by a comparable regulatory authority;
- conducting post-market studies;
- being sued and held liable for harm caused to subjects or patients; and
- damage to our reputation.

Any of these events could prevent us from achieving or maintaining market acceptance of the particular drug candidate, if approved, and could significantly harm our business, results of operations and prospects.

***Even if we receive regulatory approval for our drug candidates, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our drug candidates.***

If our drug candidates or any future drug candidates we develop are approved, they will be subject to ongoing regulatory requirements for manufacturing, labeling, packaging, storage, advertising, promotion, sampling, record-keeping, conduct of post-marketing studies, and submission of safety, efficacy, and other post-market information, including both federal and state requirements in the United States and requirements of comparable regulatory authorities outside of the United States.

Manufacturers and manufacturers' facilities are required to comply with extensive requirements from the FDA, NMPA, EMA, Health Canada and comparable regulatory authorities, including, in the United States, ensuring that quality control and manufacturing procedures conform to cGMP regulations. As such, our contract manufacturers will be subject to continual review and inspections to assess compliance with cGMP and adherence to commitments made in any NDA, other marketing application, and previous responses to inspection observations. Accordingly, we and others with whom we work must continue to expend time, money and effort in all areas of regulatory compliance, including manufacturing, production and quality control.

Any regulatory approvals that we receive for our drug candidates may be subject to limitations on the approved indicated uses for which the drug may be marketed or to the conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase 4 clinical trials and surveillance to monitor the safety and efficacy of the drug candidate. The regulatory authorities may also require risk management plans or programs as a condition of approval of our drug candidates (such as REMS of the FDA and risk-management plan of the EMA), which could entail requirements for long-term patient follow-up, a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA, NMPA, EMA, Health Canada or a comparable regulatory authority approves our drug candidates, we will have to comply with requirements including, for example, submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGCP and cGMP, for any clinical trials that we conduct post-approval.

The FDA may impose consent decrees or withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the drug reaches the market. Later discovery of previously unknown problems with our drug candidates, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical studies to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of our drug candidates, withdrawal of the product from the market, or voluntary or mandatory product recalls;
- fines, untitled or warning letters, or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications filed by us or suspension or revocation of license approvals;
- product seizure or detention, or refusal to permit the import or export of our drug candidates; and
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising and promotion of products that are placed on the market. Companies may promote drugs only for the approved indications and in accordance with the provisions of the approved label and may not promote drugs for any off-label use, such as uses that are not described in the product's labeling and that differ from those approved by the regulatory authorities. However, physicians may prescribe drug products for off-label uses and such off-label uses are common across some medical specialties. Thus, they may, unbeknownst to us, use our product for an "off label" indication for a specific treatment recipient. The FDA, NMPA, EMA, Health Canada and other regulatory authorities actively enforce the laws and regulations prohibiting the promotion of off-label uses, and if we are found to be out of compliance with the requirements and restrictions imposed on us under those laws and restrictions, we may be subject to significant liability, including civil and administrative remedies as well as criminal sanctions, and the off-label use of our products may increase the risk of product liability claims. In addition, management's attention could be diverted from our business operations and our reputation could be damaged.

The policies of the FDA, NMPA, EMA, Health Canada and other regulatory authorities may change and we cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any regulatory approval that we may have obtained and we may not achieve or sustain profitability.

***We may be unable to successfully pursue the 505(b)(2) pathway for the pediatric formulation of SACT-1 to treat neuroblastoma as planned, which would materially impact our likelihood of obtaining FDA approval.***

A 505(b)(2) application that relies for approval on the FDA's finding of safety and/or effectiveness for one or more listed drugs must establish that such reliance is scientifically appropriate, and must submit data necessary to support any aspects of the proposed drug product that represent modifications to the listed drug(s). We must establish a bridge between our proposed drug product and each listed drug upon which we propose to rely, to demonstrate that such reliance is scientifically justified. Determining and reaching agreement with the FDA regarding exactly what additional or "bridging" data will be needed to support the proposed modification to the listed drug can present challenges and is a fact-specific determination that must be made on a case-by-case basis. If we are unable to establish to the FDA's satisfaction that our reliance on the listed drug is scientifically appropriate, and that we have sufficiently addressed the safety and effectiveness implications of our proposed modifications, we may be unable to utilize this regulatory pathway.

If the FDA does not allow us to pursue the 505(b)(2) regulatory pathway for our product candidates as anticipated, we may need to conduct additional clinical trials, provide additional data and information and meet additional standards for regulatory approval. If this were to occur, the time and financial resources required to obtain FDA approval for our product candidates would likely substantially increase. Moreover, the inability to pursue the 505(b)(2) regulatory pathway could result in new competitive products reaching the market faster than our product candidates, which could materially adversely impact our competitive position and prospects. Even if we are allowed to pursue the 505(b)(2) regulatory pathway for a product candidate, we cannot assure you that we will receive the requisite or timely approvals for commercialization of such product candidate. Any failure to obtain regulatory approval of our product candidates would significantly limit our ability to generate revenues, and any failure to obtain such approval for all of the indications and labeling claims we deem desirable could reduce our potential revenues.

***If we or our third-party suppliers fail to comply with the FDA's good manufacturing practice regulations or fail to adequately, timely, or sufficiently respond to an FDA Form 483 or subsequent Warning Letter, this could impair our ability to market our products in a cost-effective and timely manner and could result in FDA enforcement action.***

We and our third-party suppliers are required to comply with the FDA's Current Good Manufacturing Practices (cGMP) which covers the methods and documentation of the design, testing, production, control, quality assurance, labeling, packaging, sterilization, storage and shipping of our products. The FDA audits compliance with the cGMP and related regulations through periodic announced and unannounced inspections of manufacturing and other facilities. The FDA may conduct these inspections or audits at any time. If, during the inspection, FDA identifies issues which, in FDA's judgment, may constitute violations of the Federal Food, Drug, and Cosmetic Act or FDA's regulations, the FDA inspector may issue an FDA Form 483 listing these observations.

Note that if an entity does not address observations found in an FDA Form 483 to FDA's satisfaction, the FDA could take enforcement action, including any of the following sanctions:

- untitled letters, warning letters, fines, injunctions, consent decrees and civil penalties;
- customer notifications or recall, detention or seizure of our product;
- operating restrictions or partial suspension or total shutdown of production;
- refusing or delaying our requests for pre-market approval of new products;
- withdrawing pre-market approvals that have already been granted;
- refusal to grant export approval for our product; or
- criminal prosecution.

Any of the foregoing actions could have a material adverse effect on our reputation, business, financial condition and operating results.

#### ***Risks Related to Commercialization of Our Drug Candidates***

***Even if any of our drug candidates receive regulatory approval, it may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success.***

After we complete clinical trials and receive regulatory approval for any of our drug candidates, which may not happen for some time, we recognize that such candidate(s) may ultimately fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. We may not be able to achieve or maintain market acceptance of our products over time if new products or technology are introduced that are more favorably received than our products, are more cost effective or render our drug obsolete. We will face competition with respect to our drug candidates from other pharmaceutical companies developing products in the same disease/therapeutic area and specialty pharmaceutical and biotechnology companies worldwide. Many of the companies against which we may be competing have significantly greater financial resources and expertise in research and development, manufacturing, animal testing, conducting clinical trials, obtaining regulatory approvals and marketing approval for drugs than we do. Physicians, patients and third-party payors may prefer other novel products to ours, which means that we may not generate significant sales revenues for that product and that product may not become profitable. The degree of market acceptance of our drug candidates, if approved for commercial sale, will depend on a number of factors, including but not limited to:

- clinical indications for which our drug candidates are approved;
- physicians, hospitals, and patients considering our drug candidates as a safe and effective treatment;
- the potential and perceived advantages of our drug candidates over alternative treatments;

- the prevalence and severity of any side effects;
- product labeling or product insert requirements of the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities;
- limitations or warnings contained in the labeling approved by the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities;
- the timing of market introduction of our drug candidates as well as competitive drugs;
- the cost of treatment in relation to alternative treatments and their relative benefits;
- the availability of adequate coverage, reimbursement and pricing by third-party payors and government authorities;
- lack of experience and financial and other limitations on our ability to create and sustain effective sales and marketing efforts or ineffectiveness of our sales and marketing partners; and
- changes in legislative and regulatory requirements that could prevent or delay regulatory approval of our drug candidates, restrict or regulate post-approval activities and affect our ability to profitably sell any drug candidates for which we obtain regulatory approval.

#### **Risks Related to Our IP**

***A significant portion of our IP portfolio currently includes pending patent applications that have not yet been issued as granted patents and if the pending patent applications covering our product candidates fail to be issued, our business will be adversely affected. If we or our licensors are unable to obtain and maintain patent protection for our technology and drugs, our competitors could develop and commercialize technology and drugs similar or identical to ours, and our ability to successfully commercialize our technology and drugs may be adversely affected.***

Our success depends largely on our ability to obtain and maintain patent protection and other forms of IP rights for the composition of matter, method of use and/or method of manufacture for each of our drug candidates. Failure to obtain, maintain protection, enforce or extend adequate patent and other IP rights could materially adversely affect our ability to develop and market one or more of our drug candidates. We also rely on trade secrets and know-how to develop and maintain our proprietary and IP position for each of our drug candidates. Any failure to protect our trade secrets and know-how with respect to any specific drug and diagnostics technology candidate could adversely affect the market potential of that potential product.

As of the date of this report, the Company has, through its licenses, obtained rights to patents and patent applications covering some or all its drug and diagnostics technology candidates that have been filed in major jurisdictions such as the United States, member states of the European Patent Organization (the “EPO”) and the PRC (collectively, “Major Patent Jurisdictions”), as well as in other countries. We have also filed a number of provisional applications to establish earlier filing dates for certain of our other ongoing researches, the specifics of which are currently proprietary and confidential. To the extent we do not seek or obtain patent protection in a particular jurisdiction, we may not have commercial incentive to seek marketing authorization in such jurisdiction. Nonetheless, other parties might enter those markets with generic versions or copies of our products and received regulatory approval without having significantly invested in their own research and development costs compared to the Company’s investment. For more information about our IP portfolio, please refer to the Intellectual Property section below.

With respect to issued patents in certain jurisdictions, for example in the U.S. and under the EPO, we may be entitled to obtain a patent term extension to extend the patent expiration date provided we meet the applicable requirements for obtaining such patent term extensions. We have sought to support our proprietary position by working with our licensors in filing patent applications in the names of the licensors in the United States and through the PCT, related to the Lead Projects and certain other drug candidates. In the future, we intend to file patent applications on supplemental or improvement IP derived from the licensed technologies, where those IP would be solely or jointly owned by the Company pursuant to the terms of respective license agreements. Filing patents covering multiple technologies in multiple countries is time-consuming and expensive, and we may not have the resources file and prosecute all necessary or desirable patent applications in a timely manner. It is also possible that we will fail to identify patentable aspects of our research and development output before it is too late to obtain patent protection.

We cannot be certain that patents will be issued or granted with respect to patent applications that are currently pending, or that issued or granted patents will not later be found to be invalid or unenforceable.

The patent position of biotechnology and pharmaceutical companies is generally uncertain because it involves complex legal and factual considerations. The standards applied by the EPO, the U.S. Patent and Trademark Office, or USPTO, and foreign patent offices in granting patents are not always applied uniformly or predictably. For example, there is no uniform worldwide policy regarding patentable subject matter or the scope of claims allowable in biotechnology and pharmaceutical patents. Consequently, patents may not issue from our pending patent applications and even if they do issue, such patents may not issue in a form that effectively prevents others from commercializing competing products. As such, we do not know the degree of future protection that we will have on our proprietary products and technology.

Additionally, the issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our patents may be challenged in the courts or patent offices in the United States and abroad. Even if patents do successfully issue and even if such patents cover our drug candidates, other parties may initiate, for patents filed before March 16, 2013 (i.e., the enactment of the America Invents Act), interference or re-examination proceedings, for patents filed on or after March 16, 2013, post-grant review, *inter partes* review, nullification or derivation proceedings, in court or before patent offices, or similar proceedings challenging the validity, enforceability or scope of such patents, which may result in the patent claims being narrowed or invalidated. Successful defense of its patents can constitute a material factor in a company's expenses. According to an August 2017 article published by Bloomberg News (<https://www.bna.com/cost-patent-infringement-n73014463011/>), depending on the value at stake, the American Intellectual Property Law Association's "2017 Report of the Economic Survey" reported the average cost of a patent litigation in 2017 to be \$1.7 million.

In addition, the fact that the Company has exclusive rights to prevent others from using a patented invention does not necessarily mean that the Company itself will have the unrestricted right to use that invention. Other parties may obtain ownership or licenses to patents or other IP rights that cover the manufacture, use or sale of our current or future products (or elements thereof). This may enable such other parties to enforce their patents or IP rights against us, and may, as a result, affect the commercialization of our products or exploitation of our own technology. We endeavor to identify early patents and patent applications which may block development of a product or technology and minimize this risk by conducting prior art searches before and during the projects. However, relevant documents may be overlooked, yet-to-be published or missed, which may in turn impact on the freedom to commercialize the relevant asset. In such cases, we may not be in a position to develop or commercialize products or drug candidates unless we successfully pursue litigation to nullify or invalidate the other IP rights concerned, or enter into a license agreement with the IP right holder, if available on commercially reasonable terms.

***If we are unable to obtain and maintain the appropriate scope for our patents, our competitors could develop and commercialize technology and drugs similar or identical to ours, and our ability to successfully commercialize our technology and drugs may be adversely affected.***

We may not obtain sufficient claim scope in those patents to prevent another party from competing successfully with our drug and diagnostics technology candidates. Even if our patent applications issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors from competing with us or otherwise provide us with any competitive advantage. Our competitors may be able to circumvent our patents by developing similar or alternative technology or drug and diagnostics technology candidates in a non-infringing manner. The issuance of a patent is not conclusive as to its scope, validity or enforceability, and our patents may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in patent claims being narrowed, invalidated or held unenforceable, which could limit our ability to stop or prevent us from stopping others from using or commercializing similar or identical technology and drug and diagnostics technology candidates, or limit the duration of the patent protection of our technology and drug and diagnostics technology candidates. Given the amount of time required for the development, testing and regulatory review of new drug and diagnostics technology candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our patent portfolio may not provide us with sufficient rights to exclude others from commercializing drug and diagnostics technology candidates similar or identical to ours.

Further, the issuance, scope, validity, enforceability and commercial value of our and our current or future licensors' or collaboration partners' patent rights are highly uncertain. Our and our licensors' pending and future patent applications may not result in patents being issued which protect our technology or products, in whole or in part, or which effectively prevent others from commercializing competitive technologies and products.

***We may not be able to protect and enforce our IP rights throughout the world.***

Our commercial success will depend, in part, on our ability to maintain IP protection for our drug candidates in which we seek to develop and commercialize. While we rely primarily upon a combination of patents, trademarks, trade secrets and other contractual obligations to protect the IP related to our brands, products and other proprietary technologies, these legal means may afford only limited protection.

Filing and prosecuting patents on drug candidates and defending the validity of the same (if challenged) in all countries throughout the world could be prohibitively expensive for us, and our IP rights in countries outside the Major Patent Jurisdictions can be less extensive than those in the Major Patent Jurisdictions. In addition, the laws of some countries in the rest of the world such as India do not protect IP rights to the same extent as laws in the Major Patent Jurisdictions. Consequently, we may not be able to prevent other parties from practicing our inventions in the rest of the world. Competitors may use our technology in jurisdictions where we have not or not yet obtained patent protection to develop their own drugs and further, may export otherwise infringing drugs to non-U.S. jurisdictions where we have patent protection.

Our, our licensors' or collaboration partners' patent applications cannot be enforced against other parties practicing the technology claimed in such applications unless and until a patent issues from such applications, and then only to the extent the issued claims cover the technology. In addition, patents and other IP rights also will not protect our technology, drug candidates if another party, including our competitors, design around our protected technology, drug candidates without infringing, misappropriating or otherwise violating our patents or other IP rights.

Moreover, currently and as our R&D continues to progress, some of our patents and patent applications are or may be co-owned with another party. Some of our licenses already provide that future-developed technologies (and any resulting patents) will be co-owned with the licensors and other patents for technologies we may acquire or develop with other parties may also be jointly owned. If we are unable to obtain an exclusive license to any such co-owners' interest in such patents or patent applications, such co-owners may be able to license their rights to other persons, including our competitors, and our competitors could market competing products and technology, and we will be unable to transfer or grant exclusive rights to potential purchasers or development partners of such co-owned technologies. In addition, we may need the cooperation of any such co-owners of our patents in order to enforce such patents against other parties, and such cooperation may not be provided to us. Any of the foregoing could limit the revenue we might generate from our patents or patent applications and thus have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects.

Because patent applications are confidential for a period of time after filing, and some remain so until issued, we cannot be certain that we or our licensors or collaborators were or will be the first to file any patent application related to a drug and diagnostics technology candidate. Furthermore, in the United States, if patent applications of other parties have an effective filing date before March 16, 2013, an interference proceeding can be initiated by such other party to determine who was the first to invent any of the subject matter covered by the patent claims of our applications. If patent applications of other parties have an effective filing date on or after March 16, 2013, in the United States a derivation proceeding can be initiated by such other parties to determine whether our invention was derived from theirs.

Even where we have a valid and enforceable patent, we may not be able to exclude others from practicing our invention where the other party can show that they used the invention in commerce before our filing date or the other party benefits from a compulsory license. In addition, we may be subject to other challenges regarding our exclusive ownership of our IP. If another party were successful in challenging our exclusive ownership of any of our IP, we may lose our right to use such IP, such other party may be able to license such IP to other parties, including our competitors, and our competitors could market competing products and technology. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects.

Many companies have encountered significant problems in protecting and defending IP rights in jurisdictions outside Major Patent Jurisdictions. The legal systems of some countries do not favor the enforcement of patents, trade secrets and other IP, which could make it difficult in those jurisdictions for us to stop the infringement or misappropriation of our patents or other IP rights, or the marketing of competing drugs in violation of our proprietary rights generally.

To date, we have not sought to enforce any issued patents in any jurisdictions. Proceedings to enforce our patent and other IP rights in any jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business.

Furthermore, such proceedings could put our patents at risk of being invalidated, held unenforceable, or interpreted narrowly, could put our patent applications at risk of not issuing, and could provoke other parties to assert claims of infringement or misappropriation against us. We may not prevail in any lawsuits that we initiate in jurisdictions where opposition proceedings are available and the damages or other remedies awarded, if any, may not be commercially meaningful. The requirements for patentability may differ in certain countries, particularly developing countries. Certain countries in Europe, the PRC, and developing countries including India, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to other parties. In those countries, we and our licensors may have limited remedies if patents are infringed or if we or our licensors are compelled to grant a license to another party, which could materially diminish the value of those patents. This could limit our potential revenue opportunities. Accordingly, our efforts to enforce our IP rights around the world may be inadequate to obtain a significant commercial advantage from the IP that we develop.

***We may become involved in lawsuits to protect or enforce our IP, which could be expensive, time-consuming and unsuccessful. Our patent rights relating to our drug and diagnostics technology candidates could be found invalid or unenforceable if challenged in court or before the USPTO or comparable non-U.S. authority.***

Competitors may infringe our patent rights or misappropriate or otherwise violate our IP rights. To counter infringement or unauthorized use, litigation may be necessary in the future to enforce or defend our IP rights, to protect our trade secrets or determine the validity and scope of our own IP rights or the proprietary rights of others. This can be expensive and time-consuming. Any claim that we assert against perceived infringers could also provoke these parties to assert counterclaims against us alleging that we infringe their IP rights. Many of our current and potential competitors have the ability to dedicate substantially greater resources to enforce and/or defend their IP rights than we can. Accordingly, despite our efforts, we may not be able to prevent other parties from infringing upon or misappropriating our IP. Litigation could result in substantial costs and diversion of management resources, which could harm our business and financial results. In addition, in an infringement proceeding, a court may decide that patent rights or other IP rights owned by us are invalid or unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patent rights or other IP rights do not cover the technology in question. An adverse result in any litigation proceeding could put our patent, as well as any patents that may issue in the future from our pending patent applications, at risk of being invalidated, held unenforceable or interpreted narrowly. Furthermore, because of the substantial amount of discovery required in connection with IP litigation, there is risk that some of our confidential information could be compromised by disclosure during this type of litigation.

If we initiate legal proceedings against another party to enforce our patent, or any patents that may be issued in the future from our patent applications, that relates to one of our drug and diagnostics technology candidates, the defendant could counterclaim that such patent rights are invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity or unenforceability are commonplace, and there are numerous grounds upon which another party can assert invalidity or unenforceability of a patent. Parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include *ex parte* re-examination, *inter partes* review, post-grant review, derivation and equivalent proceedings in non-U.S. jurisdictions, such as opposition proceedings. Such proceedings could result in revocation or amendment to our patents in such a way that they no longer cover and protect our drug and diagnostics technology candidates. With respect to the validity of our patents, for example, there may be invalidating prior art of which we, our patent counsel, and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our drug and diagnostics technology candidates. Such a loss of patent protection could have a material adverse impact on our business.

We may not be able to prevent misappropriation of our trade secrets or confidential information, particularly in countries where the laws may not protect those rights as fully as in the United States. Furthermore, because of the substantial amount of discovery required in connection with IP litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation.

***We may be subject to claims challenging the inventorship of our patents and other IP.***

Although we are not currently experiencing any claims challenging the inventorship of our patents or ownership of our IP, we may in the future be subject to claims that former employees, collaborators or other parties have an interest in our patents or other IP as inventors or co-inventors. For example, we may have inventorship disputes arise from conflicting obligations of consultants or others who are involved in developing our drug and diagnostics technology candidates and who have not clearly contracted to transfer or assign any rights they may have to the Company. In addition, for our licensed patents, although a majority of our licensors have procured assignment forms and records from inventors to affirm their ownership in the licensed IP, another party or former employee or collaborator of our licensors not named in the patents may challenge the inventorship of claim an ownership interest in one or more of our or our licensors' patents. Litigation may be necessary to defend against these and other claims challenging inventorship. If we fail in defending any such claims, in addition to paying monetary damages, we may lose rights such as exclusive ownership of, or right to use, our patent rights or other IP. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

***If we are sued for infringing IP rights of other parties, such litigation could be costly and time-consuming and could prevent or delay us from developing or commercializing our drug candidates, the outcome of which would be uncertain and could have a material adverse effect on the success of our business.***

Our commercial success depends in part on our avoiding infringement of the patents and other IP rights of other parties. There is a substantial amount of litigation involving patent and other IP rights in the biotechnology and pharmaceutical industries. Numerous issued patents, provisional patents and pending patent applications, which are owned by other parties, exist in the fields in which we are developing drug candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our drug candidates may give rise to claims of infringement of the patent rights of others.

Other parties may assert that we are employing their proprietary technology without authorization. There may be other patents of which we are currently unaware with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our drug candidates. Because patent applications can take many years to issue, there may be currently pending patent applications or provisional patents which may later result in issued patents that our drug candidates may infringe. In addition, other parties may obtain patents in the future and claim that use of our technology infringes upon these patents. If any other patents were held by a court of competent jurisdiction to cover the manufacturing process of any of our drug candidates, any molecules formed during the manufacturing process or any final drug itself, the holders of any such patents may be able to prevent us from commercializing such drug candidate unless we obtain a license under the applicable patents, or until such patents expire or they are finally determined to be held invalid or unenforceable. Similarly, if any other patent were held by a court of competent jurisdiction to cover aspects of our formulations, processes for manufacture or methods of use, including combination therapy or patient selection methods, the holders of any such patent may be able to block our ability to develop and commercialize the applicable drug candidate unless we obtain a license, limit our uses, or until such patent expires, or is finally determined to be held invalid or unenforceable. In either case, such a license may not be available on commercially reasonable terms or at all.

Other parties who bring successful claims against us for infringement of their IP rights may obtain injunctive or other equitable relief, which could prevent us from developing and commercializing one or more of our drug candidates. Defense of these claims, regardless of their merits, would involve substantial litigation expense and be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement or misappropriation against us, we may have to pay substantial damages, including treble damages and attorneys' fees in the case of willful infringement, obtain one or more licenses from other parties, pay royalties or redesign our infringing drug candidates, which may be impossible or require substantial time and monetary expenditure. In the event of an adverse result in any such litigation, or even in the absence of litigation, we may need to obtain licenses from other parties to advance our research or allow commercialization of our drug candidates. Any required license may not be available at all, or may not be available on commercially reasonable terms. In the event that we are unable to obtain such a license, we would be unable to further develop and commercialize one or more of our drug candidates, which could harm our business significantly. We may also elect to enter into license agreements in order to settle patent infringement claims or resolve disputes prior to litigation, and any such license agreements may require us to pay royalties and other fees that could significantly reduce our profitability for any product related to that patent and thus harm our business.

Even if resolved in our favor, litigation or other legal proceedings relating to IP claims may cause us to incur significant expenses, and could distract our technical personnel, management personnel, or both from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the market price of our Class A Ordinary Shares. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

***There may be patent applications pending of which we are not aware, but which cover similar products to the ones we are attempting to license or develop, which may result in lost time and money, as well as litigation.***

It is possible that we have failed to identify relevant outstanding patents or applications. For example, U.S. applications filed before November 29, 2000 and certain U.S. applications filed after that date that will not be filed outside the United States remain confidential until patents are issued. Patent applications filed in the United States after November 29, 2000 and generally filed elsewhere are published approximately 18 months after the earliest filing for which priority is claimed, with such earliest filing date being commonly referred to as the priority date. Therefore, patent applications covering our products could have been filed by others without our knowledge. Additionally, pending patent applications which have been published can, subject to certain limitations, be later amended in a manner that could cover our products or the use of our products. Holders of any such unanticipated patents or patent applications may actively bring infringement claims against us, with the same potential litigation consequences as alluded to elsewhere in this annual report. Any of these events could require us to divert substantial financial and management resources that we would otherwise be able to devote to our business.

***Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment, and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.***

Periodic maintenance fees on any issued patent are due to be paid to the USPTO and other patent agencies in several stages over the lifetime of the patent. The USPTO and various non-U.S. governmental patent agencies require compliance with a number of procedural, documentary, fee payment, and other similar provisions during the patent application process. Although an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include failure to respond to official actions within prescribed time limits, non-payment of fees, and failure to properly submit documents requesting an extension of time. In any such event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

***The terms of our patents may not be sufficient to effectively protect our drug and diagnostics technology candidates and business.***

In most countries in which we file, including the United States, the term of an issued patent is generally 20 years from the earliest claimed filing date of a non-provisional patent application in the applicable country. Although various extensions may be available, the life of a patent and the protection it affords is limited. For example, depending upon the timing, duration and specifics of the FDA regulatory approval for our drug candidates, one or more of our U.S. patents, if issued, might be eligible for limited patent term restoration under the Drug Price Competition and Patent Term Restoration Act of 1984, referred to as the Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent term extension of up to five years as compensation for patent term lost during drug development and the FDA regulatory review process. Patent term extensions, however, cannot extend the remaining term of a patent beyond a total of 14 years from the date of drug approval by the FDA, and only one patent can be extended for a particular drug. The application for patent term extension is subject to approval by the USPTO, in conjunction with the FDA. We may not be granted an extension because of, for example, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain a patent term extension for a given patent or the term of any such extension is less than we request, the period during which we will have the right to exclusively market our drug will be that of the originally issued patents themselves.

Even if patents covering one of our drug candidates are obtained, thereby giving us a period of exclusivity for manufacturing and marketing that drug, we will not be able to assert such patent rights upon the expiration of the issued patents against potential competitors who may begin marketing generic copies of our medications, and our business and results of operations may be adversely affected.

***Changes in patent law in the United States could diminish the value of patents in general, thereby impairing our ability to protect our drug and diagnostics technology candidates.***

The United States has recently enacted and is currently implementing wide-ranging patent reform legislation. Recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents once obtained, if any. Depending on decisions by the U.S. Congress, the federal courts and the USPTO, the laws and regulations governing patents in the United States could change in unpredictable ways that would weaken our ability to obtain new patents, or to enforce our existing patents and patents that we might obtain in the future. For example, in a recent case, *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, the U.S. Supreme Court held that certain claims to naturally-occurring substances are not patentable. Although we do not believe that any of the patents owned or licensed by us will be found invalid based on this decision, future decisions by the courts, the U.S. Congress or the USPTO may impact the value of our patent rights. There could be similar changes in the laws of foreign jurisdictions that may impact the value of our patent rights or our other IP rights.

In addition, recent patent reform legislation in the U.S., including the Leahy-Smith America Invents Act, or the America Invents Act, could increase those uncertainties and costs. The America Invents Act was signed into law on September 16, 2011, and many of the substantive changes became effective on March 16, 2013. The America Invents Act reforms U.S. patent law in part by changing the U.S. patent system from a “first to invent” system to a “first inventor to file” system, expanding the definition of prior art, and developing a post-grant review system, thus changing the U.S. patent law in a way that may weaken our ability to obtain patent protection in the U.S. for those applications filed after March 16, 2013. Further, the America Invents Act created new procedures to challenge the validity of issued patents in the U.S., including post-grant review and *inter partes* review proceedings, which some other parties have been using to cause the cancellation of selected or all claims of issued patents of competitors. For a patent with an effective filing date of March 16, 2013 or later, a petition for post-grant review can be filed by another party in a nine-month window from issuance of the patent. A petition for *inter partes* review can be filed immediately following the issuance of a patent if the patent has an effective filing date prior to March 16, 2013. A petition for *inter partes* review can be filed after the nine-month-period for filing a post-grant review petition has expired for a patent with an effective filing date of March 16, 2013 or later. Post-grant review proceedings can be brought on any ground of invalidity, whereas *inter partes* review proceedings can only raise an invalidity challenge based on published prior art and patents. These adversarial actions at the USPTO review patent claims without the presumption of validity afforded to U.S. patents in lawsuits in U.S. federal courts, and use a lower burden of proof than used in litigation in U.S. federal courts. Therefore, it is generally considered easier for a competitor or other party to have a U.S. patent invalidated in a USPTO post-grant review or *inter partes* review proceeding than invalidated in a litigation in a U.S. federal court. If any of our patents are challenged by another party in such a USPTO proceeding, there is no guarantee that we or our licensors or collaborators will be successful in defending the patent, which would result in our loss of the challenged patent right.

***If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.***

In addition to our issued patents, provisional patent, and pending patent applications, we expect to rely on trade secrets, including unpatented know-how, technology and other proprietary information, to maintain our competitive position and protect our drug and diagnostics technology candidates. We seek to protect these trade secrets, in part, by entering into non-disclosure and confidentiality agreements with parties that have access to them, such as our employees, corporate collaborators, outside scientific collaborators, sponsored researchers, contract manufacturers, consultants, advisors and other parties. We also enter into confidentiality and invention or patent assignment agreements with our employees and consultants. However, any of these parties may breach such agreements and disclose our proprietary information, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret can be difficult, expensive and time-consuming, and the outcome is unpredictable. If trade secrets which are material to our business were to be obtained by a competitor, our competitive position would be harmed.

***We may be subject to claims that our employees have wrongfully used or disclosed alleged trade secrets of their former employers.***

Although we try to ensure that our employees do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these employees have used or disclosed IP, including trade secrets or other proprietary information, of any such employee's former employer. In addition, while we typically require our employees, consultants and contractors who may be involved in the development of IP to execute agreements assigning such IP to us, we may be unsuccessful in executing such an agreement with each party who in fact develops IP that we regard as our own, which may result in claims by or against us related to the ownership of such IP. We are not aware of any threatened or pending claims that any of our projects involve misappropriated IP or other proprietary information, but in the future litigation may be necessary to defend against such claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable IP rights. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

***We may be unable to execute on the optimal development plan for one or more of our existing product candidates if we are unable to obtain or maintain necessary rights for some aspect of the developing technology through acquisitions or licenses.***

Our existing programs currently use or may in the future use additional technologies subject to proprietary rights held by others, such as particular compositions or methods of manufacture, treatment or use. The licensing and acquisition of IP rights is a competitive area, and more established companies may pursue strategies to license or acquire such IP rights that we may consider necessary or useful. These established companies may have a competitive advantage over us due to their size, cash resources and greater capabilities in clinical development and commercialization.

In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. We also may be unable to license or acquire IP rights on terms that would allow us to make an appropriate return on our investment. If we are unable to successfully obtain or maintain licenses or other rights from other parties to use IP of those parties, our business, financial condition and prospects for growth could suffer.

***If we fail to comply with our obligations in the agreements under which we license IP rights from other parties or otherwise experience disruptions to our business relationships with our licensors, we could be required to pay monetary damages or could lose license rights that are important to our business.***

Many of our projects (including our Lead Projects) are based on IP which we have licensed from other parties. (See "Item 4. Information on the Company – B. Business Overview – Intellectual Property") Certain of these license agreements impose diligence, development or commercialization obligations on us, such as obligations to pay royalties on net product sales of our drug candidates once commercialized by us, to pay a percentage of sublicensing revenues if the licensed product is sublicensed, to make other specified milestone and/or annual payments relating to our drug candidates or to pay license maintenance and other fees, as well as obligations to pursue commercialization with due diligence. Specifically, a number of our license agreements also require us to meet development timelines in order to maintain the related license(s). In spite of our efforts, our licensors might conclude that we have materially breached our obligations under such license agreements and might therefore seek to terminate the license agreements. If one of our licensors, despite our efforts, were to be successful in terminating its agreement with us, we would not be able to continue to develop, manufacture or market any drug candidate under that license agreements, and we could face claims for monetary damages or other penalties under that agreement. Such an occurrence would diminish or eliminate the value of that project to our Company, even if we are able to negotiate new or reinstated agreements, which may have less favorable terms. Depending on the importance of the IP and the related project, any such development could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects.

Moreover, disputes may arise regarding intellectual property subject to a licensing agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;

- the sublicensing of patent and other rights under our collaborative development relationships;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;
- the inventorship and ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners; and
- the priority of invention of patented technology.

In addition, the agreements under which we currently license intellectual property or technology from other parties are complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which (depending on the importance of the IP and the related project) could have a material adverse effect on our business, financial condition, results of operations, and prospects. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangement for a project on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected drug and diagnostics technology candidates, which could have a material adverse effect on our business, financial conditions, results of operations, and prospects.

***We may not have complete control of the preparation, filing and prosecution of patent applications, or to maintain patents, licensed by us from other parties.***

The Company has in-licensed, and may in the future in-license patents owned or controlled by others for our use as part of our development plans. We also may out-license or sublicense patents which we own or control in collaborations with others for development and commercialization of our products. In either case, the continuing right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, covering technology under development is a matter for negotiation and we may not always be the party that obtains such control, in which case we will be reliant on our licensors, collaboration partners or sublicensees for determining strategies with respect to those patents. For our existing licenses, while we have an understanding with most of the licensors who maintain control over patent prosecution and we have jointly appointed and engaged patent agents nominated by us under one or more of our licenses, we cannot guarantee that such licensors or collaborators will always accept prosecution strategies proposed by us and/or our patent agents. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. If our current or future licensors or collaboration partners fail to establish, maintain or protect such patents and other IP rights, such rights may be reduced or eliminated. If our licensors or joint development partners are not fully cooperative or disagree with us as to the prosecution, maintenance or enforcement of any patent rights, such patent rights could be compromised.

#### **Risks Related to Our Reliance on Unrelated Parties**

***We rely on unrelated parties to conduct discovery and further improvement of our innovations and licensed technologies, as well as our preclinical studies and clinical trials. If these unrelated parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval for or commercialize our drug candidates, and our business could be substantially harmed.***

We have relied upon and plan to continue to rely upon CROs and collaborating institutions to monitor and manage data for our ongoing preclinical studies and programs. We rely on these parties for execution of preclinical studies and clinical trials, and control only certain aspects of their activities. Nevertheless, we are responsible for ensuring that each of our studies is conducted in accordance with the applicable protocol, legal, and regulatory requirements and scientific standards, and our reliance on the CROs and collaborating institutions does not relieve us of our regulatory responsibilities. If CROs, collaborating institutions or clinical investigators do not successfully carry out their contractual duties or obligations or meet expected deadlines, development of our product candidates could be delayed and our business could be adversely affected.

In addition, our CROs and collaborating institutions, are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and waste. In the event of contamination or injury resulting from our use of hazardous materials, we might be held liable for any resulting damages, and any liability could exceed our resources. We could also be subject to civil or criminal fines and penalties, and significant associated costs.

***If the Company obtains approval of an IND for one of our drug candidates and moves into human clinical trials requiring significantly larger quantities of the candidate to be tested, we expect to rely on unrelated parties to manufacture supplies of that candidate. If those unrelated parties fail to provide us with sufficient quantities of clinical supply on that candidate or fail to do so at acceptable quality levels or prices, or fail to maintain required cGMP licenses, we may not be able to manufacture that candidate in sufficient quantities to conduct the necessary human trials. Should the failure by the CRO occur in anticipation of or after marketing approval of that candidate, we may be unable to generate as much revenue as rapidly (and such revenue may not be as profitable) as we had anticipated.***

The manufacture of many drug products, particularly in commercial quantities, can be complex and may require significant expertise and capital investment, particularly if the development of advanced manufacturing techniques and process controls are required. If we obtain approval of an IND for any of our drug candidates, of which there can be no assurance, we intend to contract with outside contractors to manufacture clinical supplies and process our drug candidates. We have not yet had our drug candidates to be manufactured or processed on a commercial scale and may not be able to do so for any of our drug candidates.

As we expect to engage contract manufacturers, the Company will be exposed to the following risks:

- we might be unable to identify manufacturers on acceptable terms or at all because the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities must approve any manufacturers we determine to use and any potential manufacturer may be unable to satisfy federal, state or international regulatory standards;
- although we would be choosing manufacturers with the type of experience most suitable for our drug candidates, it is possible that our contract manufacturers may not be able to execute unique manufacturing procedures and other logistical support requirements we have developed and they might require a significant amount of support from us to implement and maintain the infrastructure and processes required to manufacture our particular drug candidates;
- our contract manufacturers might be unable to reproduce the quantity and quality of the drugs we need to meet our clinical and commercial needs within the time frames when we require those drugs;
- our contract manufacturers may breach their contracts with us, including by not performing as agreed or not devoting sufficient resources to our drug candidates, or they may not remain in the contract manufacturing business for the time required to supply our clinical trials or to successfully produce, store and distribute our products;
- even if initially accepted by regulatory authorities, a manufacturer remains subject to ongoing periodic unannounced inspection by regulatory authorities to ensure strict compliance with cGMP and other government regulations, and our contract manufacturers may fail to comply with these regulations and requirements, resulting in rescission of cGMP licenses and our inability to continue using their services, requiring us to find a replacement manufacturer;
- depending on the terms of our agreement with a manufacturer, we may not own, or may have to share, the IP rights to any improvements made by the manufacturer in the manufacturing process for our drug candidates; and
- our contract manufacturers may have unacceptable or inconsistent product quality success rates and yields.

Each of these risks could delay or prevent the completion of our clinical trials or the approval of any of our drug candidates by the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities, result in higher costs or adversely impact commercialization of our drug candidates.

We are also responsible for quality control by our manufacturers. We intend to rely on those unrelated-party manufactures to perform certain quality assurance tests on our drug candidates prior to delivery to patients. If these tests are not appropriately done and test data are not reliable, patients could be put at risk of serious harm and the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities could place significant restrictions on our Company until deficiencies are remedied.

Manufacturers of drug products often encounter difficulties in production, particularly in scaling up or out, validating the production process, and assuring high reliability of the manufacturing process (including the absence of contamination). These problems include logistics and shipping, difficulties with production costs and yields, quality control, including stability of the product, product testing, operator error, availability of qualified personnel, as well as compliance with strictly enforced federal, state and non-U.S. regulations. Furthermore, if contaminants are discovered in our supply of our drug candidates or in the manufacturing facilities, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination. It is possible that stability failures or other issues relating to the manufacture of our drug candidates may occur in the future. Additionally, our manufacturers may experience manufacturing difficulties due to resource constraints, or as a result of labor disputes or unstable political environments. If our manufacturers were to encounter any of these difficulties, or otherwise fail to comply with their contractual obligations, our ability to provide our drug candidate to patients in clinical trials would be jeopardized. Any delay or interruption in the manufacturing of clinical trial supplies could delay the completion of clinical trials, increase the costs associated with maintaining clinical trial programs and, depending upon the period of delay, require us to begin new clinical trials with additional costs or terminate clinical trials completely.

***Review of changes in the manufacturing process of our drug candidates could cause delays resulting from the need for additional regulatory approvals.***

Changes in a process or procedure for manufacturing one of our drug candidates, including a change in the location where the drug candidate is manufactured or a change of a contract manufacturer, could require prior review by the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities and approval of the manufacturing process and procedures in accordance with the FDA, NMPA, EMA, or Health Canada's regulations, or comparable requirements. This review may be costly and time-consuming and could delay or prevent the launch of a product. The new facility will also be subject to pre-approval inspection. In addition, we would have to demonstrate that the product made at the new facility is equivalent to the product made at the former facility by physical and chemical methods, which are costly and time-consuming. It is also possible that the FDA, NMPA, EMA, Health Canada or other comparable regulatory authorities may require clinical testing as a way to prove equivalency, which would result in additional costs and delay.

#### **Risks Related to AML Clinic**

***Failure to comply with all laws and regulations applicable to the business of AML Clinic could have a material, adverse impact on the Company's business.***

Operation of AML Clinic subjects the Company to a variety of Hong Kong laws and regulations specific to companies and professionals in the business of delivering medical care. We and our employees will be subject to licensing and professional qualifications that do not apply to our other businesses. Breach of any of these laws, regulations or licensing requirements could subject the Company to significant fines and other penalties and possibly damage the Company's reputation, which could have a material adverse effect on the Company's business.

#### **Risks Related to Our Natural Supplements**

***We may be subject to government regulations for natural supplements***

From a regulatory perspective, some of the Company's non-drug candidates (including those developed under the project company Nativus), may be regulated as natural supplements, including NativusWell<sup>®</sup> (NLS-2). For those non-drug candidates that the Company plans to develop, they are subject to extensive and rigorous domestic government regulation, including regulation by the FDA, the Centers for Medicare & Medicaid Services, or CMS, other divisions of the U.S. Department of Health and Human Services, state and local governments and their respective foreign equivalents. The FDA regulates natural supplements, cosmetics and drugs under different regulatory schemes.

For example, the FDA regulates the processing, formulation, safety, manufacturing, packaging, labeling, advertising and distribution of natural supplements and cosmetics under its natural supplement and cosmetic authority, respectively. The FDA also regulates the research, development, pre-clinical and clinical testing, manufacture, safety, effectiveness, record keeping, reporting, labeling, storage, approval, advertising, promotion, sale, distribution, import and export of pharmaceutical products under various regulatory provisions. If any drug products we develop are tested or marketed abroad, they will also be subject to extensive regulation by foreign governments, whether or not we have obtained FDA approval for a given product and its uses. Such foreign regulation may be equally or more demanding than corresponding U.S. regulation.

Government regulation substantially increases the cost and risk of researching, developing, manufacturing and selling products. Our failure to comply with these regulations could result in, by way of example, significant fines, criminal and civil liability, product seizures, recalls, withdrawals, withdrawals of approvals and exclusion and debarment from government programs. Any of these actions, including the inability of our hormone therapy drug candidates to obtain and maintain regulatory approval, would have a materially adverse effect on our business, financial condition, results of operations and prospects.

In addition, the FDA's policies may change and additional government regulations may be issued that could prevent, limit, or delay regulatory approval of our drug candidates, or impose more stringent product labeling and post-marketing testing and other requirements.

We intend to first launch and market NativusWell<sup>®</sup> (NLS-2) in Hong Kong. In Hong Kong, natural supplements are defined as "health food" products. "Health food" containing medicines are subject to the Pharmacy and Poisons Ordinance (Cap 138) and such "health food" containing Chinese medicines are regulated by the Chinese Medicine Ordinance (Cap 549), where they must meet the requirements in respect of safety, quality and efficacy before they can be registered.

For other "health food" products which cannot be classified as Chinese medicine or western medicine are regulated under the Public Health and Municipal Services Ordinance (Cap 132) as general food products. The Public Health and Municipal Services Ordinance requires the manufacturers and sellers of food to ensure that their products are fit for human consumption and comply with the requirements in respect of food safety, food standards and labelling. In addition, all prepackaged food should bear labels which correctly list out the ingredients of the food under the Food and Drugs (Composition and Labelling) Regulations (Cap 132W) under the Ordinance.

The NativusWell<sup>®</sup> (NLS-2) is made with the bioactive ingredient extracted Chinese yam powder and does not contain any western or Chinese medicine; therefore, registration is not required under the local laws for marketing in Hong Kong. We will, however, ensure the compliance of the Food and Drugs (Composition and Labelling) Regulations (Cap 132W) with by proper labelling in place.

### **Risks Related to Our Diagnostics Technology**

***Our products could in the future be subject to additional regulation by the U.S. Food and Drug Administration or other domestic and international regulatory agencies, which could increase our costs and delay our commercialization efforts, thereby materially and adversely affecting our business and results of operations.***

The FDA has statutory authority to assure that medical devices and in vitro diagnostics, including those where the RPIDD technology may be utilized, are safe and effective for their intended uses. Should the RPIDD technology be utilized in U.S. as a Laboratory Developed Test (LDT), the FDA has historically exercised its enforcement discretion and may not enforce applicable provisions of the FDC Act and regulations with respect to LDTs. We believe the RPIDD may not be subject to the FDA's enforcement of its medical device regulations and the applicable FDC Act provisions.

However, if and when we utilize the RPIDD technology in the U.S., the FDA may disagree with our assessment that the RPIDD falls within the definition of an LDT and seek to regulate the RPIDD as medical devices. If the FDA determines that our products are subject to such requirements, we could be subject to enforcement action, including administrative and judicial sanctions, and additional regulatory controls and submissions for the RPIDD, all of which could be burdensome.

In the future, certain of our products or related applications could be subject to additional FDA regulation. Even where a product is not subject to FDA clearance or approval requirements, the FDA may impose restrictions as to the types of customers to which we can market and sell our products. Such regulation and restrictions may materially and adversely affect our business, financial condition and results of operations. Other regulatory regimes that do not currently present material challenges but that could in the future subject to regulations include biosecurity should our RPIDD technology be utilized in the U.S.

In addition, many countries have laws and regulations that could affect our products and which could limit our ability to sell our products in those countries. The number and scope of these requirements are increasing. We may not be able to obtain regulatory approvals in such countries or may incur significant costs in obtaining or maintaining foreign regulatory approvals. For example, the European Union, or EU, is transitioning from the existing European Directive 98/79/EC on in vitro diagnostic medical devices, or In Vitro Diagnostic Directive (IVDD), to the In Vitro Diagnostic Device Regulation (EU) 2017/746 (IVDR), which imposes stricter requirements for the marketing and sale of medical devices, including in the area of clinical evaluation requirements, quality systems and post-market surveillance. The IVDR is expected to become effective in May 2022. It is likely that we will be impacted by this new regulation, either directly as a manufacturer of IVDs, or indirectly as a supplier to customers who are placing IVDs in the EU market for clinical or diagnostic use. Complying with the requirements of the IVDR may require us to incur significant expenditures. Failure to meet these requirements could adversely impact our business in the EU and other regions that tie their product registrations or chemical regulations to the EU requirements.

### **Risks Related to Our Industry, Business and Operation**

*If we do not comply with laws regulating the protection of the environment and health and human safety, our business could be adversely affected.*

Our research, development and clinic operations involve the use of hazardous materials, chemicals and various radioactive compounds/radiation and AML Clinic may create medical waste and radiation. Our R&D Center may maintain quantities of various flammable and toxic chemicals in our facilities that are required for our research, development and manufacturing activities. We are subject to local laws and regulations governing the use, manufacture, storage, handling and disposal of these hazardous materials and of medical waste at the jurisdictions where we operate our clinic and research facilities, which are currently limited to Hong Kong. We believe our procedures for storing, handling and disposing of these materials comply with the relevant guidelines and laws of the jurisdictions in which our facilities are located. Although we believe that our safety procedures for handling and disposing of these materials comply with the standards mandated by applicable regulations, the risk of accidental contamination or injury from these materials cannot be eliminated. If an accident occurs, we could be held liable for resulting damages, which could be substantial. We are also subject to numerous environmental, health and workplace safety laws and regulations, including those governing laboratory procedures, exposure to blood-borne pathogens and the handling of biohazardous materials and medical waste.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of these materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials. Additional federal, state and local laws and regulations affecting our operations may be adopted in the future. We may incur substantial costs to comply with, and substantial fines or penalties, if we violate any of these laws or regulations.

*Our future success depends on our ability to retain our Chief Executive Officer, our scientific and clinical advisors, and other key executives and to attract, retain and motivate qualified personnel.*

We are highly dependent on Ian Huen, our Chief Executive Officer, as well as, other principal members of our management teams, scientific teams as well as scientific and clinical advisors. Although we have formal employment agreements, which we refer to as appointment letters, with all of our executive officers, these agreements do not prevent our executives from terminating their employment with us at any time, subject to applicable notice periods. Nevertheless, the loss of the services of any of these persons could impede the achievement of our research, development and commercialization objectives.

To induce valuable employees to remain at our Company, in addition to salary and cash incentives, we plan to provide share incentive grants that vest over time. The value to employees of these equity grants that vest over time may be significantly affected by movements in the price of our Class A Ordinary Shares that are beyond our control, and may at any time be insufficient to counteract more lucrative offers from other companies. Although we have appointment letters with our key employees, any of our employees could resign at any time, with 1-month to 3-months prior written notice or with payment in lieu of notice.

Recruiting and retaining qualified officers, scientific, clinical, sales and marketing personnel or consultants will also be critical to our success. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our discovery and preclinical studies development and commercialization strategy. The loss of the services of our executive officers or other key employees and consultants could impede the achievement of our research, development and commercialization objectives and seriously harm our ability to successfully implement our business strategy.

Furthermore, replacing executive officers and key employees or consultants may be difficult and may take an extended period of time, because of the limited number of individuals in our industry with the breadth of skills and experience required to successfully develop, gain regulatory approval of and commercialize drug and diagnostics technology candidates. Competition to hire from this limited pool is intense, and we may be unable to hire, train, retain or motivate these key personnel or consultants on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel.

We also experience competition for the hiring of scientific and clinical personnel from universities and research institutions. Our consultants and advisors may be employed by employers other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. If we are unable to continue to attract and retain high quality personnel, our ability to pursue our growth strategy will be limited.

***We will need to increase the size and capabilities of our organization, and we may experience difficulties in managing our growth.***

As of the date of this annual report, we have 26 employees, including 24 full-time employees and 2 part-time employee. Of these, 7 are engaged in full-time research and development and laboratory operations, 15 are engaged in general and administrative functions, 2 are full-time employees engaged in the clinic operation and 2 part-time employee is engaged in research and development and legal clerical support. As of the date of annual report, 25 of our employees are located in Asia and 1 of our employees is located in Europe. In addition, we have engaged and may continue to engage 48 independent contracted consultants and advisors to assist us with our operations. As our development and commercialization plans and strategies develop, and as we have transitioned into operating as a public company, we will need to establish and maintain effective disclosure and financial controls and make changes in our corporate governance practices. We will need to add a significant number of additional managerial, operational, sales, marketing, financial and other personnel with the appropriate public company experience and technical knowledge and we may not successfully recruit and maintain such personnel. Future growth will impose significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, maintaining and motivating additional employees;
- managing our internal development efforts effectively, including clinical, the FDA or other comparable regulatory authority review process for our drug and diagnostics technology candidates, while complying with our contractual obligations to contractors and others; and
- improving our operational, financial and management controls, reporting systems and procedures.

Our future financial performance and our ability to commercialize our drug candidates will depend, in part, on our ability to effectively manage our future growth, and our management may also have to divert a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time to managing these growth activities.

We currently rely, and for the foreseeable future will continue to rely, in substantial part on certain independent organizations, advisors and consultants for significant input in selecting and evaluating new products to pursue. These independent organizations, advisors and consultants may not continue to be available to us on a timely basis when needed, and in such case, we may not have the ability to find qualified replacements. In addition, if we are unable to effectively manage our outsourced activities, or if the quality or accuracy of the services provided by consultants is compromised for any reason, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain regulatory approval of our drug candidates or otherwise advance our business. Furthermore, we may not be able to manage our existing consultants or find other competent outside contractors and consultants on economically reasonable terms, if at all.

If we are not able to effectively expand our organization by hiring new employees and expanding our groups of consultants and contractors, we may not be able to successfully implement the tasks necessary to further develop and commercialize our drug and diagnostics technology candidates and, accordingly, may not achieve our research, development and commercialization goals.

***We intend to seek additional collaborations, strategic alliances or acquisitions or enter into royalty-seeking or sublicensing arrangements in the future, but we may not realize the benefits of these arrangements.***

We intend to form or seek strategic alliances, create joint ventures or collaborations, acquire complimentary products, IP rights, technology or businesses or enter into additional licensing arrangements with unrelated parties that we determine may complement or augment our development and commercialization efforts with respect to our drug and diagnostics technology candidates. Any of these relationships may require us to incur non-recurring and other charges, increase our near and long-term expenditures, issue securities that dilute our existing shareholders, or disrupt our management and business.

We will face significant competition in seeking appropriate strategic partners and the negotiation process is likely to be time-consuming, costly and complex. Moreover, we may not be successful in our efforts to establish a strategic partnership or another alternative arrangement for any of our drug and diagnostics technology candidates because their state of development may be deemed to be too early for collaborative effort and others may not view our drug candidates as having the requisite potential to demonstrate safety and efficacy. If and when we enter into an agreement with a collaboration partner or sublicensee for development and commercialization of a drug or diagnostics technology candidate, we can expect to relinquish some or all of the control over the future success of that drug candidate to the unrelated-party.

Further, even if we enter into a collaboration involving any of our drug and diagnostics technology candidates, the arrangement will be subject to numerous risks, which may include the following:

- the collaborators will likely have significant discretion in determining the efforts and resources that they will apply to a collaboration;
- the collaborator may ultimately choose not pursue development and commercialization of our drug or diagnostics technology candidates or may elect not to continue or renew development or commercialization programs, based on clinical trial results, changes in their strategic focus due to the acquisition of competitive drugs, availability of funding, or other external factors, such as a business combination that diverts resources or creates competing priorities;
- the collaborator may delay clinical trials, provide insufficient funding for a clinical trial, stop a clinical trial, abandon a drug or diagnostics technology candidate, repeat or conduct new clinical trials, or require a new formulation of a drug or diagnostics technology candidate for clinical testing;
- the collaborator could independently develop, or develop with unrelated parties, drugs that compete directly or indirectly with our drugs or drug candidates;
- the collaborator with marketing and distribution rights to one or more drugs may not commit sufficient resources to their marketing and distribution;
- the collaborator may not properly maintain or defend our IP rights or may use our IP or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our IP or proprietary information or expose us to potential liability;
- disputes may arise between us and the collaborator that cause the delay or termination of the research, development or commercialization of our drug and diagnostics technology candidates, or that result in costly litigation or arbitration that diverts management attention and resources;
- the collaboration may be terminated and, if terminated, may result the Company needing additional capital to pursue further development or commercialization of the applicable drug and diagnostics technology candidates;
- the collaborator may own or co-own IP covering our drugs that results from our collaborating with them, and in such cases, we would not have the exclusive right to commercialize such IP;
- the collaboration may result in increased operating expenses or the assumption of indebtedness or contingent liabilities; and

- the collaboration arrangement may result in the loss of key personnel and uncertainties in our ability to maintain key business relationships.

As a result, if we enter into collaboration agreements and strategic partnerships or license our drugs, we may not be able to realize the benefit of such transactions, which could delay our timelines or otherwise adversely affect our business. Following a strategic transaction or license, we may not achieve the revenue or specific net income that justifies such transaction. If we are unable to reach agreements with a suitable collaborator on a timely basis, on acceptable terms, or at all, we may have to curtail the development of a drug or diagnostics technology candidate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense.

If we fail to enter into collaborations, we may seek to fund and undertake development or commercialization activities on our own, but we may not have sufficient funds or expertise to undertake the necessary development and commercialization activities. In such a case, we may not be able to further develop our drug and diagnostics technology candidates or bring them to market and generate product sales revenue, which would harm our business prospects, financial condition and results of operations.

***Our employees, independent contractors, consultants, commercial partners and vendors may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements.***

We are exposed to the risk of fraud, misconduct or other illegal activity by our employees, independent contractors, consultants, commercial partners and vendors. Misconduct by these parties could include intentional, reckless and negligent conduct that fails to: comply with the laws of the FDA and other similar non-U.S. regulatory authorities; provide true, complete and accurate information to the FDA and other similar non-U.S. regulatory authorities; comply with manufacturing standards we have established; comply with healthcare fraud and abuse laws in the United States and similar non-U.S. fraudulent misconduct laws; or report financial information or data accurately or to disclose unauthorized activities to us. If we obtain the FDA approval for any of our drug and diagnostics technology candidates and begin commercializing those drugs in the United States, our potential exposure under U.S. laws will increase significantly and our costs associated with compliance with such laws are also likely to increase. These laws may impact, among other things, our current activities with principal investigators of our sponsored researches and research patients and our use of information obtained in the course of patient recruitment for clinical trials, as well as proposed and future sales, marketing and education programs. In particular, the promotion, sales and marketing of healthcare items and services, as well as certain business arrangements in the healthcare industry, are subject to extensive laws designed to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, structuring and commission(s), certain customer incentive programs and other business arrangements generally.

It is not always possible to identify and deter misconduct by employees and other parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses, or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant fines or other sanctions.

***Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.***

Our disclosure controls and procedures are designed to reasonably assure that information required to be disclosed by us in reports we file or submit under the Exchange Act is accumulated and communicated to management, and recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC.

We believe that any disclosure controls and procedures, or internal controls and procedures, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected, which would likely cause investors to lose confidence in our reported financial information. This could in turn limit our access to capital markets, harm our results of operations, and lead to a decline in the trading price of our Class A Ordinary Shares. Additionally, ineffective internal control over financial reporting could expose us to increased risk of fraud or misuse of corporate assets and subject us to potential delisting from the stock exchange on which we list, regulatory investigations and civil or criminal sanctions. We may also be required to restate our financial statements from prior periods.

***If we fail to establish and maintain proper internal financial reporting controls, our ability to produce accurate financial statements or comply with applicable regulations could be impaired.***

Pursuant to Section 404 of the Sarbanes-Oxley Act, we are required to file a report by our management on our internal control over financial reporting, including an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. However, while we remain an emerging growth company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. The presence of material weaknesses in internal control over financial reporting could result in financial statement errors which, in turn, could lead to errors in our financial reports and/or delays in our financial reporting, which could require us to restate our operating results. In connection with the audit of our financial statements for the year ended December 31, 2018, we and our independent registered public accounting firm identified one material weakness in our internal control over financial reporting, as defined in the standards established by the Public Company Accounting Oversight Board of the United States. The material weakness identified was the lack of dedicated resources to take responsibility for the finance and accounting functions and the preparation of financial statements in compliance with generally accepted accounting principles in the United States, or U.S. GAAP.

Since 2019, we took actions to remediate the abovementioned material weakness, and we believe we have remediated the material weakness by implementing the following measures:

- provide trainings to staff regarding to the preparation of financial statements in compliance with generally accepted accounting principles in the United States;
- change to a new and well-established accounting system to enhance effectiveness and financial and system control;
- establish clear roles and responsibilities for accounting and financial reporting staff to address finance and accounting issues; and
- continue to monitor the improvement on internal control over financial reporting.

As of December 31, 2020 and 2019, we determined that the aforementioned measures remediated the material weakness. However, since we are still in the process of replenishing and building up a qualified finance and accounting team with sufficient dedicated resources, our management assessed that the deficiency related to the lack of dedicated resources to take responsibility for the finance and accounting functions and the preparation of financial statements in compliance with generally accepted accounting principles in the United States, or U.S. GAAP, still existed as of December 31, 2020. Based on the definition of “material weakness” and “significant deficiency” in the standards established by the Public Company Accounting Oversight Board of the United States, our management concluded that the deficiency now only rises to the level of a significant deficiency. However, we cannot assure you that we will not identify additional material weaknesses or significant deficiencies in the future.

Our management concluded that our internal controls over financial reporting were effective as of December 31, 2020. However, if we fail to maintain effective internal controls over financial reporting in the future, our management and our independent registered public accounting firm may conclude that our internal control over financial reporting is not effective. Investors may lose confidence in our operating results, the price of the Class A Ordinary Shares could decline and we may be subject to litigation or regulatory enforcement actions. In addition, if we are unable to meet the requirements of Section 404 of the Sarbanes-Oxley Act, the Class A Ordinary Shares may not be able to remain listed on the NASDAQ Global Market.

***We may market our products, if approved, globally; if we do, we will be subject to the risk of doing business internationally.***

We operate and expect to operate in various countries, and we may not be able to market our products in, or develop new products successfully for, these markets. We may also encounter other risks of doing business internationally including but not limited to:

- unexpected changes in, or impositions of, legislative or regulatory requirements;
- efforts to develop an international sales, marketing and distribution organization may increase our expenses, divert our management's attention from the acquisition or development of drug candidates or cause us to forgo profitable licensing opportunities in these geographies;
- the occurrence of economic weakness, including inflation or political instability;
- the effects of applicable non-U.S. tax structures and potentially adverse tax consequences;
- differences in protection of our IP rights including patent rights of other parties;
- the burden of complying with a variety of foreign laws including difficulties in effective enforcement of contractual provisions;
- delays resulting from difficulty in obtaining export licenses, tariffs and other barriers and restrictions, potentially longer payment cycles, greater difficulty in accounts receivable collection and potentially adverse tax treatment; and
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad.

In addition, we are subject to general geopolitical risks in foreign countries where we operate, such as political and economic instability and changes in diplomatic and trade relationships, which could affect, among other things, customers' inventory levels and consumer purchasing, which could cause our results to fluctuate and our net sales to decline. The occurrence of any one or more of these risks of doing business internationally, individually or in the aggregate, could materially and adversely affect our business and results of operations.

***If we engage in future acquisitions or strategic partnerships, this may increase our capital requirements, dilute our shareholders, cause us to incur debt or assume contingent liabilities, and subject us to other risks.***

We may evaluate various acquisitions and strategic partnerships, including licensing or acquiring complementary products, IP rights, technology or businesses. Any potential acquisition or strategic partnership may entail numerous risks, including, but not limited to:

- increase in operating expenses and cash requirements;
- the assumption of additional indebtedness or contingent liabilities;
- the issuance of our equity securities;
- assimilation of operations, IP and products of an acquired company, including difficulties associated with integrating new personnel;
- the diversion of our management's attention from our existing product programs and initiatives in pursuing such a strategic merger or acquisition;
- retention of key employees, the loss of key personnel, and uncertainties in our ability to maintain key business relationships;

- risks and uncertainties associated with the other party to such a transaction, including the prospects of that party and their existing drugs or drug and diagnostics technology candidates and regulatory approvals; and
- our inability to generate revenue from acquired technology and/or products sufficient to meet our objectives in undertaking the acquisition or even to offset the associated acquisition and maintenance costs.

In addition, if we undertake acquisitions, we may issue dilutive securities, assume or incur debt obligations, incur large one-time expenses and acquire intangible assets that could result in significant future amortization expense. Moreover, we may not be able to locate suitable acquisition opportunities and this inability could impair our ability to grow or obtain access to technology or products that may be important to the development of our business.

***If we fail to comply with the U.S. Foreign Corrupt Practices Act (“FCPA”), or other anti-bribery laws, including the Bribery Act 2010 of the United Kingdom (UK Bribery Act”), our reputation may be harmed and we could be subject to penalties and significant expenses that have a material adverse effect on our business, financial condition and results of operations.***

We are subject to the FCPA. The FCPA and UK Bribery Act generally prohibits us from making improper payments to non-U.S. officials for the purpose of obtaining or retaining business or other benefits. We are also subject to the anti-bribery laws of other jurisdictions, particularly the PRC. As our business expands, the applicability of the FCPA and other anti-bribery laws to our operations will increase. Our procedures and controls to monitor anti-bribery compliance may fail to protect us from reckless or criminal acts committed by our employees or agents. If we, due to either our own deliberate or inadvertent acts or those of others, fail to comply with applicable anti-bribery laws, our reputation could be harmed and we could incur criminal or civil penalties, other sanctions and/or significant expenses, which could have a material adverse effect on our business, including our financial condition, results of operations, cash flows and prospects.

***Our business and results of operations may be negatively impacted by the UK’s withdrawal from the EU.***

On June 23, 2016, the UK held a referendum in which a majority of voters approved an exit from the EU, or Brexit. After nearly three years of negotiation and political and economic uncertainty, the UK’s withdrawal from the EU became effective on January 31, 2020. The EU–UK Trade and Cooperation Agreement (TCA) was the result of the negotiation. It was signed on December 30, 2020 by the EU, the European Atomic Energy Community (Euratom) and the UK.

During the Brexit transition period, the UK will continue to be subject to the laws and obligations applicable to all EU members, including laws related to trade and data privacy and the EU’s pharmaceutical laws. However, future regulations that will apply in the UK following the transition period (including financial laws and regulations, tax and free trade agreements, intellectual property rights, data protection laws, supply chain logistics, environmental, health and safety laws and regulations medicine licensing and regulations, immigration laws and employment laws), have yet to be addressed. This lack of clarity on future UK laws and regulations and their interaction with the EU laws and regulations may negatively impact foreign direct investment in the UK, increase costs, depress economic activity and restrict access to capital. Brexit, including developments that occur during the Brexit transition period, may affect our results of operations in a number of ways, including increasing currency exchange risk, generating instability in the global financial markets or negatively impacting the economies of the UK and Europe. In addition, as we are headquartered in the UK, it is possible that Brexit may impact some or all of our current operations. For example, following the transition period, Brexit may impact our ability to freely move employees from our headquarters in the UK to other locations in Europe. If the UK and the EU are unable to negotiate acceptable agreements or if other EU member states pursue withdrawal, barrier-free access between the UK and other EU member states or among the EEA overall could be diminished or eliminated.

The long-term effects of Brexit will depend in part on any agreements the UK makes during the Brexit transition period to retain access to markets in the EU. Such a withdrawal from the EU is unprecedented, and it is unclear how the UK’s access to the European single market for goods, capital, services and labor within the EU, or single market, and the wider commercial, legal and regulatory environment, will impact our current and future operations (including business activities conducted by third parties and contract manufacturers on our behalf).

We may also face new regulatory costs and challenges that could have an adverse effect on our operations as a result of Brexit. Depending on the terms of the UK's withdrawal from the EU, the UK could lose the benefits of global trade agreements negotiated by the EU on behalf of its member states, which may result in increased trade barriers that could make our doing business in the EU and the EEA more difficult. Since the regulatory framework in the UK covering quality, safety and efficacy of therapeutic substances, clinical trials, marketing authorization, commercial sales and distribution of therapeutic substances is derived from EU directives and regulations, Brexit could materially impact the future regulatory regime with respect to the approval of our drug candidates or any future therapeutic candidates, should we decide to seek marketing approvals for such candidates in the UK or to carry out any clinical trials in the UK for our drug candidates in support of marketing approvals by EMA in the future.

We expect that following the transition period, Brexit could lead to legal uncertainty and potentially divergent national laws and regulations as the UK determines which EU laws to replicate or replace, including those related to data privacy and the regulation of medicinal products, as described above. Any of these effects of Brexit, and others we cannot anticipate, could negatively impact our business and results of operations.

***If we commence clinical trials of one of our drug or diagnostics technology candidates, and product liability lawsuits are brought against us, we may incur substantial liabilities and the commercialization of such drug or diagnostics technology candidates may be affected.***

If any of our drug or diagnostics technology candidates enter clinical trials, we will face an inherent risk of product liability suits and will face an even greater risk if we obtain approval to commercialize any drugs. For example, we may be sued if our drug candidates cause or are perceived to cause injury or are found to be otherwise unsuitable during clinical testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the drug, negligence, strict liability or a breach of warranties. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our drug candidates. Even successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our drugs;
- injury to our reputation;
- withdrawal of clinical trial participants and inability to continue clinical trials;
- initiation of investigations by regulators;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue;
- exhaustion of any available insurance and our capital resources;
- the inability to commercialize any drug candidate; and
- a decline in the price of our Class A Ordinary Shares.

We shall seek to obtain the appropriate insurance once our candidates are ready for clinical trial. However, our inability to obtain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of drugs we develop, alone or with collaborators. We currently do not have in place product liability insurance and although we plan to have in place such insurance as and when the products are ready for commercialization, as well as insurance covering clinical trials, the amount of such insurance coverage may not be adequate, we may be unable to maintain such insurance, or we may not be able to obtain additional or replacement insurance at a reasonable cost, if at all. Our insurance policies may also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. We may have to pay any amounts awarded by a court or negotiated in a settlement that exceed our coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient capital to pay such amounts. Even if our agreements with any future corporate collaborators entitle us to indemnification against losses, such indemnification may not be available or adequate should any claim arise.

Additionally, we may be sued if the products that we commercialize, market or sell cause or are perceived to cause injury or are found to be otherwise unsuitable, and may result in:

- decreased demand for those products;
- damage to our reputation;
- costs incurred related to product recalls;
- limiting our opportunities to enter into future commercial partnership; and
- a decline in the price of our Class A Ordinary Shares.

***Our insurance coverage may be inadequate to protect us against losses.***

We currently maintain property insurance for our office premises (including two units of server and accessories). We hold employer's liability insurance generally covering death or work-related injury of employees; we maintain "Office Care Plan Insurance" for those persons working in our offices and "Medical Plan" for our employee. We hold public liability insurance covering certain incidents involving unrelated parties that occur on or in the premises of the Company. We have directors and officers liability insurance. We do not have key-man life insurance on any of our senior management or key personnel, or business interruption insurance. Our insurance coverage may be insufficient to cover any claim for product liability, damage to our fixed assets or employee injuries. If any claims for damage are brought against us, or if we experience any business disruption, litigation or natural disaster, we might incur substantial costs and diversion of resources.

***Fluctuations in exchange rates could result in foreign currency exchange losses***

Our operations and equity are funded in U.S. dollars and we currently incur the majority of our expenses in U.S. dollars or in H.K. dollars. H.K. dollar is currently pegged to the U.S. dollar; however, we cannot guarantee that such peg will continue to be in place in the future. Our exposure to foreign exchange risk primarily relates to the limited cash denominated in currencies other than the functional currencies of each entity and limited revenue contracts dominated in H.K. dollars in certain Hong Kong operating entities. We do not believe that we currently have any significant direct foreign exchange risk and have not hedged exposures denominated in foreign currencies or any other derivative financial instruments.

If we are exposed to foreign currency exchange risk as our results of operations, cash flows maybe subject to fluctuations in foreign currency exchange rates. For example, if a significant portion of our clinical trial activities may be conducted outside of the United States, and associated costs may be incurred in the local currency of the country in which the trial is being conducted, which costs could be subject to fluctuations in currency exchange rates. We currently do not engage in hedging transactions to protect against uncertainty in future exchange rates between particular foreign currencies and the U.S. dollar. A decline in the value of the U.S. dollar against currencies in countries in which we conduct clinical trials could have a negative impact on our research and development costs. Foreign currency fluctuations are unpredictable and may adversely affect our financial condition, results of operations and cash flows.

***Our investments are subject to risks that could result in losses.***

We had unrestricted cash of \$3.50 million, \$5.19 million and \$12.01 million as of December 31, 2020, 2019 and 2018, respectively. We may invest our cash in a variety of financial instruments. All of these investments are subject to credit, liquidity, market and interest rate risk. Such risks, including the failure or severe financial distress of the financial institutions that hold our cash, cash equivalents and investments, may result in a loss of liquidity, impairment to our investments, realization of substantial future losses, or a complete loss of the investments in the long-term, which may have a material adverse effect on our business, results of operations, liquidity and financial condition. While we believe our cash position does not expose us to excessive risk, future investments may be subject to adverse changes in market value.

***We are exposed to risks associated with our computer hardware, network security and data storage.***

Similar to all other computer network users, our computer network system is vulnerable to attack of computer virus, worms, trojan horses, hackers or other similar computer network disruptive problems. Any failure in safeguarding our computer network system from these disruptive problems may cause breakdown of our computer network system and leakage of confidential information of the Company. Any failure in the protection of our computer network system from external threat may disrupt our operation and may damage our reputation for any breach of confidentiality to our customers, which in turn may adversely affect our business operation and performance. In the event that our confidential information is stolen and misused, we may become exposed to potential risks of losses from litigation and possible liability.

In addition, we are highly dependent on our IT infrastructure to store research data and information and manage our business operations. We do not backup all data on a real-time basis and the effectiveness of our business operations may be materially affected by any failure in our IT infrastructure. If our communications and IT systems do not function properly, or if there is any partial or complete failure of our systems, we could suffer financial losses, business disruption or damage to our reputation.

***Business disruptions could seriously harm our future revenue and financial condition and increase our costs and expenses.***

Our operations, and those of our research institution collaborators, CROs, suppliers and other contractors and consultants, could be subject to earthquakes, power shortages, telecommunications failures, damage from computer viruses, material computer system failures, water shortages, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics and other natural or man-made disasters or business interruptions. In addition, we partially rely on our research institution collaborators for conducting research and development of our drug candidates, and they may be affected by government shutdowns or withdrawn funding. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses. We rely on contract manufacturers to produce and process our drug candidates. Our ability to obtain clinical supplies of our drug candidates could be disrupted if the operations of these suppliers are affected by a man-made or natural disaster or other business interruption. A large portion of our contract manufacturer's operations is located in a single facility. Damage or extended periods of interruption to our corporate or our contract manufacturer's development or research facilities due to fire, natural disaster, power loss, communications failure, unauthorized entry or other events could cause us to cease or delay development of some or all of our drug candidates.

***Although we do not currently conduct any business in the PRC, we may in the future; in doing so we would be exposed to various risks related to doing business in the PRC.***

Although we currently do not conduct any business in the PRC, we are the exclusive licensee to certain PRC patents directed to our drug candidates, and we intend to file application for certain products in the PRC. The pharmaceutical industry in the PRC is subject to comprehensive government regulation and supervision, encompassing the approval, registration, manufacturing, packaging, licensing and marketing of new drugs. (See "Item 4. Information on the Company – B. Business Overview – Regulations"). In recent years, the regulatory framework in the PRC regarding the pharmaceutical industry has undergone significant changes, and we expect that it will continue to undergo significant changes. Any such changes or amendments may result in increased compliance costs on our business or cause delays in or prevent the successful development or commercialization of our drug candidates in the PRC and reduce the current benefits that we believe are available to us from developing and manufacturing drugs in the PRC. Chinese authorities have become increasingly vigilant in enforcing laws in the pharmaceutical industry and any failure by us or our partners to maintain compliance with applicable laws and regulations or obtain and maintain required licenses and permits may result in the suspension or termination of our business activities in the PRC. We believe our strategy and approach is aligned with the PRC government's policies, but we cannot ensure that our strategy and approach will continue to be aligned.

If in the future, we commence business or operation in the PRC, changes in the political and economic policies of the PRC government may materially and adversely affect our business, financial condition and results of operations and may result in our inability to sustain our growth and expansion strategies. Once we start doing business in the PRC, our financial condition and results of operation in the PRC could be materially and adversely affected by government control over capital investments or changes in tax regulations that are applicable to us, and consequently have a material adverse effect on our businesses, financial condition and results of operations.

***The SEC could take the position that we are an “investment company” subject to the extensive requirements of the Investment Company Act of 1940. Such a characterization and the associated compliance requirements could have a material adverse effect on our business, financial condition, and results of operations.***

Our business had historically included passive healthcare related investments in early stage companies primarily in the United States. Although we are in the process of liquidating those securities that remain in our portfolio, we still hold some such investments and these are included as assets of our Company on a consolidated basis. As part of the Restructure, we resolved to exit such portfolio investments over an appropriate timeframe and focus our resources on our current business. Since the date of the Restructure, we have not held ourselves out as an investment company and we do not believe we are an “investment company” under the Investment Company Act of 1940. If the SEC or a court, however, were to disagree with us, we could be required to register as an investment company. This would subject us to disclosure and accounting rules geared toward investment companies, rather than operating companies, which may limit our ability to borrow money, issue options, issue multiple classes of stock and debt, and engage in transactions with affiliates, and may require us to undertake significant costs and expenses to meet the disclosure and regulatory requirements to which we would be subject as a registered investment company.

***If we are classified as a passive foreign investment company for U.S. federal income tax purposes, United States holders of our Class A Ordinary Shares may be subject to adverse United States federal income tax consequences.***

A non-U.S. corporation will be a passive foreign investment company (“PFIC”) for U.S. federal income tax purposes, for such year, if either

- At least 75% of its gross income for such year is passive income; or
- The average percentage of our assets (determined at the end of each quarter) during such year which produce passive income or which are held for the production of passive income is at least 50%.

Passive income generally includes dividends, interests, rents and royalties (other than rents or royalties derived from the active conduct of a trade or business) and gains from the disposition of passive assets.

A separate determination must be made after the close of each taxable year as to whether a non-U.S. corporation is a PFIC for that year. For purposes of the PFIC analysis, in general, a non-U.S. corporation is deemed to own its pro rata share of the gross income and assets of any entity in which it is considered to own at least 25% of the equity by value. Based on the current and anticipated value of our assets, we believe we were a PFIC for U.S. federal income tax purposes for our taxable year ending December 31, 2019, and we may be a PFIC for U.S. federal income tax purposes for our current taxable year ending December 31, 2020.

In determining whether we are a PFIC, cash and investments are considered by the U.S. Internal Revenue Service (“IRS”) to be a passive asset. During our taxable year ending December 31, 2020, we believe that the amount of restricted and unrestricted cash we had on hand and investments were greater than 50% of our total assets. The composition of our assets during the current taxable year may cause us to continue to be classified as a PFIC. The determination of whether we will be a PFIC for our current taxable year or a future year may depend in part upon how quickly we spend our liquid assets, and on the value of our goodwill and other unbooked intangibles not reflected on our balance sheet, which may depend upon the market value of our Class A Ordinary Shares from time to time. Further, while we will endeavor to use a classification methodology and valuation approach that is reasonable, the IRS may challenge our classification or valuation of our goodwill and other unbooked intangibles for purposes of determining whether we are a PFIC in the current or one or more future taxable years.

If we are a PFIC for any taxable year during which a U.S. Holder owns our Class A Ordinary Shares or warrants, certain adverse U.S. federal income tax consequences could apply to such U.S. Holder. As discussed under “Taxation – Material U.S. Federal Income Tax Considerations for U.S. Holders – Passive Foreign Investment Company Rules”, a U.S. Holder may be able to make certain tax elections that would lessen the adverse impact of PFIC status; however, in order to make such elections the U.S. holder will usually have to have been provided information about the company by us, and there is no assurance that the company will provide such information.

For a more detailed discussion of the application of the PFIC rules to us and the consequences to U.S. holders if we were determined to be a PFIC. (See “Item 10. Additional Information – E. Taxation – Material U.S. Federal Income Tax Considerations for U.S. Holders – Passive Foreign Investment Company Rules”)

***Political risks associated with conducting business in Hong Kong.***

While we operate our business globally, part of our business operations is based in Hong Kong. Accordingly, our business operation and financial conditions will be affected by the political and legal developments in Hong Kong. During the period covered by the financial information incorporated by reference into and included in this report, we derive substantially all of our revenue from operations in Hong Kong and, specifically, from the AML Clinic in Hong Kong operating under the name of Talem Medical. Any adverse economic, social and/or political conditions, material social unrest, strike, riot, civil disturbance or disobedience, as well as significant natural disasters, may affect the market may adversely affect the business operations of the AML Clinic. Hong Kong is a special administrative region of the PRC and the basic policies of the PRC regarding Hong Kong are reflected in the Basic Law, namely, Hong Kong’s constitutional document, which provides Hong Kong with a high degree of autonomy and executive, legislative and independent judicial powers, including that of final adjudication under the principle of “one country, two systems”. However, there is no assurance that there will not be any changes in the economic, political and legal environment in Hong Kong in the future. Since a substantial part of our operations is based in Hong Kong, any change of such political arrangements may pose immediate threat to the stability of the economy in Hong Kong, thereby directly and adversely affecting our results of operations and financial positions.

The Hong Kong protests that begun in 2019 are ongoing protests in Hong Kong (the “Hong Kong Protests”) triggered by the introduction of the Fugitive Offenders amendment bill by the Hong Kong government. If enacted, the bill would have allowed the extradition of criminal fugitives who are wanted in territories with which Hong Kong does not currently have extradition agreements, including mainland China. This led to concerns that the bill would subject Hong Kong residents and visitors to the jurisdiction and legal system of mainland China, thereby undermining the region’s autonomy and people’s civil liberties. Various sectors of the Hong Kong economy have been adversely affected as the protests turned increasingly violent. Most notably, the airline, retail, and real estate sectors have seen their sales decline.

Under the Basic Law of the Hong Kong Special Administrative Region of the People’s Republic of China, Hong Kong is exclusively in charge of its internal affairs and external relations, while the government of the PRC is responsible for its foreign affairs and defense. As a separate customs territory, Hong Kong maintains and develops relations with foreign states and regions. We cannot assure that the Hong Kong Protests will not affect Hong Kong’s status as a Special Administrative Region of the People’s Republic of China and thereby affecting its current relations with foreign states and regions.

Our revenue is susceptible to the ongoing Hong Kong Protests as well as any other incidents or factors which affect the stability of the social, economic and political conditions in Hong Kong. Any drastic events may adversely affect our business operations. Such adverse events may include changes in economic conditions and regulatory environment, social and/or political conditions, civil disturbance or disobedience, as well as significant natural disasters. Given the relatively small geographical size of Hong Kong, any of such incidents may have a widespread effect on our business operations, which could in turn adversely and materially affect our business, results of operations and financial condition.

We cannot assure that the Hong Kong Protests will end in the near future and that there will be no other political or social unrest in the near future or that there will not be other events that could lead to the disruption of the economic, political and social conditions in Hong Kong. If such events persist for a prolonged period of time or that the economic, political and social conditions in Hong Kong are to be disrupted, our overall business and results of operations may be adversely affected.

Furthermore, on June 30, 2020, the Standing Committee of the National People's Congress of the People's Republic of China passed the Law of the People's Republic of China on Safeguarding National Security in the Hong Kong Special Administrative Region (the "National Security Law"). In response to the implementation of the National Security Law, former U.S. President Trump signed an executive order on Hong Kong Normalization on July 14, 2020 to end the preferential trading status of Hong Kong and, going forward, Hong Kong will receive the same treatment from the U.S. as China.

At the same time, the U.S. has imposed sanctions on and suspended collaborations with a number of Chinese companies and universities by including these entities in the Entity List and the Unverified List of the Bureau of Industry and Security of the U.S. Department of Commerce. Our Company has working relationships with universities in Hong Kong on R&D of some projects.

While none of our collaboration partners is currently under sanction by the U.S., it may cause significant disruptions if the universities' ability to conduct R&D is adversely affected due to difficulty in acquiring essential equipment and materials, as well as our business operations due to possible suspension of dealings with sanctioned entities.

As of the date of this annual report, the U.S. government has not imposed or threatened to impose any sanctions on the universities in Hong Kong. However, as U.S.-China relations continue to deteriorate, there is a possibility that sanctions could be imposed on the universities in Hong Kong in the future.

***Our results of operation may be negatively affected should the 2019-nCov virus (Coronavirus) continue to spread on a wider scale.***

Our business could be adversely affected by the effects of a widespread outbreak of contagious disease, including the outbreak of respiratory illness caused by a novel coronavirus. Any outbreak of contagious diseases, and other adverse public health developments, particularly in China, could have a material and adverse effect on our business operations. These could include disruptions or restrictions on our ability to travel or to distribute our products, as well as temporary closures of our facilities or the facilities of our suppliers or customers.

The COVID-19 pandemic continues to rapidly evolve. The extent to which the outbreak impacts our business, preclinical studies and clinical trials will depend on future developments, which are highly uncertain and cannot be predicted with confidence, such as the ultimate geographic spread of the disease, the duration of the pandemic, travel restrictions and social distancing in various countries, business closures or business disruptions and the effectiveness of actions taken to contain and treat the disease. If we or any of the third parties with whom we engage were to experience shutdowns or other business disruptions, our ability to conduct our business in the manner and on the timelines presently planned could be materially and negatively impacted.

In addition, the trading prices for our Class A Ordinary Shares and other biopharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic. As a result, we may face difficulties raising capital through sales of our securities or such sales may be on unfavorable terms.

***The outbreak of the novel coronavirus disease, COVID-19, or other pandemic, epidemic or outbreak of an infectious disease may materially and adversely impact our preclinical studies and clinical trials.***

As a result of the COVID-19 outbreak, or similar pandemics, we have and may in the future experience disruptions that could materially and adversely impact our manufacturing, preclinical development activities, preclinical studies and planned clinical trial. Potential disruptions include but are not limited to:

- delays or difficulties in enrolling patients in our clinical trials, should the relevant clinical trials be approved;
- delays or difficulties in initiating or expanding clinical trials, including delays or difficulties with clinical site initiation and recruiting clinical site investigators and clinical site staff;
- increased rates of patients withdrawing from our clinical trials following enrollment as a result of contracting COVID-19 or other health conditions or being forced to quarantine;
- diversion of healthcare resources away from the conduct of clinical trials, including the diversion of hospitals serving as our clinical trial sites and hospital staff supporting the conduct of our clinical trials;
- interruption of key clinical trial activities, such as clinical trial site data monitoring, due to limitations on travel imposed or recommended by governments, employers and others or interruption of clinical trial subject visits and study procedures, which may impact the integrity of subject data and clinical study endpoints;
- interruption or delays in the operations of the FDA or other regulatory authorities, which may impact review and approval timelines for regulatory submission and trial initiation;
- interruption or delays in our CROs and collaborators meeting expected deadlines or complying with regulatory requirements related to preclinical development activities, preclinical studies and planned clinical trials;
- delays or disruptions in preclinical experiments and investigational new drug application-enabling or clinical trial application-enabling studies due to restrictions of on-site staff and unforeseen circumstances at contract research organizations and vendors;
- interruption of, or delays in receiving, supplies of our product candidates from our contract manufacturing organizations due to staffing shortages, production slowdowns or stoppages and disruptions in delivery systems;
- limitations on our ability to recruit and hire key personnel due to our inability to meet with candidates because of travel restrictions and “shelter in place” orders;
- limitations on employee resources that would otherwise be focused on the conduct of our preclinical studies and clinical trials, including because of sickness of employees or their families or the desire of employees to avoid contact with large groups of people; and
- interruption or delays to our sourced discovery and clinical activities.

#### **Risks Related to Our Corporate Structure**

##### ***Our CEO has control over key decision making as a result of his control of a majority of our voting shares.***

Our Founder, CEO, and our Executive Director, Mr. Ian Huen, and his affiliates, over which he is deemed to have control and/or have substantial influence, has voting rights with respect to an aggregate of 18,970,709 ordinary shares, on an as converted basis (2,909,240 Class A Ordinary Shares and 16,061,469 Class B Ordinary Shares), representing approximately 69% of the voting power of our outstanding ordinary shares as of the date hereof. As a result, Mr. Huen has the ability to control the outcome of matters submitted to our shareholders for approval, including the election of directors and any merger, consolidation, or sale of all or substantially all of our assets. In addition, Mr. Huen has the ability to control the management and affairs of our company as a result of his position as our CEO and his ability to control the election of our directors. Additionally, in the event that Mr. Huen controls our company at the time of his death, control may be transferred to a person or entity that he designates as his successor. As a board member and officer, Mr. Huen owes a fiduciary duty to our shareholders and must act in good faith in a manner he reasonably believes to be in the best interests of our shareholders. As a shareholder, even a controlling shareholder, Mr. Huen is entitled to vote his shares, and shares over which he has voting control as a result of voting agreements, in his own interests, which may not always be in the interests of our shareholders generally.

***As a “controlled company” under the rules of the NASDAQ Global Market, we may choose to exempt our company from certain corporate governance requirements that could have an adverse effect on our public shareholders.***

Our directors and officers beneficially own a majority of the voting power of our outstanding Class A Ordinary Shares. Under the Rule 4350(c) of the NASDAQ Global Market, a company of which more than 50% of the voting power is held by an individual, group or another company is a “controlled company” and may elect **not** to comply with certain corporate governance requirements, including the requirement that a majority of our directors be independent, as defined in the NASDAQ Global Market Rules, and the requirement that our compensation and nominating and corporate governance committees consist entirely of independent directors. Although we do not intend to rely on the “controlled company” exemption under the Nasdaq listing rules, we could elect to rely on this exemption in the future. If we elect to rely on the “controlled company” exemption, a majority of the members of our board of directors might not be independent directors and our nominating and corporate governance and compensation committees might not consist entirely of independent directors. Accordingly, during any time while we remain a controlled company relying on the exemption and during any transition period following a time when we are no longer a controlled company, you would not have the same protections afforded to shareholders of companies that are subject to all of the NASDAQ Global Market corporate governance requirements. Our status as a controlled company could cause our Class A Ordinary Share to look less attractive to certain investors or otherwise harm our trading price.

#### **Risks Related to our Securities**

***Class A Ordinary Shares eligible for future sale may adversely affect the market price of our Class A Ordinary Shares if the shares are successfully listed on NASDAQ or other stock markets, as the future sale of a substantial amount of outstanding Class A Ordinary Shares in the public marketplace could reduce the price of our Class A Ordinary Shares.***

The market price of our Class A Ordinary Shares could decline as a result of sales of substantial amounts of our Class A Ordinary Shares in the public market, or the perception that these sales could occur. In addition, these factors could make it more difficult for us to raise funds through future offerings of our Class A Ordinary Shares. An aggregate of 11,755,242 Class A Ordinary Shares are outstanding as of the date of this annual report. 7,659,409 of the Class A Ordinary Shares are freely transferable without restriction or further registration under the Securities Act. The remaining Class A Ordinary Shares will be “restricted securities” as defined in Rule 144. These Class A Ordinary Shares may be sold without registration under the Securities Act to the extent permitted by Rule 144 or other exemptions under the Securities Act.

***A sale or perceived sale of a substantial number of our Ordinary Shares may cause the price of our Class A Ordinary Shares to decline.***

If our shareholders sell substantial amounts of our Class A Ordinary Shares in the public market, the market price of our Class A Ordinary Shares could fall. Moreover, the perceived risk of this potential dilution could cause shareholders to attempt to sell their shares and investors to short our Class A Ordinary Shares. These sales also may make it more difficult for us to sell equity or equity-related securities in the future at a time and price that we deem reasonable or appropriate.

***Issuances by us of additional securities, could affect ownership and voting rights over us. In addition, the issuance of preferred shares, or options or warrants to purchase those preferred shares, could negatively impact the value of the Ordinary Shares as the result of preferential dividend rights, conversion rights, redemption rights and liquidation provisions granted to the stockholders of such preferred shares.***

From time to time, we may issue in public or private sales additional securities to third party investors. Such securities may provide holders with ownership and voting rights that could provide the holders thereof with substantial influence over our business. Any preferred shares that may be issued shall have such rights, preferences, privileges and restrictions as may be designated from time-to-time by our board, including preferential dividend rights, voting rights, conversion rights, redemption rights and liquidation provisions. There cannot be any assurance that we will not issue preferred securities with rights and preferences that are more beneficial than those provided to our Ordinary Shares.

***We have not paid dividends in the past and do not expect to pay dividends in the future, and any return on investment may be limited to the value of our shares.***

We have never paid any cash dividends on our Class A Ordinary Shares and do not anticipate paying any cash dividends on our Class A Ordinary Shares in the foreseeable future, and any return on investment may be limited to the value of our Class A Ordinary Shares. We plan to retain any future earnings to finance growth.

Our dividend policy is subject to the discretion of our Board of Directors and will depend on, among other things, our earnings, financial condition, capital requirements and other factors. There is no assurance that our Board of Directors will declare dividends even if we are profitable. Under Cayman Islands law, dividends may be declared and paid only out of funds legally available therefor, namely out of either profit or our share premium account, and provided further that a dividend may not be paid if this would result in our Company being unable to pay its debts as they fall due in the ordinary course of business and the realizable value of assets of our Company will not be less than the sum of our total liabilities, other than deferred taxes as shown on our books of account, and our capital.

***Our Class B Ordinary Shares have greater voting power than our Class A Ordinary Shares and certain existing shareholders have substantial influence over our Company and their interests may not be aligned with the interests of our other shareholders.***

We have a dual-class voting structure consisting of Class A Ordinary Shares and Class B Ordinary Shares. Under this structure, holders of Class A Ordinary Shares are entitled to one vote per share, and holders of Class B Ordinary Shares are entitled to ten votes per share, which can cause the holders of Class B Ordinary Shares to have an unbalanced, higher concentration of voting power. Our management team as a group beneficially owns over 18 million Class B Ordinary Shares representing approximately 77% voting power. As a result, until such time as their collective voting power is below 50%, our management team as a group of controlling shareholders have substantial influence over our business, including decisions regarding mergers, consolidations and the sale of all or substantially all of our assets, election of directors and other significant corporate actions. They may take actions that are not in the best interests of us or our other shareholders. These corporate actions may be taken even if they are opposed by our other shareholders. Further, concentration of ownership of our Class B Ordinary Shares may discourage, prevent or delay the consummation of change of control transactions that shareholders may consider favorable, including transactions in which shareholders might otherwise receive a premium for their shares. Future issuances of Class B Ordinary Shares may also be dilutive to the holders of Class A Ordinary Shares. As a result, the market price of our Class A Ordinary Shares could be adversely affected.

Shareholders who hold shares of Class B Ordinary Shares, including our executive officers and their affiliates, hold approximately 95% of the voting power of our outstanding ordinary shares. Because of the ten-to-one voting ratio between our Class B and Class A Ordinary Shares, the holders of our Class B Ordinary Shares will collectively continue to control a majority of the combined voting power of our Ordinary Shares and therefore be able to control all matters submitted to our shareholders for approval, so long as the Class B Ordinary Shares represent at least 9.1% of all outstanding shares of our Ordinary Shares.

***Raising additional capital may cause dilution to our shareholders, restrict our operations or require us to relinquish rights to our technology or drug and diagnostics technology candidates.***

We may seek additional funding through a combination of equity offerings, debt financings, collaborations, licensing arrangements, strategic alliances and marketing or distribution arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect your rights as a holder of our Class A Ordinary Shares. The incurrence of additional indebtedness or the issuance of certain equity securities could result in increased fixed payment obligations, and could also result in certain additional restrictive covenants, such as limitations on our ability to incur additional debt or issue additional equity, limitations on our ability to acquire or license IP rights and other operating restrictions that could adversely impact our ability to conduct our business. In addition, issuance of additional equity securities, or the possibility of such issuance, may cause the market price of our Class A Ordinary Shares to decline. In the event that we enter into collaborations or licensing arrangements to raise capital, we may be required to accept unfavorable terms, including relinquishing or licensing to another party on unfavorable terms our rights to technology or drug and diagnostics technology candidates that we otherwise would seek to develop or commercialize ourselves or potentially reserve for future potential arrangements when we might be able to achieve more favorable terms.

***Since we are a Cayman Islands exempted company, the rights of our shareholders may be more limited than those of shareholders of a company organized in the United States.***

Our corporate affairs are governed by our Second Amended and Restated Memorandum and Articles of Association (as may be amended from time to time) (“Memorandum and Articles”), the Companies Law (2018 Revision) of the Cayman Islands (the “Companies Law”) and the common law of the Cayman Islands. The rights of shareholders to take action against the directors, actions by minority shareholders and the fiduciary responsibilities of our directors are to a large extent governed by the common law of the Cayman Islands. This common law is derived in part from comparatively limited judicial precedent in the Cayman Islands as well as from English common law, which has persuasive, but not binding, authority on a court in the Cayman Islands. Under the laws of some jurisdictions in the United States, majority and controlling shareholders generally have certain fiduciary responsibilities to the minority shareholders. Shareholder action must be taken in good faith, and actions by controlling shareholders which are obviously unreasonable may be declared null and void. Cayman Islands law protecting the interests of minority shareholders may not be as protective in all circumstances as the law protecting minority shareholders in some U.S. jurisdictions. In addition, the circumstances in which a shareholder of a Cayman Islands company may sue the company derivatively, and the procedures and defenses that may be available to the company, may result in the rights of shareholders of a Cayman Islands company being more limited than those of shareholders of a company organized in the United States. Accordingly, shareholders may have fewer alternatives available to them if they believe that corporate wrongdoing has occurred. The Cayman Islands courts are also unlikely to recognize or enforce judgments from U.S. courts based on certain liability provisions of U.S. securities laws that are penal in nature. There is no statutory recognition in the Cayman Islands of judgments obtained in the United States, although the courts of the Cayman Islands will generally recognize and enforce non-penal judgment of a foreign court of competent jurisdiction for a liquidated sum without retrial on its merits which is not obtained in a manner contrary to public policy in the Cayman Islands and in respect of which there are no concurrent proceedings in the Cayman Islands. This means, even if shareholders were to sue us successfully, they may not be able to recover anything to make up for the losses suffered.

Furthermore, our directors have the power to take certain actions without shareholder approval which would require shareholder approval under the laws of most U.S. jurisdictions. For example, the directors of a Cayman Islands company, without shareholder approval, may implement a sale of any assets, property, part of the business, or securities of the Company.

While Cayman Islands law allows a dissenting shareholder to express the shareholder’s view that a court sanctioned reorganization of a Cayman Islands company would not provide fair value for the shareholder’s shares, Cayman Islands statutory law does not specifically provide for shareholder appraisal rights on a merger or consolidation of a company. This may make it more difficult for you to assess the value of any consideration you may receive in a merger or consolidation or to require that the acquirer gives you additional consideration if you believe the consideration offered is insufficient. However, Cayman Islands’ statutory law does provide a mechanism for a dissenting shareholder in a merger or consolidation to apply to the Grand Court for a determination of the fair value of the dissenter’s shares, if it is not possible for the Company and the dissenter to agree a fair price within the time limits prescribed.

Shareholders of Cayman Islands exempted companies, such as our Company, have no general rights under Cayman Islands' law to inspect corporate records and accounts or to obtain copies of lists of shareholders. Our directors have discretion under our Memorandum and Articles to determine whether or not, and under what conditions, our corporate records may be inspected by our shareholders, but are not obliged to make them available to our shareholders. This may make it more difficult for you to obtain the information needed to establish any facts necessary for a shareholder motion or to solicit proxies from other shareholders in connection with a proxy contest.

Lastly, under the law of the Cayman Islands, there is little statutory law for the protection of minority shareholders. The principal protection under statutory law is that shareholders may bring an action to enforce the constituent documents of the corporation, our Memorandum and Articles. Shareholders are entitled to have the affairs of the company conducted in accordance with the general law and the memorandum and articles of association.

There are common law rights for the protection of shareholders that may be invoked, largely dependent on English company law, since the common law of the Cayman Islands for business companies is limited. Under the general rule pursuant to English company law known as the rule in *Foss v. Harbottle*, a court will generally refuse to interfere with the management of a company at the insistence of a minority of its shareholders who express dissatisfaction with the conduct of the company's affairs by the majority or the board of directors. However, every shareholder is entitled to have the affairs of the company conducted properly according to law and the constituent documents of the company. As such, if those who control the company have persistently disregarded the requirements of company law or the provisions of the company's memorandum and articles of association, then the courts will grant relief. Generally, the areas in which the courts will intervene are the following: (1) an act complained of which is outside the scope of the authorized business or is illegal or not capable of ratification by the majority; (2) acts that constitute fraud on the minority where the wrongdoers control the company; (3) acts that infringe on the personal rights of the shareholders, such as the right to vote; and (4) where the company has not complied with provisions requiring approval of a special or extraordinary majority of shareholders, which are more limited than the rights afforded minority shareholders under the laws of many states in the United States subject to limited exceptions, under Cayman Islands Law a minority shareholder may not bring a derivative action against directors. Our Cayman Islands' counsel has advised us that they are aware of one recent as yet unreported derivative action having been brought in a Cayman Islands' court. Class actions are not recognized in the Cayman Islands, but groups of shareholders with identical interests may bring representative proceedings, which are similar.

As a result, you may be limited in your ability to protect your interests if you are harmed in a manner that would otherwise enable you to sue in a United States federal court. In addition, shareholders of Cayman Islands companies may not have standing to initiate a shareholder derivative action in U.S. federal courts.

As a result of all of the above, shareholders of our Company may have more difficulty in protecting their interests in the face of actions taken by management, members of the board of directors or controlling shareholders than they would have as shareholders of a public U.S. company.

***You may face difficulties in protecting your interests, and your ability to protect your rights through the U.S. federal courts may be limited because we are incorporated under Cayman Islands law, we currently conduct substantially all of our operations outside the United States and some of our directors and executive officers reside outside the United States.***

We are incorporated in the Cayman Islands and currently conduct substantially all of our operations outside the United States through our subsidiaries. Some of our directors and executive officers reside outside the United States and a substantial portion of their assets are located outside of the United States. As a result, it may be difficult or impossible for you to bring an action against us or against these individuals in the Cayman Islands, the United Kingdom or in Hong Kong, in the event that you believe that your rights have been infringed under the securities laws of the United States or otherwise. Even if you are successful in bringing an action of this kind, the laws of the Cayman Islands, the United Kingdom and Hong Kong may render you unable to enforce a judgment against our assets or the assets of our directors and officers. There is no statutory recognition in the Cayman Islands of judgments obtained in the United States, the United Kingdom or Hong Kong, although the courts of the Cayman Islands will generally recognize and enforce a non-penal judgment of a foreign court of competent jurisdiction without retrial on the merits if such judgment is final, for a liquidated sum, not in the nature of taxes, a fine or penalty, is not inconsistent with a Cayman Islands' judgment in respect of the same matters, and was not obtained in a manner which is contrary to public policy. In addition, a Cayman Islands court may stay proceedings if concurrent proceedings are being brought elsewhere.

***As a foreign private issuer, we are permitted to adopt certain home country practices in relation to corporate governance matters that differ significantly from the NASDAQ Global Market corporate governance listing standards. These practices may afford less protection to shareholders than they would enjoy if we complied fully with corporate governance listing standards.***

As a foreign private issuer, we are permitted to take advantage of certain provisions in the NASDAQ Global Market listing rules that allow us to follow Cayman Islands law for certain governance matters. Certain corporate governance practices in the Cayman Islands may differ significantly from corporate governance listing standards as, except for general fiduciary duties and duties of care, Cayman Islands law has no corporate governance regime which prescribes specific corporate governance standards. We may follow Cayman Islands corporate governance practices in lieu of the corporate governance requirements of the Nasdaq Global Market in respect of the following. For instance, Cayman law does not require that we obtain shareholder approval to issue 20% or more of our outstanding Ordinary Shares in a private offering nor we make our interim results available to shareholders, although as a NASDAQ listed company we are required to publicly file interim results for the first six months of our fiscal year. Therefore, our shareholders may be afforded less protection than they otherwise would have under corporate governance listing standards applicable to U.S. domestic issuers.

***We are an emerging growth company within the meaning of the Securities Act and will take advantage of certain reduced reporting requirements.***

We are an “emerging growth company,” as defined in the JOBS Act and take advantage of certain exemptions from various requirements applicable to other public companies that are not emerging growth companies including, most significantly, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act for so long as we are an emerging growth company. As a result, if we elect not to comply with such auditor attestation requirements, our investors may not have access to certain information they may deem important.

The JOBS Act also provides that an emerging growth company does not need to comply with any new or revised financial accounting standards until such date that a private company is otherwise required to comply with such new or revised accounting standards. The Company has elected to use the extended transition period for complying with new or revised accounting standard under Section 102(b)(2) of the Jobs Act, that allows the Company to delay the adoption of new or revised accounting standards that have different effective dates for public and private companies until those standards apply to private companies.

#### **Item 4. INFORMATION ON THE COMPANY**

##### **A. History and Development of the Company**

Aptorum was incorporated under the laws of the Cayman Islands on September 13, 2010. Our share capital is \$100,000,000.00 divided into 60,000,000 Class A Ordinary Shares with a nominal or par value of \$1.00 each and 40,000,000 Class B Ordinary Shares with a nominal or par value of \$1.00 each.

APTUS CAPITAL LIMITED, which has since been renamed to AENEAS CAPITAL LIMITED, was always under the direct ownership of Jurchen and not under the ownership chain of Aptorum Group. However, Aptus Asia Financial Holdings Limited (“AAFH”), which has since been renamed to Aeneas Group Limited, was transferred out of the Aptorum Group on November 10, 2017 to be held directly by Jurchen Investment Corporation and that subsequently, APTUS CAPITAL LIMITED was then transferred to be under AAFH.

On May 4, 2017, Mr. Huen transferred all of the ordinary shares in the Company he owned (in the amount of 22,307,596) to Jurchen, a company incorporated in the British Virgin Islands and wholly-owned by Mr. Huen. On October 13, 2017, as part of the Conversions (as defined below) the ordinary shares held by Jurchen were redesignated as 2,230,760 Class A Ordinary Shares and 20,076,836 Class B Ordinary Shares.

On February 21 and March 1, 2017, the Company’s board of directors and shareholders resolved to restructure the Company from an investment fund with management shares and non-voting participating redeemable preference shares to a holding company with operating subsidiaries, respectively (the “Restructuring Plan”).

According to the Restructuring Plan, the 256,571.12 issued participating shares with par value of \$0.01 (“Participating Shares”) were redeemed and 4,743,418.88 unissued Participating Shares were cancelled; following such redemption and cancellation, we no longer have any Participating Shares authorized or issued. Additionally, the Company authorized a class of securities consisting of 100,000,000 ordinary shares, par value \$1.00 per share and issued 25,657,110 ordinary shares to our original investors.

During the period March 1, 2017 through October 13, 2017, an aggregate of 2,207,025 ordinary shares were issued at a price of approximately \$3.90 per share in a private placement we described as a “Series A” offering. Each investor of the Series A offering, in addition to a subscription agreement, signed a shareholder agreement, which set forth the basic governance terms of the Company, as well as our capital structure. The shareholders agreement was terminated in October 2017.

On October 13, 2017, ordinary resolutions were passed at an extraordinary general meeting of the Company approving (the “Conversions”): (i) converting 72,135,865 of authorized but unissued ordinary shares into 54,573,620 authorized but unissued Class A Ordinary Shares, par value of \$1.00 per share and 17,562,245 authorized but unissued Class B Ordinary Shares, par value of \$1.00 per share, respectively; (ii) converting 24,930,839 ordinary shares held by three shareholders into an aggregate of 2,493,085 Class A Ordinary Shares and 22,437,754 Class B Ordinary Shares; and (iii) converting 2,933,296 ordinary shares held by 24 shareholders into an aggregate 2,933,296 Class A Ordinary Shares. Following these issuances, we had 27 shareholders of record.

On October 19, 2017, we changed our name from APTUS Holdings Limited to our current name, Aptorum Group Limited.

On March 23, 2018, Jurchen transferred 446,152 Class A Ordinary Shares and 4,015,367 Class B Ordinary Shares to CGY Investments Limited, a company incorporated in Hong Kong and which we deem Mr. Darren Lui jointly controls and/or of which he has substantial influence on the disposition rights and voting rights of such shares. Following this transfer, Jurchen owns approximately 33% and 72% of our Class A Ordinary Shares and Class B Ordinary Shares, respectively.

On December 17, 2018, the Company consummated its IPO of 761,419 Class A Ordinary Shares. The Registration Statement was declared effective by the U.S. Securities and Exchange Commission on December 3, 2018 (the “Effective Date”). The shares were sold at a price of \$15.80 per share, generating gross proceeds to the Company of approximately \$12,030,420.

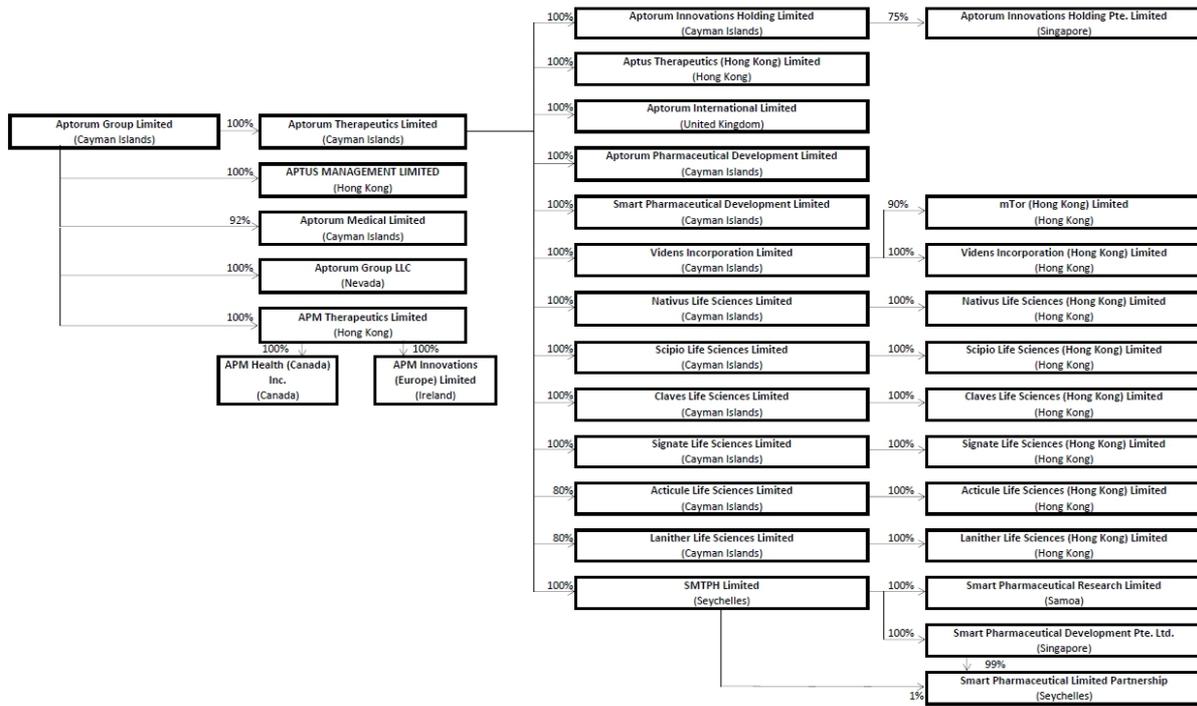
On February 28, 2020, the Company consummated a Registered Direct Offering of 1,351,350 Class A Ordinary Shares and warrants to purchase up to 1,351,350 Class A Ordinary Shares. The shares were sold at a price of \$7.40 per share, generating gross proceeds to the Company of approximately \$10 million. The warrants will be exercisable immediately following the date of issuance for a period of seven years at an initial exercise price of \$7.40.

On October 2, 2020, the Group completed a public offering, issuing 2,769,231 Class A Ordinary Shares and warrants to purchase an aggregate of 2,769,231 Class A Ordinary Shares, for gross proceeds of approximately \$9 million. The warrants have an exercise price of \$3.25 per Class A Ordinary Share, are exercisable upon issuance and will expire five years from the date of issuance.

On March 26, 2021, the Company entered into an at the market offering agreement (the “Sales Agreement”), with H.C. Wainwright & Co., LLC, acting as our sales agent (the “Sales Agent”), relating to the sale of our Class A Ordinary Shares, offered pursuant to the prospectus supplement and the accompanying prospectus to the registration statement on Form F-3 (File No. 333-235819) (such offering, the “ATM Offering”, or “At The Market Offering”). In accordance with the terms of the Sales Agreement, we may offer and sell shares of our Class A Ordinary Shares having an aggregate offering price of up to \$15,000,000 from time to time through the Sales Agent under such prospectus supplement and the accompanying prospectus. As of the date of this annual report, we have not yet issued any Class A Ordinary Shares pursuant to the ATM Offering.

Over the past three years, we have invested approximately \$7.1 million towards our principal capital expenditures, which include laboratory equipment, premises, leasehold improvements, and medical and other equipment.

The following diagram illustrates our corporate structure as of the date of this annual report:



**Emerging Growth Company Status**

We are an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act (the “JOBS Act”), and we are eligible to take advantage of certain exemptions from various reporting and financial disclosure requirements that are applicable to other public companies, that are not emerging growth companies, including, but not limited to, (1) not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, (2) reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and (3) exemptions from the requirements of holding a non-binding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved. We intend to take advantage of these exemptions.

In addition, Section 107 of the JOBS Act also provides that an emerging growth company can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act, for complying with new or revised accounting standards. As a result, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies.

We could remain an emerging growth company for up to five years, or until the earliest of (1) the last day of the first fiscal year in which our annual gross revenues exceed \$1.07 billion, (2) the date that we become a “large accelerated filer” as defined in Rule 12b-2 under the Exchange Act, which would occur if the market value of our Ordinary Shares that is held by non-affiliates exceeds \$700 million as of the last business day of our most recently completed second fiscal quarter and we have been publicly reporting for at least 12 months, or (3) the date on which we have issued more than \$1 billion in non-convertible debt during the preceding three-year period.

#### **Foreign Private Issuer Status**

We are a foreign private issuer within the meaning of the rules under the Exchange. As such, we are exempt from certain provisions applicable to United States domestic public companies. For example:

- we are not required to provide as many Exchange Act reports, or as frequently, as a domestic public company;
- for interim reporting, we are permitted to comply solely with our home country requirements, which are less rigorous than the rules that apply to domestic public companies;
- we are not required to provide the same level of disclosure on certain issues, such as executive compensation;
- we are exempt from provisions of Regulation FD aimed at preventing issuers from making selective disclosures of material information;
- we are not required to comply with the sections of the Exchange Act regulating the solicitation of proxies, consents or authorizations in respect of a security registered under the Exchange Act; and
- we are not required to comply with Section 16 of the Exchange Act requiring insiders to file public reports of their share ownership and trading activities and establishing insider liability for profits realized from any “short-swing” trading transaction.

#### **B. Business Overview**

##### **Overview**

We are a clinical stage biopharmaceutical company dedicated to the discovery, development and commercialization of therapeutic assets to treat diseases with unmet medical needs, particularly in oncology (including orphan oncology indications) and infectious diseases. The pipeline of Aptorum is also enriched through (i) the establishment of drug discovery platforms that enable the discovery of new therapeutics assets through, e.g. systematic screening of existing approved drug molecules, and microbiome-based research platform for treatments of metabolic diseases; and (ii) the co-development of a novel molecular-based rapid pathogen identification and detection diagnostics technology with Accelerate Technologies Pte Ltd, commercialization arm of the Singapore’s Agency for Science, Technology and Research.

In addition to the above main focus, we are also pursuing therapeutic projects in neurology, gastroenterology, metabolic disorders, women’s health and other disease areas. We also have projects focused on natural supplements for women undergoing menopause and experiencing related symptoms. We also opened a medical clinic, AML Clinic, in June 2018.

Our goal is to develop a broad range of novel and repurposed therapeutics and diagnostics technology across a wide range of disease/therapeutic areas. Key components of our strategy for achieving this goal include: (for details of our strategy, See “Item 4. Information on the Company – B. Business Overview – Our Strategy”)

- Developing therapeutic and diagnostic innovations across a wide range of disease/therapeutic areas;
- Selectively expanding our portfolio with potential products that may be able to attain orphan drug designation and/or satisfy current unmet medical needs;

- Collaborating with leading academic institutions and CROs;
- Expanding our in-house pharmaceutical development center;
- Leveraging our management’s expertise, experience and commercial networks;
- Obtaining and leveraging government grants to fund project development.

We have devoted a substantial portion of the proceeds from our offerings, to our Lead Projects. Our Lead Projects are ALS-4, SACT-1 and RPIDD. One of our Lead Projects, ALS-4, received clearance from Health Canada regarding the Clinical Trial Application (“CTA”) to initiate a Phase 1 clinical study. If the results of the remaining preclinical studies of these drug candidates are positive, we expect to be able to submit within 2021, subject to regulatory review, an IND for another Lead Projects to the FDA or an equivalent application to the regulatory authorities in one or more other jurisdictions such as the NMPA, Health Canada, and/or the EMA. Acceptance of these applications by the relevant regulatory authority would enable the Company to begin testing that drug candidate in humans in that jurisdiction. Our ability to obtain any approval of such applications is entirely dependent upon the results of our preclinical studies, which are ongoing.

Our current business consists of “therapeutics” and “non-therapeutics” segments. However, our focus is on the therapeutics segments. Because of the risks, costs and extended development time required for successful drug development, we have determined to pursue projects within our non-therapeutics segments, such as AML Clinic, to provide some interim revenue, as well as diagnostics technology and natural supplements that may be brought to market and generate revenue more quickly.

Therapeutics Segment. In our therapeutics segment (“Aptorum Therapeutics Group”), we are currently seeking to develop various drug molecules (including projects seeking to use extracts or derivatives from natural substances to treat diseases) and certain technologies for the treatment (“therapeutics”) and diagnosis (“diagnostics”) of human disease conditions to tackle unmet needs, in particular, two of our Lead Projects targeting infectious disease and cancer (including orphan oncology indications). In addition to our main areas of focus above, we are also pursuing therapeutic projects in neurology, gastroenterology, metabolic disorders, women’s health and other disease areas. Aptorum Therapeutics Group is operated through Aptorum’s wholly-owned subsidiary, Aptorum Therapeutics Limited, a Cayman Islands exempted company with limited liability, whose principal place of business is in Hong Kong and whose subsidiaries (who we sometimes refer to herein as project companies) are based in the United Kingdom, Singapore and Hong Kong.

Non-Therapeutics Segment. The non-therapeutics segment (“Aptorum Non-Therapeutics Group”) encompasses three businesses: (i) diagnostics projects including a novel molecular-based rapid pathogen identification and detection diagnostics (“RPIDD”) technology, (ii) natural supplements including NativusWell<sup>®</sup>, and (iii) AML Clinic. RPIDD technology is currently under co-development with A\*STAR. The core objectives of RPIDD are to rapidly and accurately identify and detect existing or emerging unknown pathogens (including DNA/RNA-based viruses such as coronavirus, antibiotic-resistant bacteria, fungi, etc.), in a cost-effective, unbiased and broad-spectrum manner, through liquid biopsy (patients’ blood samples and is potentially adaptable for other sample types), genome sequencing and artificial intelligence driven software analytics. A key objective is also to develop RPIDD to leverage existing and emerging Next-Generation Sequencing platforms for pathogenic genome sequencing analysis. The sale of natural supplements is operated through Nativus Life Sciences Limited (“Nativus”), a subsidiary of Aptorum Therapeutics Limited. As part of the commercialization, the Group, through Nativus, entered into a regional distribution and marketing agreement with Multipak Limited, a Hong Kong based group that operates household brands, including the Luk Yu<sup>®</sup> tea bag and other health related products. Through Multipak, the Group will be able to increase the accessibility of the product to a large consumer base regionally. The production of Aptorum Group’s *dioscorea opposita* bioactive nutraceutical tablets has commenced production in Canada and will be marketed under the brand name NativusWell<sup>®</sup>. The outpatient clinic is operated through our subsidiary, Aptorum Medical Limited. Effective as of March 2018, we leased office space in Central, Hong Kong as the home to AML Clinic. AML Clinic commenced operations under the name of Talem Medical in June 2018.

Prior to March 2017, the Company had pursued passive healthcare related investments in early stage companies primarily in the United States. However, we have since ceased pursuing further passive investment operations and intend to exit all such portfolio investments over an appropriate timeframe to focus resources on our current business.

On September 25, 2020, Aptomum, via its subsidiaries, enters into a series of transactions with Accelerate Technologies Pte. Ltd.'s ("Accelerate Technologies"), the commercialization arm of the Singapore Agency for Science, Technology and Research ("A\*STAR"), in relation to the research and development of novel molecular-based rapid pathogen identification and detection diagnostics ("RPIDD") technology through its subsidiaries. Specifically, Aptomum Innovations Holding Pte. Limited, one of the Company's subsidiaries, entered into an Exclusive Licence Agreement with Accelerate Technologies to co-develop the RPIDD technology. The term of the Exclusive Licence Agreement is described in Exhibit 4.62. Furthermore, Accelerate Technologies, the inventors of the RPIDD technologies in A\*STAR ("Founding Scientists"), Aptomum Innovations Holding Pte. Limited, and Aptomum Innovations Holding Limited ("AIHL"), a wholly owned subsidiary of the Company, entered into a Share Subscription & Shareholders Agreement on the same day to subscribe ordinary shares of Aptomum Innovations Holding Pte. Limited. The shares are subscribed and issued in two tranches, the first tranche has taken place at closing of the Share Subscription & Shareholders Agreement, while the second tranche will take place after the certain first milestone is met. The total number of shares subscribed by the shareholders under the Share Subscription & Shareholders Agreement is around 2.7 million. After the two tranches of subscription, Aptomum, Accelerate Technologies and the Founding Scientists are expected to control 71.23%, 14.25% and 9.53% of the share of Aptomum Innovations Holding Pte. Limited respectively, with 4.99% of the shares reserved for its employee share plan.

On December 30, 2020, Aptomum Innovations Holding Limited, or AIHL, one of the Company's wholly-owned subsidiaries, entered into an Evaluation Agreement with Illumina Inc ("Illumina"). Pursuant to the agreement, AIHL will evaluate the data and performance of Illumina's sequencing technology based on the workflow of AIHL's molecular rapid pathogen identification and detection diagnostics technology ("RPIDD"), at AIHL's Singapore based evaluation site.

### **Our Strategy**

Although we plan to continue the development and improvement of a broad range of novel therapeutics and diagnostics across a wide range of disease/therapeutic areas, over the next 24-36 months we plan to concentrate on development of our Lead Projects, maintaining our AML Clinic and sale of natural supplements.

We believe that execution of this strategy will position the Company to catalyze the development and improvement of a broad range of novel and repurposed therapeutics and diagnostics across a wide range of disease/therapeutic areas. Failure to achieve positive results in at least one of the programs for a Lead Project could have a material adverse effect on the Company's prospects and business.

To achieve this goal, we are implementing the following strategies:

- **Developing therapeutic and diagnostic innovations across a wide range of disease/therapeutic areas.** We are currently developing drug candidates in several disease/therapeutic areas. We believe that by diversifying our research efforts, it would increase the likelihood that at least one of our projects will achieve clinical success and therefore add value to the Company. As of date of this annual report, the Company is developing 14 projects covering therapeutic assets, diagnostic assets, and natural supplements, in broad range of areas across infectious diseases, cancers (including rare oncology indications), neurology, gastroenterology, metabolic disorders and women's health. The 14 projects are comprised of 9 exclusively licensed projects (including Lead Project ALS-4 being exclusively licensed from the University of Hong Kong and RPIDD being exclusively licensed from A\*STAR) and 5 proprietary projects developed by our scientists (including Lead Project SACT-1). Our initial focus will be on developing our Lead Projects, but intend to continue developing our other current projects and may seek new licensing opportunities where we determine that the market potential justifies the additional commitment of our limited resources.
- **Selectively expanding our portfolio with potential products that may be able to attain orphan drug designation and/or satisfy current unmet medical needs.** We have selected innovations for development which we believe are of superior scientific quality, whilst taking into account the potential market size and demand for same, for example, taking into consideration whether the relevant product can satisfy significant unmet medical needs. In particular, Aptomum Group Limited has established a Scientific Advisory Board, which helped us to select our current projects and which we expect will provide input from a scientific perspective towards any future opportunities for acquiring or licensing life science innovations. We intend to continue expanding our line of projects under development, and subject to our financial and other resource limitations, exploring acquisitions or licenses of additional products which may be able to attain orphan drug designations (e.g., rare types of cancer) or satisfy significant unmet medical needs and that show strong preclinical and/or early clinical data to provide promising opportunities for clinical and commercial success.

- **Collaborating with leading academic institutions and CROs.** In building and developing our product portfolio, we believe that accessing external innovation, expertise and technology through collaboration with leading academic institutions and CROs is a vital and cost-efficient strategy. We have established strong relationships with leading academic institutions around the world and expect to continue to strengthen our collaborations by, for example, seeking to provide their affiliated Principal Investigators resources through sponsorship to conduct further research in specialty fields of interest and association with personnel connected to our current project companies, in exchange for obtaining for the Company the first right to negotiate for an exclusive license to any resulting innovations. In addition, we have entered and will continue to actively source arrangements with pharmaceutical companies, in most cases in roles as contract research organizations, to streamline the development of our projects. This may include outsourcing part of the preclinical, clinical studies and clinical supplies manufacturing to externally accredited cGLP, cGMP and cGCP standard contract research organizations or laboratories in order to attain the required studies for submission to the regulatory authorities as part of the clinical development plan. (See “Item 4. Information on the Company – B. Business Overview – Arrangements with Other Parties”)
- **Expanding our in-house pharmaceutical development center.** We believe collaborations between the R&D Center and the scientists engaged in work for our project companies will enhance clinical and commercial potential of the projects. In addition, we will assist the project companies by engaging external pharmaceutical companies and/or contract research organizations to outsource any part of the preclinical or clinical development work that cannot be performed by the R&D Center in order to obtain the resources necessary for our development process.
- **Leveraging our management’s expertise, experience and commercial networks.** We believe the combination of our management’s expertise and experience, with their academic and commercial networks make us an effective platform for advancing healthcare innovations towards clinical studies and commercialization in key global markets. We have assembled a management team with global experience and an extensive record of accomplishments in medical research, consulting and financing, and identification and acquisition of pharmaceutical and biopharmaceutical drug candidates. Our Head of Research and Development also has extensive experiences in drug development. We also employ key management personnel with banking and financial experience, which enhances our capability to establish the most efficient financial structure for the development of our programs.
- **Obtaining and leveraging government grants to fund project development.** Governments across the world pays close attention to the development of the biotechnology sector and provides support and funding. We intend to aggressively seek government support from the governments in the United States, the United Kingdom, Hong Kong, Singapore and elsewhere for our product development and to facilitate the development of some of our projects.

#### ***Arrangements with Other Parties***

As mentioned above, part of our business model includes collaborating with research entities such as academic institutions and CROs, as well as highly regarded experts in their respective fields. We engage these entities and researchers either for purposes of exploring new innovations or advancing preclinical studies of our existing licensed drug candidates. Although the financial cost of these arrangements does not represent a material expense to the Company, the relationships we can access through, specifically, sponsored research arrangements (“SRAs”) with academic institutions and organizations can provide significant value for our business; for example, we may decide whether to continue development of certain early-staged projects and/or out-license a project based on the data and results from research governed by SRAs. However, as of the date of this annual report, we do not consider the particulars of any of our SRAs to be material to the success of our current business plans.

Our drug discovery programs are based upon licenses from universities and are mainly conducted in universities via SRAs. As for the development of our drug candidates, our R&D Center conducts part of the CMC work. However, since our current facilities are not cGMP, cGLP or cGCP qualified, we will have to rely on CROs to conduct that type of work, if and when our drug candidates reach the level of development that requires such qualification.

### ***Lead Projects, Natural Supplements and Other Projects under Development***

We are actively operating and managing the development of our drug candidates through various subsidiaries. Each candidate is being researched in a subsidiary with a medical/scientific area of focus related to the drug candidate in development. We refer to these as our “Project Companies” and their products or areas of focus as our Lead Projects (i.e., ALS-4, SACT-1 and RPIDD), our natural supplements (i.e., NativusWell<sup>®</sup>) or Other Projects under Development (as defined below). The selection of a drug candidate is based on our estimate of the market potential for that candidate, the scientific expertise required to develop it, and our overall corporate strategy, including our ability to commit personnel and future investment to that candidate.

To pursue a number of our current projects, our Project Companies have entered into standard license agreements with various university and licensing entities customized to the nature of each project. These license agreements largely contain the same terms, as is typically seen in license agreements for an early-stage life science invention; such terms include a worldwide license with licensed field comprising indications in the intended treatment areas, having upfront payments, certain royalty rates, sublicensing royalties, as well as provisions for payments upon occurrence of development and/or regulatory milestones. Under the license agreements, the Project Company must also adhere to certain diligence obligations and may or may not be required to obtain prior consent from the licensor to sublicense the invention. The license terms of our Lead Projects are discussed in detail below.

Generally speaking, pharmaceutical development consists of preclinical and clinical phases. Our immediate efforts would be on the preclinical phase which can further sub-divided into the following stages:

- **Target Identification & Selection**: The target is the naturally existing cellular or modular structure that appears to have an important role in a particular disease pathway and will be targeted by the drug that will subsequently be developed. Target validation techniques for different disease areas can be very different but typically include from in vitro and in silico methods through to the use of whole animal models.
- **Lead Discovery**: Following “Target Identification & Selection,” compound screening assays are developed as part of the Lead Discovery. ‘Lead’ molecules can mean slightly different things to different researches or companies, but in this annual report, we refer to Lead Discovery as the process of identifying one or more small molecules with the desired activity against the identified targets. Leads can be identified through one or more approaches, which can depend on the target and what, if any, previous knowledge exists.
- **Lead Optimization**: In this stage of the drug discovery process, the aim is to produce a preclinical drug candidate by maintaining the desired and favorable properties in the lead compounds, while repairing or reducing deficiencies in their structures. For example, to optimize the chemical structures to improve, among others, efficacy, reduce toxicity, improve metabolism, absorption and pharmacokinetic properties.
- **CTA-Enabling Studies**: Includes all the essential studies such as GLP toxicology studies, pharmacology and efficacy, pharmacokinetics, in vitro metabolism, CMC studies, and the data of which are used for CTA submission.
- **IND-Enabling Studies**: Includes all the essential studies such as GLP toxicology studies, pharmacology and efficacy, pharmacokinetics, in vitro metabolism, CMC studies, and the data of which are used for IND submission.
- **In vitro validation**: At this stage, the efficacy and safety of a drug candidate are assessed at cellular levels.
- **In vivo validation**: At this stage, the efficacy, safety and pharmacokinetic of a drug candidate are assessed in animal models.
- **IND Preparation and Submission**: Preparation of a package of documents for different sections such as CMC, clinical, nonclinical, etc. and getting them reviewed, approved and final checked and followed by submission to regulatory agencies.

Our non-therapeutics projects can be sub-divided into the following stages:

- **Development and Experimentation:** Early development work for proof-of-concept.
- **Product Optimization:** The practice of making changes or adjustments to a product to make it more desirable.
- **Clinical Validation:** Confirming the performance of a technology using clinical/patient samples.
- **Pre-commercialization preparation:** The logistics that need to be accomplished before commercialization.
- **Formulation:** Preparation of a marketed dosage form from active ingredients and excipients/additives.
- **Commercialization:** The process of introducing a new product or production method into commerce—making it available on the market.



Another subsidiary, Aptorum Medical Limited (“AML”),<sup>1</sup> is our vehicle for developing our business of delivering medical services in the form of AML Clinic.

We anticipate allocating approximately 20% of our resources to develop projects other than our Lead Projects (such other projects being referred to herein as “Other Projects under Development”), with a strong focus on NativusWell<sup>®</sup>, and AML Clinic. As part of the commercialization of NativusWell<sup>®</sup> natural supplements, we entered into a regional distribution and marketing agreement with Multipak Limited, a Hong Kong based group that operates household brands, including the Luk Yu<sup>®</sup> tea bag and other health related products. Through Multipak, the Group will be able to increase the accessibility of the product to a large consumer base regionally. The production of Aptorum Group’s dioscorea opposita bioactive nutraceutical tablets has commenced production in Canada and will be marketed under the brand name NativusWell<sup>®</sup>. AML Clinic is expected to provide us with a modest amount of revenue. Even if NativusWell<sup>®</sup> achieves commercial sales, of which there can be no assurance, revenue from these products alone will not be sufficient for us to carry out all of our plans, but it will assist with name recognition and supplement our income while we develop our Lead Projects.

**Lead Projects**

Projects	Candidate / Modality	Indication	Development Stage						
			Target Identification & Selection	Lead Discovery	Lead Optimization	IND (or IND equivalent) Enabling	Clinical Trial Application Submission	Phase I	Phase II / III
<b>Acticle's Series</b>									
<b>ALS-4</b>	Small molecule	Treatment of bacterial infections caused by Staphylococcus aureus including MRSA							
Projects	Candidate / Modality	Indication	Computational Discovery	In Vitro Validation	Existing Ph/II Clinical Safety Data <sup>1</sup>	In Vivo Validation	IND Preparation & Submission	Phase Ib/IIa	
<b>SACT's Series</b>									
<b>SACT-1</b>	Repurposed small molecule	Neuroblastoma Other cancer types including colorectal and triple-negative breast cancer							
Project	Candidate / Modality	Indication	Development and Experimentation	Product Optimization	Clinical Validation	Pre Commercialization Preparation	Commercialization		
<b>RPIDD</b>	Liquid biopsy rapid pathogen diagnostics	Pathogen molecular diagnostics							

After consideration of various factors, such as time and resources required for further development, potential success rate and market size, the Group decided to focus the majority of its resources on ALS-4 and SACT-1 and RPIDD as the current Lead Projects. The Group will continue to invest some of its resources to develop other projects, including those previously classified as Lead Projects.

<sup>1</sup> Clark Cheng, our Chief Medical Officer and an Executive Director, owns 8% of Aptorum Medical Limited as of the date of this annual report.

#### **ALS-4: Small molecule for the treatment of bacterial infections caused by *Staphylococcus aureus* including Methicillin-resistant *Staphylococcus aureus* (“MRSA”)**

Just as certain strains of viruses, such as human immunodeficiency virus (“HIV”) and influenza have developed resistance to drugs developed to treat them, certain bacteria such as *Staphylococcus aureus*, *Mycobacterium tuberculosis* and *Pseudomonas aeruginosa* have become “superbugs”, having developed resistance to many, if not all, of the existing drugs available to treat them, rendering those treatments ineffective in many instances. MRSA is one such bacterium, a gram-positive bacterium that is genetically different from other strains of *Staphylococcus aureus*. *Staphylococcus aureus* and MRSA can cause a variety of problems ranging from skin infections and sepsis to pneumonia and bloodstream infections. It is estimated that about one out of every three people (33%) carry *Staphylococcus aureus* in their nose, usually without any illness; about two in a hundred (2%) carry MRSA (source: <https://www.cdc.gov/mrsa/tracking/index.html>). Both adults and children may carry MRSA.

Most MRSA infections occur in people who have been in hospital or other health care settings, such as nursing homes and dialysis centers (source: <https://www.mayoclinic.org/diseases-conditions/mrsa/symptoms-causes/syc-20375336>), which is known as Healthcare-Associated MRSA (“HA-MRSA”). HA-MRSA infections are typically associated with invasive procedures or devices, such as surgeries, intravenous tubing or artificial joints. Another type of MRSA infection, known as Community-Associated MRSA (“CA-MRSA”), has occurred in wider community among healthy people. It often begins as a painful skin boil and spreads by skin-to-skin contact. About 85% of serious, invasive MRSA infections are healthcare associated infections (<https://www.cdc.gov/media/pressrel/2007/r071016.htm>). The incidence of CA-MRSA varies according to population and geographic location. In the U.S., more than 94,000 people develop serious MRSA infection and about 19,000 patients die as a result each year (<https://www.cdc.gov/media/pressrel/2007/r071016.htm>). According to the US Centers for Disease Control and Prevention (“CDC”), *Staphylococcus aureus*, including MRSA, caused about 11% of healthcare-associated infections in 2011 (source: <http://www.healthcommunities.com/mrsa-infection/incidence.shtml>). Each year in the U.S., around one out of every twenty-five hospitalized patients contracts at least one infection in the hospital (N Engl J Med. 2014, 27;370(13):1198-208). In the U.S., there were over 80,000 invasive MRSA infections and 11,285 related deaths in 2011 (source: <https://edition.cnn.com/2013/06/28/us/mrsa-fast-facts/index.html>). Indeed, severe MRSA infections most commonly occur during or soon after inpatient medical care. More than 290,000 hospitalized patients are infected with *Staphylococcus aureus* and of these staphylococcal infections, approximately 126,000 are related to MRSA (source: <http://www.healthcommunities.com/mrsa-infection/incidence.shtml>).

ALS-4 is a small drug molecule which appears to target the products produced by bacterial genes that facilitate the successful colonization and survival of the bacterium in the body or that cause damage to the body’s systems. These products of bacterial genes are referred to as “virulence expression.” Targeting bacterial virulence is an alternative approach to antimicrobial therapy that offers promising opportunities to overcome the emergence and increasing prevalence of antibiotic-resistant bacteria.

Professor Richard Kao from The University of Hong Kong (who is also the Founder and Principal Investigator of Acticule and Inventor of ALS-1, ALS-2, ALS-3 and ALS-4) initiated a high throughput approach for screening compounds which are active against virulence expression, which resulted in the discovery of ALS-1, ALS-2, ALS-3 and ALS-4.

ALS-4 targets an enzyme essential for *Staphylococcus aureus* (including MRSA) survival in vivo. This enzyme is involved in the production of Staphyloxanthin, a carotenoid pigment produced by *Staphylococcus aureus* including MRSA, and is responsible for the characteristic golden color. This pigment has proven to be an important factor in promoting bacterial invasion as well as rendering the bacteria resistant to attack from reactive oxygen species (ROS) and neutrophils. In other words, pigmented bacteria have increased resistance to the host’s immune defenses. ALS-4 may have particular value if it can be shown to be an effective therapy in situations where a *Staphylococcus aureus* infection is resistant to available antibiotics (i.e., where the pathogen is MRSA).

In a recent study by the inventor, Prof. Richard Kao, ALS-4 demonstrates potent activity against *Staphylococcus aureus* pigment formation in vitro, as indicated in Figure 1, with an IC<sub>50</sub> (IC<sub>50</sub> is defined as the concentration of a drug which inhibits half of the maximal response of a biochemical process. In this case, inhibition of the formation of the golden pigment is the response) equal to 20 nM.

Figure 1

**ALS-4 is intended to inhibit *S. aureus* pigment production with an  $IC_{50} = 20nM$**

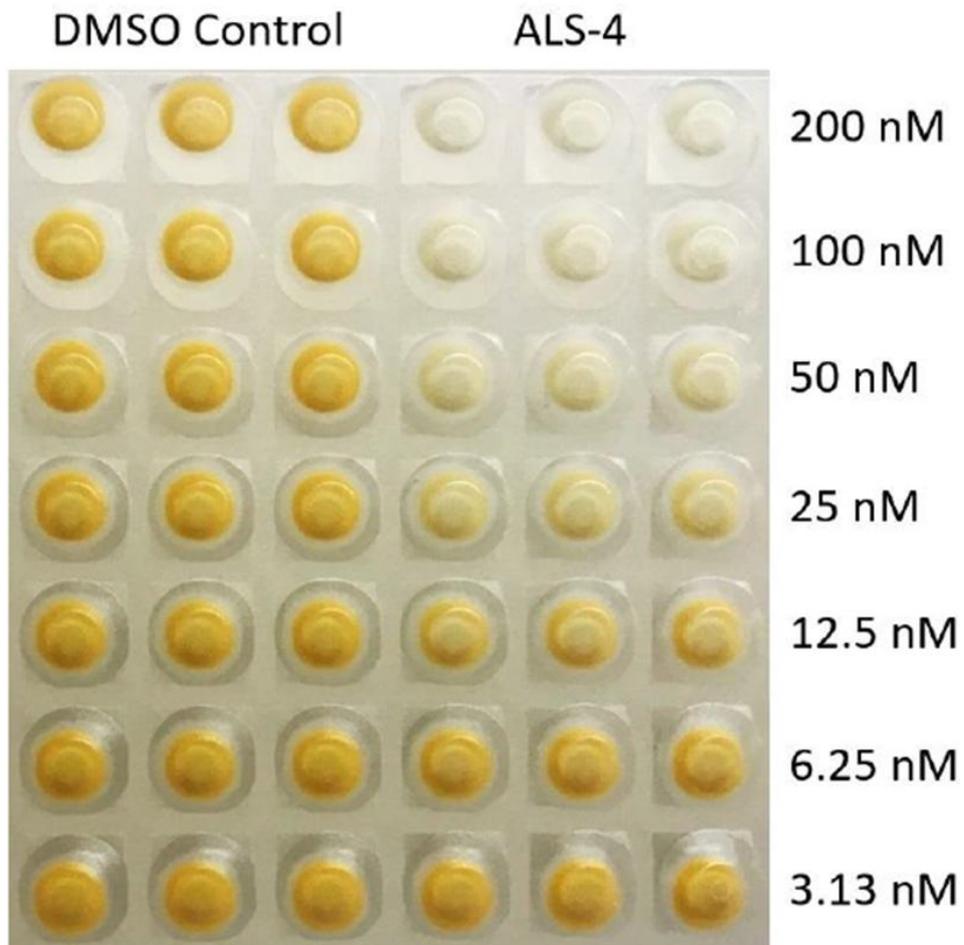


Figure 1: In vitro pigment inhibition by compound ALS-4.

(A) Inhibition of wild-type (WT) *Staphylococcus aureus* pigmentation in the presence of increasing concentrations of ALS-4.

(B) Pigment inhibition by ALS-4; the  $IC_{50}$  for pigment formation is roughly 300 nM.

All data represent mean values  $\pm$  SD.

NP16 = ALS-4

This assay was conducted in triplicate and repeated twice for confirmation

(Adapted from mBio (8(5): e01224, 2017))

Efficacy of ALS-4 in a MRSA Wound Infection Mouse Model

A recent study, conducted by a third-party contract research organization, assessed ALS-4's effect in the healing of open wounds infected with MRSA in a mouse model. Compared with topical dosing of 2% Mupirocin and oral dosing of Linezolid at 100mg/kg twice a day, oral dosing of ALS-4 at 30mg/kg twice a day showed statistically significant improvement in wound healing. Specifically, at the end of the study on Day 7, ALS-4 exhibited 63.8% of wound closure compared with 48.4% for oral Linezolid and 43.2% for topical Mupirocin 2%. The results are further illustrated in the graph below.

Figure 2

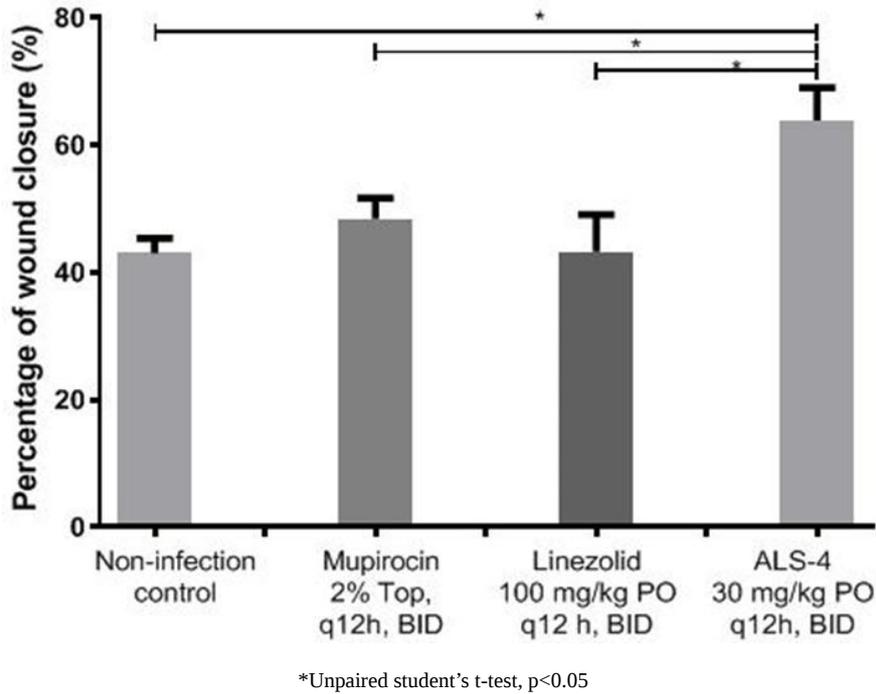


Figure 2: Result of study on ALS-4's effect in the healing of open wounds infected with MRSA in a mouse model

Efficacy of ALS-4 in a Bacteraemia Mouse Model

In a further round of *in vivo* studies, conducted by a third-party contract research organization, in a non-lethal MRSA bacteraemia mouse model, the mice were orally administered with different doses of ALS-4 from 0.3 to 30mg/kg twice a day for 7 days, compared to those who received vancomycin only group (3mg/kg of vancomycin administered intravenously) and a no treatment control group.

At the conclusion of the study on Day 7, ALS-4 brought a statistically significant reduction in bacterial counts in major organs such as the kidneys, lungs, liver and spleen compared with the no drug control and vancomycin only groups (unpaired student's t-test, p<0.05). This is in addition to the previous *in vivo* results announced in February 2020, whereby ALS-4 demonstrated on a statistically significant basis better survival rates (56% vs 0% control group) in the lethal MRSA bacteraemia rat model and higher reduction of bacterial load (by 99.5% against the control group) in the non-lethal MRSA bacteraemia rat model.

By employing a systemic *Staphylococcus aureus* mouse infection model, the treatment (1mM of ALS-4 twice daily) and control groups (vehicle) were compared. In both acute treatment and delayed treatment groups, the bacterial counts in the kidneys of mice treated with compound ALS-4 were significantly lower than those of the no treatment group.

Figure 3

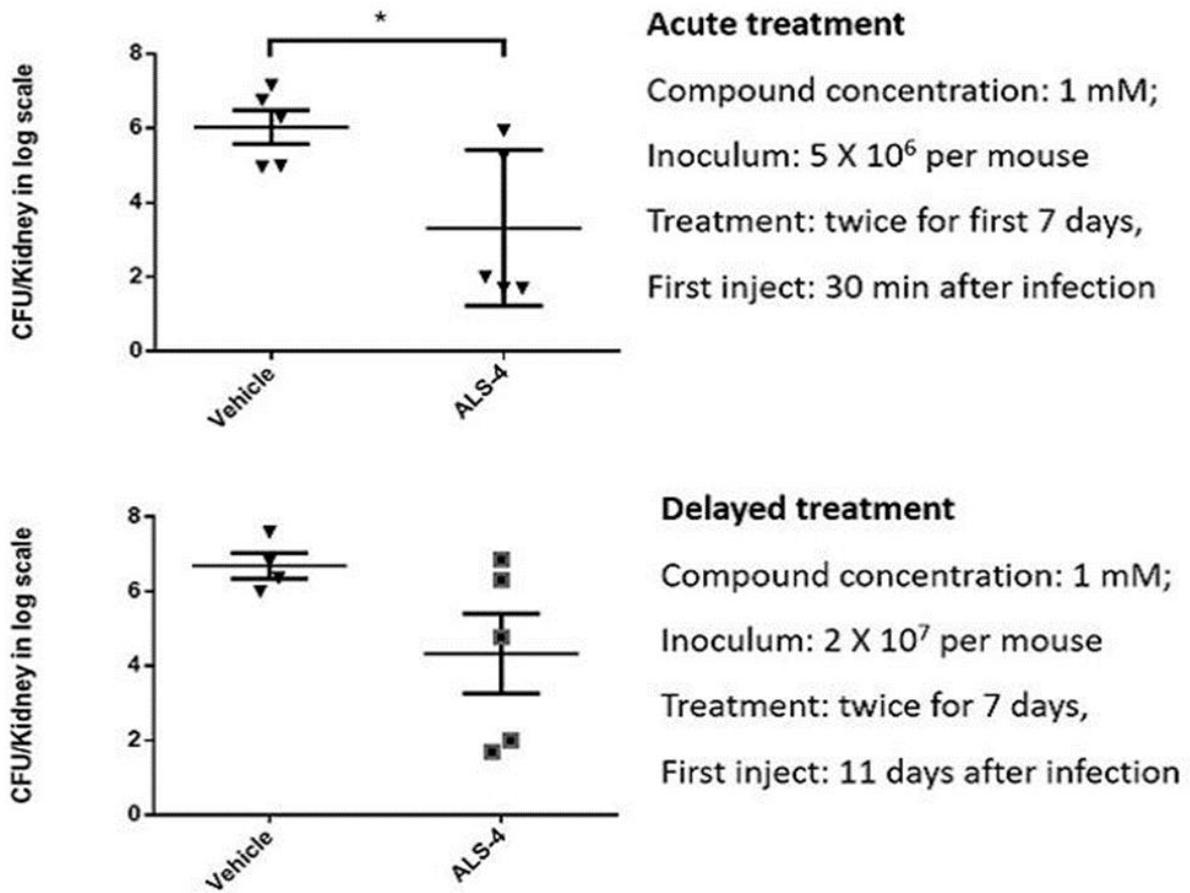


Figure 3: ALS-4 is observed to reduce bacterial load in mice

CFU = Colony Forming Unit, a unit used to estimate the number of viable bacteria in a sample

A Clinical Trial Application (“CTA”) was submitted with the Public Health Agency of Canada (Health Canada) to conduct a Phase 1 clinical trial of ALS-4, an orally administered small molecule drug for the treatment of infections caused by Staphylococcus aureus including Methicillin-resistant Staphylococcus aureus (MRSA) in Q4 2020. ALS-4 received clearance from Health Canada regarding the CTA to initiate a Phase 1 clinical study in January 2021. On March 31, 2021, we announced dosing the first human subject in its Phase I clinical trial evaluating ALS-4. The first-in-human Phase I trial is a randomized, double-blinded, placebo-controlled, single and multiple ascending dose study designed to evaluate safety, tolerability, and pharmacokinetics of orally administered ALS-4 in healthy male and female adult volunteers. The study plans to enroll up to 48 and 24 healthy volunteers for the single-ascending dose (SAD) and multiple-ascending dose (MAD) cohorts, respectively. Enrollment for the first cohort of SAD has been completed and we continue to enroll individuals for other cohorts of the trial.

#### **Patent License**

On October 18, 2017, the Company’s subsidiary, Acticule, entered into an exclusive license agreement with Versitech Limited, the licensing entity of HKU, for ALS-4. Subsequently on June 7, 2018, the parties entered into a first amendment to the exclusive license agreement, and on July 10, 2019, the parties entered into a second amendment to the license agreement.

On January 11, 2019, Acticule and Versitech Limited entered into a second license agreement for ALS-4, where Acticule exclusively licensed the intellectual property rights on certain HKU-owned improvements to the original licensed invention.

Under the exclusive license agreements, we were granted an exclusive, royalty-bearing, sublicensable licenses to develop, make, have made, use, sell, offer for sale and import products that are covered by the licensed patents (as described below). The territory of the licenses is worldwide and the field of the licenses is for treatment or prevention of bacterial infections caused by Staphylococcus aureus including MRSA and bacterial virulence.

We paid an upfront fee upon entering into the license agreements. We are required to pay less than 10% of the net sales of the licensed products sold by us or our affiliates as royalties, as well as a low teens percentage of sublicense royalties that we receive from our sublicensees, if any. In addition, we agreed to pay to the licensor aggregate regulatory milestones of up to US\$1 million subject to the following achievements: submission of investigational new drug application; completion of phase 1, 2 and 3 clinical trials; and submission of new drug application; grant of regulatory approval. We also agreed to pay to the licensor aggregate sales milestones of up to US\$7.8 million subject to the following achievement: first commercial sale; and annual net sales exceeding US\$100 million in one jurisdiction.

Pursuant to the license agreements, Acticule became the exclusive licensee of 2 pending U.S. non-provisional patent applications and 2 PCT applications (now expired). Prior to the expiration of the PCT applications, we filed national phase applications in member states of the EPO, in PRC and 11 other jurisdictions. The claimed inventions are described as: “Compounds Affecting Pigment Production and Methods for Treatment of Bacterial Diseases.”

Acticule has the right to grant sublicenses to third parties under the license agreements without prior approval from Versitech Limited and to assign the agreements to any successor to the business related to the licenses. In the event that Acticule makes an improvement to the licensed technologies, so long as the improvement does not incorporate any licensed patents, Acticule will be the owner to such improvement, subject to a non-exclusive royalty-free license being granted back to Versitech Limited for academic and research purposes only.

The exclusive license agreements shall be in effect until the expiration of all licensed patents (please refer to the patent expiration dates under “Item 4. Information on the Company – B. Business Overview – Intellectual Property”). Acticule may terminate the licenses at any time with 6-month written notice in advance. Either party may terminate the agreements upon a material breach by other party.

## SACT-1: A Repurposed Drug for the Treatment of Neuroblastoma

Drug repurposing is a strategy for identifying new indications for approved or investigational drugs that are outside the scope of the original medical uses. It is often viewed as a lower-cost method for drug commercialization, as it is based on already-approved drugs (which has been proven to be safe for human use by the respective governing regulatory agency) and explores new target indications. (Ashburn, T. T. & Thor, K. B. Drug repositioning: identifying and developing new uses for existing drugs. *Nat. Rev. Drug Discov.* 3, 673–683, 2004).

One of the advantages of drug repurposing is a lower development risk due to safety and toxicity, as well as other properties related to water solubility, absorption, distribution and metabolism, as the safety and CMC profiles of marketed drugs are usually well-established. Due to the same reason, the development time is also shortened because there is no need to repeat the whole spectrum of the safety assessment. As a result, the drug repurposing approach appears to be attractive due to its superior risk management, smaller capital investment and quicker financial return. (Sudeep Pushpakom, et. al. Drug repurposing: progress, challenges and recommendations. *Nat. Rev. Drug Discov.* 18, 41-58, 2019)

The cost of bringing a repurposed drug is estimated to be around US\$300 million, which is only one-tenth of the development cost for a new drug. (Nosengo, N. Can you teach old drugs new tricks? *Nature.* 534, 314-316, 2016).

In summary, drug repurposing offers the following advantages:

- Well-established safety profiles: The development risk for new indications can be substantially reduced by applying existing drugs that are approved or have been shown to be safe in large scale late-stage trials. Since safety accounts for approximately 30% of drug failures in clinical trials, this is a key advantage that repositioned drugs can harness to great effect. (The benefits of drug repositioning. (n.d.). Retrieved from <https://www.ddw-online.com/the-benefits-of-drug-repositioning-1779-201104/>)
- Time-saving: As repositioned drugs can rely on existing data, including efficacy and toxicity studies, the process is usually faster than de novo development. Developing a new chemical entity (NCE) can take 10 to 17 years, depending on indications. (Roin, B. N. Solving the Problem of New Uses, 2013). For a drug repositioning company, the development process from compound identification to launch can be around 3 to 8 years. (Walker, N. (2017, December 07). Accelerating Drug Development Through Repurposing, Repositioning and Rescue. Retrieved from <https://www.pharmoutsourcing.com/Featured-Articles/345076-Accelerating-Drug-Development-Through-Repurposing-Repositioning-and-Rescue/>)
- Cost-saving: Along with time-saving, money-saving is also a key benefit. The cost to relaunch a repositioned drug averages \$8.4 million, whereas to relaunch a new formulation of an existing drug in its original indication costs an average \$41.3 million. Given that the average cost of launching a new chemical entity (NCE) is more than \$1.3 billion, successfully bringing a repositioned drug to market seems to cost approximately 160 times less than the current standard of NCE development. Even if this differential is off by a hundred times or more, from the purely financial perspective, repositioning is in a completely different league of investment needed to create a new drug product in the market. (<https://www.ddw-online.com/the-benefits-of-drug-repositioning-1779-201104/>)
- Potential for out-licensing: Pharmaceutical companies are said to be exploring new models to out-license some of their clinical drug candidates that may have been shelved for pure business reasons unrelated to safety or efficacy, even though they have met their endpoints and have proven themselves to be safe. If such drugs were to be repositioned, the pharmaceutical company increases the attractiveness of these drugs and gives itself more options to find interested buyers. (<https://www.ddw-online.com/the-benefits-of-drug-repositioning-1779-201104/>)
- Lower failure rate: According to BCC Research, approval rates for repurposed drugs are close to 30%, which is greater than the approval rate for new drug applications. (*Front Oncol.* 2017; 7: 273)

One of the major limitations of the current drug repurposing and repositioning practice is that there is a lack of a systematic way to identify and reinvestigate drugs that are approved and/or have failed approval.

SACT-1 is the first repurposed drug candidate to be developed under the Smart-ACT™ drug discovery platform. SCAT-1 is one of the Company’s proprietary technologies. Our first targeted indication is neuroblastoma. Neuroblastoma is a rare form of cancer, and classified as an orphan disease, that forms in certain types of nerve tissue and most frequently in the adrenal glands as well as spine, chest, abdomen or neck, predominantly in children, especially for those aged 5 years and below. For the high-risk group, which is close to 20% (Annu Rev Med. 2015; 66: 49–63.) of total new patient population per year, the 5-year survival rate of this condition is around 40-50% as observed by the American Cancer Society (<https://www.cancer.org/cancer/neuroblastoma/detection-diagnosis-staging/survival-rates.html>). The current high drug treatment cost for high risk patients can average USD200,000 per regimen (all 6 cycles) ([https://www.cadth.ca/sites/default/files/pcodr/Reviews2019/10154DinutuximabNeuroblastoma\\_fnEGR\\_NOREDACT-ABBREV\\_Post\\_26Mar2019\\_final.pdf](https://www.cadth.ca/sites/default/files/pcodr/Reviews2019/10154DinutuximabNeuroblastoma_fnEGR_NOREDACT-ABBREV_Post_26Mar2019_final.pdf)). In addition, most pediatric patients often do not tolerate or survive the relevant chemotherapy stage which, subject to further clinical studies, may be positively addressed by the SACT-1 candidate due to the potential synergistic effects when applied with standard chemotherapy.

In our recent studies, SACT-1 has been shown to be effective against numerous neuroblastoma cell lines, of which 2 are MYCN-amplified cells, which represent the high-risk neuroblastoma patient group. In addition, by using a bliss score as a quantitative measure of the extent of drug interaction, Aptorum Group has seen a high and robust synergism between SACT-1 and traditional chemotherapy in vitro (Figure 4), indicating a potential efficacy enhancement/dose reduction of the chemotherapy.

Figure 4

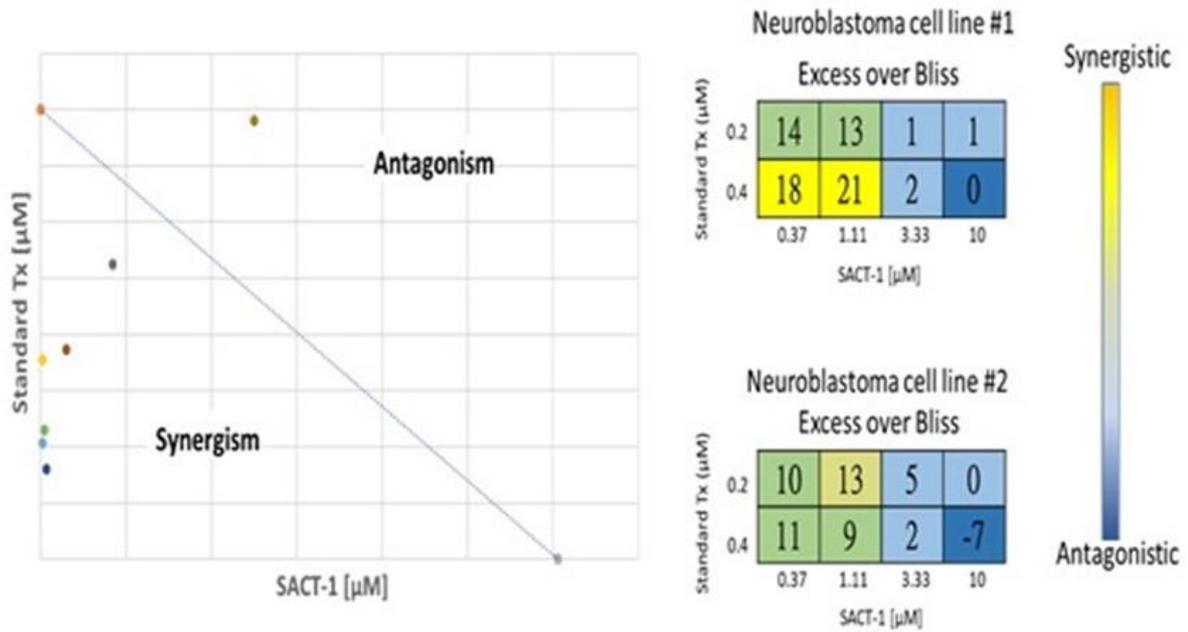


Figure 4: synergism between SACT-1 and traditional chemotherapy in vitro

In addition, in our recent study, the maximum tolerable dose of SACT-1 in a rodent model was determined to be higher than 400mg/kg. Compared with the MTD of standard chemotherapy such as paclitaxel (20-30mg/kg) (Clin Cancer Res. 5(11):3632-8) and cisplatin (6mg/kg) (BMC Cancer 17: 684 (2017)), the safety profile of SACT-1 appears to be very impressive. Based on our internal observations of pre-existing information from approved products, (subject to FDA's approval and on a case-by-case basis, a 505(b)(2) Application can rely in part on existing information from approved products (such as the FDA's previous findings on safety and efficacy) or products in literature (such as data available). However, typically speaking, the applicant is nonetheless required to carry out a Phase 1 bridging study to compare the Reference Listed Drug and reference the established safety and efficacy information), SACT-1 also exhibits a well-established safety profile: at 150mg/day, the death rate was 0% in prior clinical studies with no dosage related adverse events (Table 1). In addition, the pharmacokinetic profile of SACT-1 has also been reported (Table 2).

Table 1: Safety Profiles of SACT-1 in Human Clinical Trials

SACT-1	25mg/day (N=93)	75mg/day (N=95)	150mg/day (N=91)
Median treatment duration, weeks	101	100	100
Adverse events (AE)			
Any grade 2-4 AE at least possibly related to SP055	20%	20%	21%
AEs leading to discontinuation	9%	12%	14%
Any serious AE	13%	14%	10%
Deaths	0%	2%	0%

Table 2: The pharmacokinetic Profile of SACT-1 in Humans

SCAT-1 pharmacokinetic parameter in humans	(N=19)
$t_{max}$ , h	5
$C_{max}$ , ng/ml	~300
$AUC_{last}$ , ng·h/ml	~10,000
$AUC_{inf}$ , ng·h/ml	~11,000
$t_{1/2,term}$ , h	~48

We are currently developing a pediatric formulation of SACT-1 to better address the needs of neuroblastoma patients who are exclusively children younger than 5. Positive data from our latest internal *in vivo* studies show significant activity against neuroblastoma tumor reduction when treated with the compound SACT-1 in combination with standard of care (SOC) chemotherapy.

Separately, we also screened SACT-1 for its *in vitro* activity against over 300 cancer cell lines and showed positive results in a number of cancer types including in particular colorectal cancer, leukemia and lymphoma, etc. Similar to our previous findings against neuroblastoma cell lines, SACT-1 exhibits similar anti-tumor efficacy across one or more other major cancer types, including but not limited to colorectal cancer, leukemia and lymphoma cell lines. As a result, in addition to treating neuroblastoma, SACT-1 may have potential applications in the treatment of other cancers. Based on this discovery, we plan to carry out further *in vivo* studies to study the efficacy of SACT-1 over other types of cancers to maximize the potential of SACT-1. Based on the initial 22 day data of a recent study we conducted in a xenograft mouse model of neuroblastoma, SACT-1 was orally administered daily at 60mg/kg in combination of SOC chemotherapy brought a statistically significant tumor shrinkage (unpaired student's t-test,  $p < 0.01$ ) from Day 15 to Day 22, compared to the control group which received SOC only. The combination reduced the tumor size by up to 54.2% in the first 22 days compared with the control (SOC only). SACT-1 appears to be effective in accelerating the effect of the SOC in early time points (from Day 1 - 7 vs control). This further supports our earlier *in vitro* observation that SACT-1 promotes tumor DNA damage and tumor cell death.

Figure 5

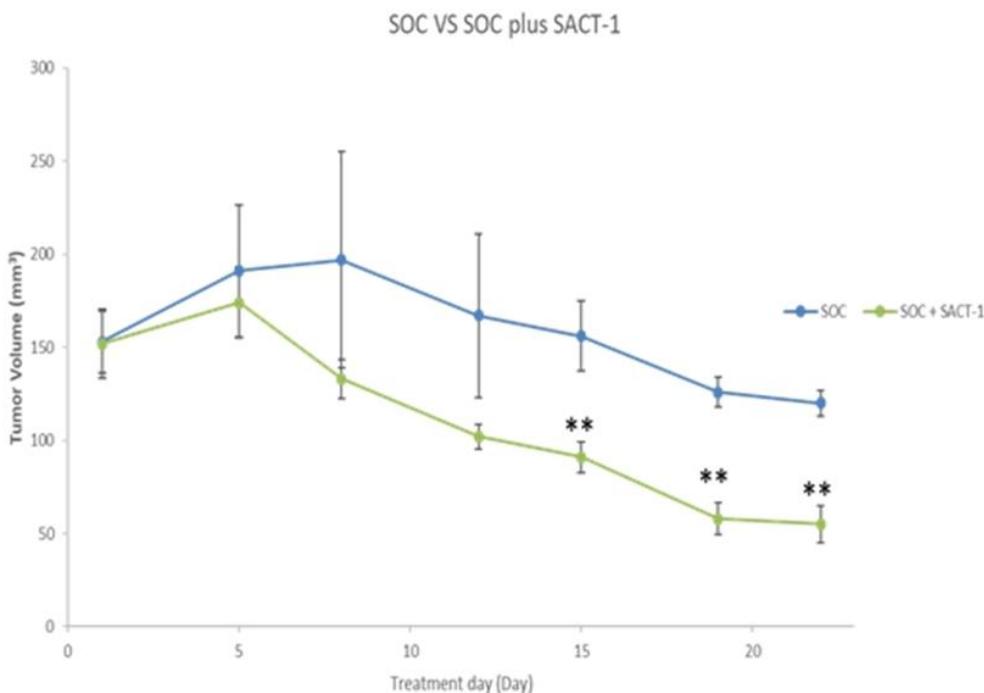


Figure 5: 22 days data of *in vivo* studies in a xenograft mouse model of neuroblastoma

\*\* Unpaired student's t-test,  $p < 0.01$ ,  $n = 8$  (based on initial 22 days period)

In February 2021, Aptorum Group completed a Pre-IND meeting with US FDA with encouraging outcomes regarding SACT-1. SACT-1 is currently undergoing IND preparation and is now on track in its preparation to open an IND with US FDA for the commencement of clinical trials in 2021.

**RPIDD: A novel molecular-based rapid pathogen identification and detection diagnostics technology**

Infectious disease diagnostic standard of care (SOC) often involves techniques that are slow (e.g., bacterial culturing takes several days) or expensive (e.g., current pathogen diagnostic sequencing solutions are not comprehensive, are expensive, and often inaccessible to physicians). Although infectious disease diagnosis capabilities have been improving in recent years, there are still issues with the public health capacity to control infectious disease threats.

Infectious disease diagnostic standard of care (SOC) does not necessarily provide the physician a comprehensive diagnosis or report. Most point of care diagnostic solutions, while rapid, screen only for a single pathogen and only focus on common and widespread pathogens (e.g., HIV). Thus, for infectious disease patients in developed nations that present with an uncommon, novel or emerging pathogen threat, diagnosis is often slow (2-5 days) and inconclusive leaving time for pathogen spread and increased patient suffering and/or death.

RPIDD is a rapid infectious disease diagnostic test that we believe will be potentially able to identify all pathogens in a patient’s sample, both known and unknown, by employing Next Generation Sequencing (NGS). The goal of RPIDD is to cost-effectively return a 99% accurate result within 24-48 hours. Our internal results show that, in principle, RPIDD can identify pathogens such as viruses (e.g. COVID-19/SARS-CoV-2) or any other known or emerging infectious disease event in one test (e.g., DNA or RNA-based pathogens). With these properties, RPIDD is expected to track the infectome landscape (e.g., tracking mutations), rapidly identify antibiotic resistant microbials in the process, and be more affordable than current NGS-based diagnostic platforms, which will make it a superior product to those currently on the market.

Preliminary data from our internal studies, which have not been verified or confirmed by third parties, presented below demonstrate additional points of innovation and proof of concept feasibility data.

*Case Study #1:* We examined a bio banked blood sample from a patient with a diagnosed Hepatitis B infection (Figure 6). Our technology successfully detected the presence of Hepatitis B, as well as additional pathogens.

Figure 6

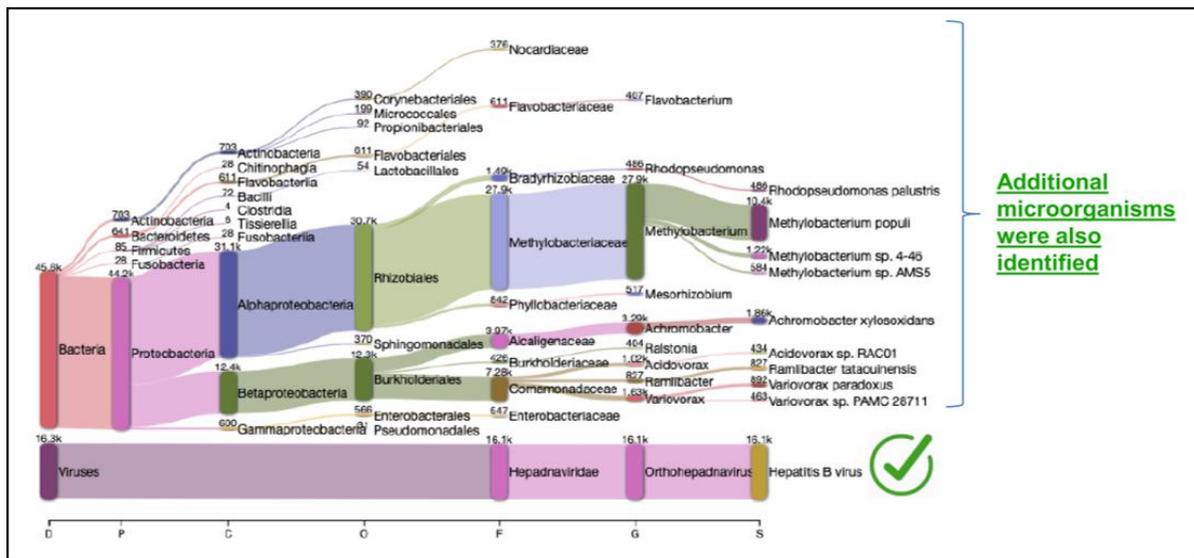


Figure 6: Aptorum’s technology successfully confirmed a known Hepatitis B diagnosis in a bio banked sample.

Case Study #2: A patient was undergoing chemotherapy and developed a severe lung infection that was refractory to first-line antibiotics but eventually responded to the traditional trial and error approach. Using our technology, we found that 10% of all reads came from *Leuconostoc*, a Gram+ bacteria (Figure 7). Importantly, *Leuconostoc* was not identified by physicians, demonstrating that our technology can identify pathogens that allude a traditional diagnosis.

Figure 7

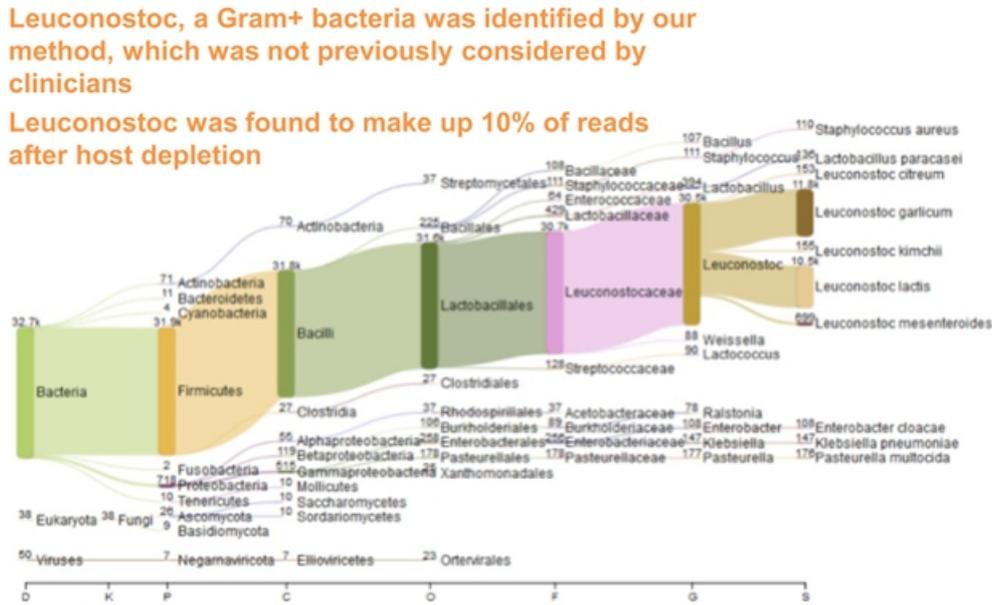


Figure 7: Aptom's technology identified pathogen(s) that allude the traditional diagnostic approach.

RPIDD has the revolutionary potential to cover simultaneously over 1300 pathogens due to the unbiased approach in analyzing pathogen genome information and caters to patients who are infected with multi-strains of pathogen. The technology can be updated through our software analytics on an ongoing basis as further pathogenic genome sequences are updated through public databases, ensuring that it is up-to-date on new and emerging pandemic threats.

RPIDD is currently undergoing Clinical Validation to confirm the performance of RPIDD using clinical/patient samples.

## **Patent License**

On September 25, 2020, the Company's subsidiary, Aptorum Innovations Holding Pte. Limited, entered into an exclusive licence agreement with Accelerate Technologies Pte Ltd, the commercialization arm of the Singapore's Agency for Science, Technology and Research ("A\*STAR"), to co-develop novel molecular-based rapid pathogen identification and detection diagnostics ("RPIDD") technology. No upfront fee or royalty on net sales is payable under the license agreements, although we are required to pay a mid-teens to mid-twenties percentage of sublicense revenue that we receive from our sublicensees, if any. In addition, we agreed to pay to the licensor aggregate development milestones of up to US\$250,000. When specific development milestone is reached, we are also required to satisfy certain diligence obligations, including recruitment of staff, establishment of relationship with potential customers and exercise commercially reasonable efforts in selling the Licensed Products

## **Statistical Significance**

The term statistical significance is to define the probability that a measured difference between two groups (e.g. two treatment groups, treatment versus control groups) is the result of a real difference in the tested variations and not the result of chance. It means that the result of a test does not appear randomly or by chance, but because of a specific change that is tested, so it can be attributed to a specific cause.

The confidence level indicates to what percentage the test results will not commit a type 1 error, the false positive. A false positive occurs when a change in the result is due to randomness (or other noise) and not the change in variations. At a 95% confidence level ( $p = 0.05$ ), there is a 5% chance that the test results are due to a type 1 error. 95% has become the standard and usually be the minimum confidence level for the tests. To make the test more stringent, a 99% confidence level ( $p = 0.01$ ) is also commonly employed, which means that there is a 1% chance that the test results are due to a type 1 error.

In other words, a p value represents the confidence level. For example, if the p-value for a test is  $< 0.05$ , it means that there is less than 5% chance the difference between two groups is due to random error or by chance. If the p-value is  $< 0.01$ , it means that there is less than 1% chance the difference between two groups is due to random error or by chance.

We employed statistical testing to compare different treatment groups in animal studies simply for proof of concept and to aid internal decision making for further development. We do not intend to use this standard for any regulatory submission. The US FDA or other regulatory agencies may not necessarily employ the same statistical standard to assess the efficacy in clinical trials, the results of which would be submitted for regulatory approval. Although a p-value of 0.05 has become the standard, the US FDA or other regulatory agencies may also individualize their efficacy standard for different clinical programs based on the indications, the purpose of a clinical trial, among others.

## **FDA Application Status**

As of the date of this annual report, we have received CTA approval from Health Canada for ALS-4 to initiate a Phase 1 clinical trial. We have not submitted other applications for IND to the FDA or other regulatory agencies. By end of 2021, subject to regulatory review, we expect to be in a position to submit another application for one of our drug candidates to commence trials in humans (INDs to the FDA or an equivalent application to the regulatory authorities in another jurisdiction such as the NMPA, Health Canada or EMA). However, there can be no assurance we will be able to make any such application by such time. Should we be delayed in making such filing or should such filing not be approved, our business will be adversely affected.

## **Other Projects under Development**

The following provides additional detail regarding Other Projects under Development. As noted elsewhere in this report, based on certain criteria, we sometimes cease work on certain projects to focus on projects we believe are more promising. For example, we have discontinued the development of VLS-1 and SLS-1 because patent applications protecting such technologies could not be obtained from USPTO, so we decided to focus our capital and efforts on other candidates. We typically discontinue the development of a candidate because the expected result could not be generated, so we focus our capital and efforts on our other candidates. The patents and patent applications covering the Other Projects are either owned by the Company or have been in-licensed.

### **ALS-1: Small molecule intended for the treatment of viral infections caused by Influenza virus A**

Professor Richard Kao, the Inventor of ALS-1, was the first to identify viral nucleoproteins (NP) as an effective drug target (Nature Biotechnology. 28:600-605) We are exploring ALS-1 as a potential treatment for viral infections caused by Influenza virus A.

It is our hypothesis that Influenza A NP is an essential protein for the proliferation of the influenza virus. ALS-1 targets NP and triggers the aggregation of NP and this prevents the aggregated NP from entering the nucleus. In an animal study published by the inventor, Prof. Richard Kao, in Nature Biotechnology (28 (6): 600, 2010), after treating with ALS-1, 50% of the mice receiving two doses of ALS-1 (100 µl of 2.3 mg/ml ALS-1) per day for 7 days survived for more than 21 days compared with 100% mortality in the treatment-free control group within 7 days. In addition, about a 10x reduction of viral load in the lungs of the ALS-1-treated mice was observed compared to the untreated control group. The animal study results suggest that ALS-1 has the potential to be developed into a useful anti-influenza therapeutic.

ALS-1 is designed to target a broad range of NP variants, a novel therapeutic target. Compared with the currently marketed antiviral drugs for which the viruses have acquired extensive resistance, ALS-1 acts on a completely different therapeutic target.

ALS-1 is currently undergoing Lead Optimization to optimize its drug-like properties.

### **ALS-2: Small molecule for the treatment of bacterial infections caused by Staphylococcus aureus including MRSA**

ALS-2 is a next generation small molecule targeting bacterial virulence for the treatment of bacterial infections caused by Staphylococcus aureus including MRSA. In a recent paper published by the inventor, Professor Richard Kao from The University of Hong Kong (also the Founder and Principal Investigator of Acticle), in PNAS (115(310): 8003, 2018), ALS-2 suppresses the expression of multiple virulence factors in Staphylococcus aureus simultaneously. In a lethal infection mouse model, compared with the vehicle group, ALS-2 protected against Staphylococcus aureus for all the mice in the group, with significant differences between the treatment and control groups [P = 0.0057, by log-rank (Mantel-Cox) test].

ALS-2 is currently at the Lead Optimization stage to optimize its drug-like properties.

### **ALS-3: Small molecule acting synergistically with certain existing antibiotics**

ALS-3 is a novel small molecule that is at present under investigation to combine with certain classes of existing antibiotics to overcome drug resistance. We are exploring ALS-3 for the treatment of bacterial infections including MRSA. ALS-3 is currently at the Lead Optimization stage to optimize its drug-like properties.

### **CLS-1: An orally administered macromolecule for the treatment of obesity based on chemical signaling of gut microbiome**

The prevalence of obesity continues to escalate globally; however, there is no current optimal therapy for this condition. For the majority of obese patients, conventional medical therapies (i.e., diet, exercise, behavioral counseling) often have a high failure rate for the long term. (Obes Surg. 2012;22(6):956-66). We believe current pharmacotherapy has limited efficacy and is associated with substantial safety issues.

Chemical signaling of gut microbiota is known to be one of the major causes of obesity. CLS-1 is an orally administered non-absorbable macromolecule that we believe modulate the metabolite excreted by gut microbiota with high affinity and specificity. In this way, we believe the absorption of this particular metabolite, which is linked to obesity, can be inhibited.

CLS-1 is undergoing Lead Optimization, aimed for IND enabling studies to commence in 2021.

### **NLS-1: A Derivative of Epigallocatechin-3-Gallate (“Pro-EGCG”) for the treatment of Endometriosis**

NLS-1, a drug molecule derived from natural products (green tea), is currently under development for the treatment of endometriosis, a disease in which the tissue that normally lines the uterus (endometrium) grows outside the uterus.

NLS-1 acts as an anti-angiogenic to offer a potential novel treatment of endometriosis. In a paper published by the inventors in *Angiogenesis* (16:59, 2013), NLS-1 brought a statistically significant reduction in the lesion size and weight compared with EGCG and the control without any treatment in an experimental endometriosis mouse model (Student t-test,  $p < 0.05$ ). In addition, the inhibition by NLS-1 in all of the angiogenesis parameters was statistically significantly greater than that by EGCG (Student t-test,  $p < 0.05$ ). In addition, NLS-1 significantly (Student t-test,  $p < 0.05$ ) reduces the lesion size in both prevention and treatment group compared with both saline and EGCG groups. Moreover, NLS-1 also had better bioavailability and greater antioxidation and anti-angiogenesis capacities compared with EGCG. As a follow-up study in an animal model of endometriosis, orally administered NLS-1 reduced the lesion size significantly better than oral EGCG ( $p < 0.05-0.001$  at week 3-8, ANOVA) and other hormone-based therapy such as intramuscular GnRH analog ( $p < 0.05$  at week 4-8, ANOVA) and other synthetic anti-angiogenesis agents such as intraperitoneal PTK787 ( $p < 0.05-0.01$  at week 4-8, ANOVA). Regarding safety, there was no sign of stress to NLS-1 administration were observed during the treatment period. No significant weight change was observed over the course of the experiment. Histological examination revealed no obvious reproductive effects on ovarian follicles and endometrial glands under NLS-1 treatments. Also, vascularization of the ovaries and the uterus was not affected in the NLS-1 treatment group.

We are currently undergoing some activities to enable NLS-1 to enter IND-enabling studies, as well as exploring possibilities to develop a non-drug formulation for NLS-1.

#### **SACT-COV19: Drug repurposing for the treatment of infections caused by COVID-19**

SACT-COV19 is a drug repurposing program for the treatment of infections caused by COVID-19. We have completed initial screening under the Smart-ACT™ platform to select, out of more than 2,600 small drug molecules that were previously approved for other indications, at least 3 potential candidates for further preclinical investigation against the new coronavirus disease, COVID-19. We are collaborating with Toronto based Covar Pharmaceuticals and University of Oxford, and have also entered into agreement with the University of Hong Kong's Microbiology Department to conduct further preclinical investigation of the selected candidates prior to seeking approval from regulatory agencies to initiate clinical trials on suitable candidates.

Drug candidates from the SACT-COV19 program are currently undergoing in vitro validation.

#### **Aptorum Medical Limited - AML Clinic**

Incorporated in August 2017, Aptorum Medical Limited is a Hong Kong-based company incorporated in Cayman Islands focused on delivering premium healthcare and clinic services. AML can draw on the expertise of many of the region's most experienced medical practitioners, and is committed to providing a comprehensive cross-functional facility for healthcare professionals to practice evidence-based medicine and offer high-quality medical services to their patients. We also intend that AML will offer to conduct clinical trials of both the Company's and third parties' new drug products.

Effective as of March 2018, we leased office space in Central, Hong Kong, the commercial and financial heart of Hong Kong, as the home to AML Clinic. We operate the AML Clinic under the name of Talem Medical. AML Clinic commenced operation in June 2018.

The recently renovated medical center is staffed by our group of medical professionals and offers state-of-the-art facilities. Initially we expect to focus our expertise on treatment of chronic diseases resulting from modern sedentary lifestyles and an aging population.

#### **Natural supplement**

#### **NLS-2: NativusWell®, a Bioactive Ingredient (DOI) in Chinese Yam for the Relief of Menopausal Symptoms as a Natural Supplement.**

NativusWell® (NLS-2) is a natural supplement made with the bioactive ingredient extracted Chinese yam powder containing "DOI", which is Aptorum Group's non-hormonal approach intended to meet certain growing consumer nutritional trends and concerns. It is estimated that 1.2 billion women worldwide will be menopausal or postmenopausal by the year 2030<sup>1</sup>. The global woman's health supplement market for menopausal symptoms is projected to reach over USD\$50bn by 2025 with a CAGR rate of 16.4% (2016-2025)<sup>2</sup>. Initially, the supplement will be commercialized and sold in Hong Kong; the Company is seeking regulatory clearance to market the product in other major jurisdictions.

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<sup>1</sup> World Health Technical Report Series. Research on the Menopause in the 1990's. Geneva, Switzerland: World Health Organization; 1996.

<sup>2</sup> <https://www.grandviewresearch.com/press-release/global-isoflavones-market>

As part of the commercialization, Aptorum Group, through its wholly-owned subsidiary Nativus Life Sciences Limited, entered into a regional distribution and marketing agreement with Multipak Limited, a Hong Kong based group that operates household brands, including the Luk Yu® tea bag and other health related products (the “Multipak Agreement”). Pursuant to the Multipak Agreement, Multipak is appointed as a non-exclusive distributor for the distribution and release of NativusWell®, yam powder tablets to be formulated according to proprietary technologies of Nativus and the Group in Hong Kong and China, and such other territories as agreed by both parties from time to time.

Through Multipak, Aptorum Group will be able to increase the accessibility of the product to a large consumer base regionally. The production of Aptorum Group’s dioscorea opposita bioactive nutraceutical tablets has commenced production in Canada and will be marketed under the brand name NativusWell®. The Multipak Agreement has a term of one year, which shall automatically renew for four additional one-year terms, unless terminated by either party with at least 30 days prior written notice. Either party may also terminate the Multipak Agreement upon written notice to the other party if such other party commits a material breach of the terms and conditions of the agreement and it is not remedied within 30 days’ notice or if the other party cannot pay its debts or becomes insolvent, or otherwise is involved in a bankruptcy or liquidation proceeding. Nativus also has the option to terminate the agreement upon written notice to Multipak upon the occurrence of certain events, including: if Multipak is later by more than 30 days in paying amounts due under the agreement, Multipak challenges the validity of any of Nativus’ or the Group’s intellectual property, Multipak does something that could reasonably be expected to have an adverse effect on the reputation of Nativus or the Group, or Multipak has a change in control for which Nativus did not pre-approve. During the 3-month period following any termination (the “Sell-Off Period”), Multipak may sell of its stock of products, but may not return any, nor shall Nativus have any liability for breach of warranty for such product during the Sell-Off Period. At the end of Multipak Agreement also provides for certain indemnities of each party.

The NativusWell® tablets are natural, non-hormonal supplements containing DOI. The yam powder with DOI utilizes a non-hormonal approach that is intended to boost the general wellness of women undergoing menopause. Third party scientific studies indicate that DOI, the naturally occurring bioactive ingredient in Chinese yam, appears to stimulate estradiol biosynthesis, induce estradiol and progesterone secretion and increase bone density, thereby potentially counteracting the progression of osteoporosis<sup>3</sup>, one of the common symptoms associated with menopause<sup>4</sup>.

### Competition

Our industry is highly competitive and subject to rapid and significant change. While we believe that our development and commercialization experience, scientific knowledge and industry relationships provide us with competitive advantages, we face competition from pharmaceutical and biotechnology companies, including specialty pharmaceutical companies, and generic drug companies, academic institutions, government agencies and research institutions.

There are a number of large pharmaceutical and biotechnology companies that currently market and sell drugs or are pursuing the development of drugs for the diagnosis and treatment of diseases for which we are developing products or technology. Moreover, a number of additional drugs are currently in clinical trials and may become competitors if and when they receive regulatory approval.

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<sup>3</sup> <https://www.ke.hku.hk/story/innovation/the-magic-of-chinese-yam-for-treatment-of-menopausal-syndrome>; see also, Scientific Reports, 5-10179.

<sup>4</sup> <https://www.everydayhealth.com/menopause/osteoporosis-and-menopause.aspx>

Many of our competitors have longer operating histories, better name recognition, stronger management capabilities, better supplier relationships, a larger technical staff and sales force and greater financial, technical or marketing resources than we do. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Our commercial opportunity could be reduced or eliminated if our competitors develop or market products or other novel therapies that are more effective, safer or less costly than our current drug candidates, or any future drug candidates we may develop, or obtain regulatory approval for their products more rapidly than we may obtain approval for our current drug candidates or any such future drug candidates. Our success will be based in part on our ability to identify, develop and manage a portfolio of drug candidates that are safer and more effective than competing products.

### **Inflation**

Inflation affects us by generally increasing our cost of labor and research and development costs, the way it does to all labor and research costs. However, we do not anticipate that inflation will materially affect our business in the foreseeable future.

### **Seasonality**

We believe our operation and sales do not experience seasonality.

### **Employees**

As of the date of this annual report, we have 26 employees, including 24 full-time employees and 2 part-time employee. Of these, 7 are engaged in full-time research and development and laboratory operations, 15 are engaged in general and administrative functions, 2 are full-time employees engaged in the clinic operation and 2 part-time employee is engaged in research and development and legal clerical support. As of the date of this annual report, 25 of our employees are located in Asia and 1 of our employees is located in Europe. In addition, we have engaged and may continue to engage 48 independent contracted consultants and advisors to assist us with our operations. None of our employees are represented by a labor union or covered by a collective bargaining agreement. We have never experienced any employment related work stoppages, and we consider our relations with our employees to be good.

### **Intellectual Property**

The technologies underlying our various research and development projects are the subject of various patents and patent applications claiming, in certain instances, composition of matter and, in other instances, methods of use. Prosecution, maintenance and enforcement of these patents, as well as those on any future protectable technologies we may acquire, are and will continue to be an important part of our strategy to develop and commercialize novel medicines, as described in more detail below. Through entering into license agreements with their owners, we have obtained exclusive rights to these patents, applications and related know-how in the U.S. and certain other countries to develop, manufacture and commercialize the products using or incorporating the protected inventions that are described in this annual report and that are expected to contribute significant value to our business. The technologies protected by these patents may also for the basis for the development of other products.

In addition to licensed intellectual property, our in-house science team has been actively developing our own proprietary intellectual property. No non-provisional patent application has yet been filed in the Company's own name for the Lead Projects. We have, however, filed a number of provisional applications to establish earlier filing dates for certain of our other ongoing researches, the specifics of which are currently proprietary and confidential.

The U.S. patent system permits the filing of provisional and non-provisional patent applications (i.e., a regular patent application). A non-provisional patent application is examined by the USPTO, and can mature into a patent once the USPTO determines that the claimed invention meets the standards for patentability. On the other hand, a provisional patent application is not examined for patentability, and automatically expires 12 months after its filing date. As a result, a provisional patent application cannot mature into a patent.

Provisional applications are often used, among other things, to establish an earlier filing date for a subsequent non-provisional patent application. The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained.

The effective filing date of a non-provisional patent application is used by the USPTO to determine what information is prior art when it considers the patentability of a claimed invention. If certain requirements are satisfied, a non-provisional patent application can claim the benefit of the filing date of an earlier filed provisional patent application. As a result, the filing date accorded by the provisional patent application may supersede information that otherwise could preclude the patentability of an invention.

A provisional patent application is not eligible to become an issued patent unless, among other things, we file a non-provisional patent application within 12 months of the filing date of the provisional patent application. If we do not timely file a non-provisional patent application claiming priority to said provisional application, we may lose our priority date with respect to our provisional patent applications. Further, if any (self or by others) publication of the invention is made after such priority date, and if we do not file a non-provisional application claiming priority to said provisional application, our invention may become unpatentable.

Moreover, we cannot predict whether such future patent applications will result in the issuance of patents that effectively protect any of our product candidates or will effectively prevent others from commercializing competitive products.

We do not expect to incur material expenses in the prosecution of the provisional applications or other licensed patent applications. We expect to fund the patent costs from our cash and restricted cash.

The value of our drug products will depend significantly on our ability to obtain and maintain patent and other proprietary protection for those products, preserve the confidentiality of our trade secrets and operate without infringing the valid and enforceable patents and proprietary rights of other parties.

As of the date hereof, we are the patentee of a number of provisional and non-provisional patent applications, both on our proprietary developed projects and improvement to our in-licensed projects.

The following table sets forth a list of our patent rights under the exclusive licenses as of the date of this annual report related to our Lead Projects, ALS-4 and RPIDD; on the other hand, our other Lead Project, SACT-1 is a proprietary technology not subject to any license agreement:

Project Company / Project name	License Agreement	Licensor(s)	Licensee	Licensed / IP Rights	Patent Expiration Dates
Acticule / ALS-4	<p>Exclusive Patent License Agreement, dated October 18, 2017</p> <p>First Amendment to Exclusive License Agreement, dated June 7, 2018</p> <p>Second Amendment to Exclusive License Agreement dated July 10, 2019</p> <p>Exclusive Patent License Agreement dated January 11, 2019</p>	Versitech Limited	Acticule Life Sciences Limited	<p>Exclusive licensee: 2 pending U.S. applications (16/867,540 and 17/006,985), 1 pending European applications (EP18835238.9), 1 pending PRC application (CN201880048674.5), 12 pending applications in other foreign jurisdictions including Australia, Brazil, Canada, Chile, Eurasia, Hong Kong, Israel, Japan, Korea, Malaysia, New Zealand, Singapore</p>	<p>The licensed IP rights include granted patents in the U.S. and pending patent applications in the U.S., Europe, PRC and other foreign jurisdictions.</p> <p>The U.S. patents will expire in 2038; any other patent based on the pending application, if granted, will have a 20-year patent term from 2018.</p>
RPIDD	Exclusive Patent License Agreement, dated September 25, 2020	Accelerate Technologies Pte Ltd	Aptorum Innovations Holding Pte. Ltd	<p>Exclusive licensee: 4 U.S. patents US7635566, US8241850, US9920355, US10472667, 1 European patent EP3224374, 1 Great Britain patent GB2532749</p>	The U.S. patents will expire in 2028, 2029 and 2035 respectively. The UK patent will expire in 2034.

Because of the extensive time required for clinical development and regulatory review of a drug we may develop, it is possible that, before any of our drug candidates can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thereby reducing any advantage of any such patent. If appropriate, the Company may seek to extend the period during which it has exclusive rights to a product by pursuing patent term extensions and marketing exclusivity periods that are available from the regulatory authorities of certain countries (including the United States) and the EPO.

Even though the Company has certain patent rights, the ability to obtain and maintain protection of biotechnology and pharmaceutical products and processes such as those we intend to develop and commercialize involves complex legal and factual questions. No consistent policy regarding the breadth of claims allowed in such patents has emerged to date in the U.S. The scope of patent protection outside the United States is even more uncertain. Changes in the patent laws or in interpretations of patent laws in the United States and other countries have diminished (and may further diminish) our ability to protect our inventions and enforce our IP rights and, more generally, could affect the value of IP.

While we have already secured rights to a number of issued patents directed to our drug candidates, we cannot predict the breadth of claims that may issue from the pending patent applications and provisional patents that we have licensed or that we have filed. Substantial scientific and commercial research has been conducted for many years in the areas in which we have focused our development efforts, which has resulted in other parties having a number of issued patents, provisional patents and pending patent applications relating to such areas. The patent examiner in any particular jurisdiction may take the view that prior issued patents and prior publications render our patent claims “obvious” and therefore unpatentable or require us to reduce the scope of the claims for which we are seeking patent protection.

In addition, patent applications in the United States and elsewhere generally are not available to the public until at least 18 months from the priority date, and the publication of discoveries in the scientific or patent literature frequently occurs substantially later than the date on which the underlying discoveries were made. Therefore, patent applications relating to drugs similar to our drug candidates may have already been filed, which (if they result in issued patents) could restrict or prohibit our ability to commercialize our drug candidates.

The biotechnology and pharmaceutical industries are characterized by extensive litigation regarding patents and other IP rights. Our ability to prevent competition for our drug candidates and technologies will depend on our success in obtaining patents containing substantial and enforceable claims for those candidates and enforcing those claims once granted. With respect to any applications which have not yet resulted in issued patents, there can be no assurance that meaningful claims will be obtained. Even issued patents may be challenged or invalidated. If others have prepared and filed patent applications in the United States that also claim technology to which we have filed patent applications or otherwise wish to challenge our patents, we may have to participate in interferences, post-grant reviews, inter parties reviews, derivation or other proceedings in the USPTO and other patent offices to determine issues such as priority of claimed invention or validity of such patent applications as well as our own patent applications and issued patents. Patents may also be circumvented, and our competitors may be able to independently develop and commercialize similar drugs or mimic our technology, business model or strategy without infringing our patents. The rights granted under any issued patents may not provide us with proprietary protection or competitive advantages against competitors with similar technology.

We may rely, in some limited circumstances, on unpatented trade secrets and know-how to protect aspects of our technology. However, it is challenging to monitor and prevent the disclosure of trade secrets. We seek to protect our proprietary trade secrets and know-how, in part, by entering into confidentiality agreements with consultants, scientific advisors and contractors and invention assignment agreements with our employees. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures may be breached, giving our competitors knowledge of our trade secrets and know-how, and we may not have adequate remedies for any such breach, in which case our business could be adversely affected. Our trade secrets will not prevent our competitors from independently discovering or developing the same know-how. Although our agreements with our consultants, contractors or collaborators require them to provide us only original work product and prohibit them from incorporating or using IP owned by others in their work for us, if they breach these obligations, disputes may arise as to the rights in any know-how or inventions that arise from their work.

Our commercial success will also depend in part on not infringing the proprietary rights of other parties. Although we seek to review the patent landscape relevant to our technologies on an ongoing basis, we may become aware of a new patent which has been issued to others with claims covering or related to aspects of one of our drug candidate. The issuance of such a patent could require us to alter our development plans for that candidate, redesign the candidate, obtain a license from the patent holder or cease development. Our inability to obtain a license to proprietary rights that we may require to develop or commercialize any of our drug candidates would have a material adverse impact on us.

## **Trademarks**

As of the date of this annual report, we own trademark registrations covering the trade names and logos of Aptorum and our subsidiaries, including but not limited to “APTORUM”, “APTORUM THERAPEUTICS,” “VIDENS LIFE SCIENCES,” “ACTICULE LIFE SCIENCES,” “CLAVES LIFE SCIENCES”, “NATIVUS LIFE SCIENCES”, “TALEM,” in jurisdictions Hong Kong, EU and the United Kingdom and PRC. Furthermore, we are in the process of applying for registration of trademarks in jurisdictions including the U.S., EU, the United Kingdom, and PRC.

We also own certain unregistered trademark rights.

All other trade names, trademarks and service marks of other companies appearing in this annual report are the property of their respective holders. Solely for convenience, the trademarks and trade names in annual report are referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. We do not intend our use or display of other companies' trademarks and trade names to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

## **Regulations**

Government authorities in the United States at the federal, state and local level and in other countries extensively regulate, among other things, the research and clinical development, testing, manufacture, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, post-approval monitoring and reporting, marketing, pricing, export and import of drug products ("Regulated Products"), such as those we are developing. Generally, before a new Regulated Product can be marketed, considerable data demonstrating its quality, safety and efficacy must be obtained, organized to address the requirements of and in the format specific to each regulatory authority, submitted for review and approved by the regulatory authority. This process is very lengthy and expensive, and success is uncertain.

Regulated Products are also subject to other federal, state and local statutes and regulations in the United States and other countries, as applicable. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources. Failure to comply with the applicable regulatory requirements at any time during the product development process, approval process or after approval, may subject an applicant to administrative or judicial sanctions. These sanctions could include, among other actions, the regulatory authority's refusal to approve pending applications, withdrawal of an approval, clinical holds, untitled or warning letters, voluntary product recalls or withdrawals from the market, product seizures, total or partial suspension of production or distribution, injunctions, disbarment, fines, refusals of government contracts, restitution, disgorgement, or civil or criminal penalties. Any such administrative or judicial enforcement action could have a material adverse effect on us.

As AML Clinic and part of the Company's principal place of business is in Hong Kong, the Company is subject to various Hong Kong laws and regulation covering its business activities there, described in further detail below. Also, the Company anticipates that, if it obtains marketing approval for any of its drug candidates, it intends to focus its marketing and sales efforts primarily in three regions: the United States, Canada, Europe and PRC. The regulatory framework for each of these regions is described below.

### ***U.S. Drug Development Process***

The process of obtaining regulatory approvals and maintaining compliance with appropriate federal, state and local statutes and regulations requires the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process, or after approval, may subject an applicant to administrative or judicial sanctions or lead to voluntary product recalls. Administrative or judicial sanctions could include the FDA's refusal to approve pending applications, withdrawal of an approval, a clinical hold, untitled or warning letters, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement or civil or criminal penalties. The process required by the FDA before a drug may be marketed in the United States generally involves the following:

- completion of non-clinical laboratory tests, preclinical studies according to cGLP and manufacturing of clinical supplies according to cGMP;
- submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- approval by an independent IRB, at each clinical site before each trial may be initiated;
- performance of adequate and well-controlled human clinical trials according to cGCP, to establish the safety and efficacy of the proposed product for its intended use;

- preparation and submission to the FDA of an NDA, for a drug;
- satisfactory completion of an FDA advisory committee review, if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the product, or components thereof, are produced to assess compliance with cGMP; and
- payment of user fees and the FDA review and approval of the NDA.

The testing and approval process requires substantial time, effort and financial resources and we cannot be certain that any approvals for our drug candidates, or any future drug candidates we may develop, will be granted on a timely basis, if at all.

Once a drug candidate is identified for development, it enters the non-clinical testing stage. Non-clinical tests include laboratory evaluations of product chemistry, toxicity, formulation and stability, as well as preclinical studies. An IND sponsor must submit the results of the non-clinical tests, together with manufacturing information, analytical data and any available clinical data or literature, to the FDA as part of the IND prior to commencing any testing in humans. An IND sponsor must also include a protocol detailing, among other things, the objectives of the clinical trial, dosing procedures, subject selection and exclusion criteria, the parameters to be used in monitoring safety, and the effectiveness criteria to be evaluated if the initial clinical trial lends itself to an efficacy evaluation. Some non-clinical testing may continue even after the IND is submitted. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA raises concerns or questions related to a proposed clinical trial and places the trial on a clinical hold within that 30-day time period. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. Clinical holds also may be imposed by the FDA at any time before or during clinical trials due to safety concerns or non-compliance, and may be imposed on all products within a certain class of products. The FDA also can impose partial clinical holds, for example, prohibiting the initiation of clinical trials for certain duration or for certain doses.

All clinical trials must be conducted under the supervision of one or more qualified investigators in accordance with cGCP regulations. These regulations include the requirement that all research subjects provide informed consent in writing before their participation in any clinical trial. Further, an IRB representing each institution participating in a clinical trial must review and approve the plan for any clinical trial before it commences at that institution, and the IRB must conduct continuing review and reapprove the study at least annually. An IRB is responsible for protecting the rights of clinical trial subjects and considers, among other things, whether the risks to individuals participating in the clinical trial are minimized and are reasonable in relation to anticipated benefits. The IRB also approves the information regarding the clinical trial and the consent form that must be provided to each clinical trial subject or his or her legal representative and must monitor the clinical trial until completed. Each new clinical protocol and any amendments to the protocol must be submitted to the FDA for review, and to the IRBs for approval. Protocol detail, among other things, includes the objectives of the clinical trial, testing procedures, subject selection and exclusion criteria, and the parameters to be used to monitor subject safety.

Human clinical trials are typically conducted in three sequential phases that may overlap or be combined:

- **Phase 1.** Phase 1 includes the initial introduction of an investigational new drug into humans. These studies are closely monitored and may be conducted in patients, but are usually conducted in healthy volunteer subjects. These studies are designed to determine the metabolic and pharmacologic actions of the drug in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness. During Phase 1, sufficient information about the drug's pharmacokinetics and pharmacological effects should be obtained to permit the design of well-controlled, scientifically valid, Phase 2 studies. Phase 1 studies also evaluate drug metabolism, structure-activity relationships, and the mechanism of action in humans. These studies also determine which investigational drugs are used as research tools to explore biological phenomena or disease processes. The total number of subjects included in Phase 1 studies varies with the drug, but is generally in the range of twenty to eighty.
- **Phase 2.** Phase 2 includes the early controlled clinical studies conducted to obtain some preliminary data on the effectiveness of the drug for a particular indication or indications in patients with the disease or condition. This phase of testing also helps determine the common short-term side effects and risks associated with the drug. Phase 2 studies are typically well-controlled, closely monitored, and conducted in a relatively small number of patients, usually involving several hundred people.

- **Phase 3.** Phase 3 studies are expanded controlled and uncontrolled trials. They are performed after preliminary evidence suggesting effectiveness of the drug has been obtained in Phase 2, and are intended to gather the additional information about effectiveness and safety that is needed to evaluate the overall benefit-risk relationship of the drug. Phase 3 studies are designed to provide an adequate basis for extrapolating the results to the general population and transmitting that information in the physician labeling. Phase 3 studies usually include several hundred to several thousand people.

Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA and safety reports must be submitted to the FDA and clinical investigators within 15 calendar days for serious and unexpected suspected adverse events, any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator's brochure, or any findings from other studies or animal or in vitro testing that suggest a significant risk in humans exposed to the drug candidate. Additionally, a sponsor must notify the FDA of any unexpected fatal or life-threatening suspected adverse reaction no later than 7 calendar days after the sponsor's receipt of the information. There is no assurance that Phase 1, Phase 2 and Phase 3 testing can be completed successfully within any specified period, or at all. The FDA or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the product has been associated with unexpected serious harm to subjects.

Concurrent with clinical trials, companies usually complete additional preclinical studies and must also develop additional information about the chemistry and physical characteristics of the product and finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product drug and, among other things, the manufacturer must develop methods for testing the identity, strength, quality and purity of the final product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the product drug does not undergo unacceptable deterioration over its shelf life.

The results of product development, non-clinical studies and clinical trials, together with other detailed information regarding the manufacturing process, analytical tests conducted on the product, proposed labeling and other relevant information, are submitted to the FDA as part of an NDA requesting approval to market the new drug. The FDA reviews all NDAs submitted within 60 days of submission to ensure that they are sufficiently complete for substantive review before it accepts them for filing. If the submission is accepted for filing, the FDA begins an in-depth substantive review.

The approval process is lengthy and difficult and the FDA may refuse to approve an NDA if the applicable regulatory criteria are not satisfied or may require additional clinical data or other data and information. Even if such data and information are submitted, the FDA may ultimately decide that the NDA does not satisfy the criteria for approval. Data obtained from clinical trials are not always conclusive, and the FDA may interpret data differently than we interpret the same data. The FDA will issue a complete response letter if the agency decides not to approve the NDA in its present form. The complete response letter usually describes all of the specific deficiencies that the FDA identified in the NDA that must be satisfactorily addressed before it can be approved. The deficiencies identified may be minor, for example, requiring labeling changes, or major, for example, requiring additional clinical trials. Additionally, the complete response letter may include recommended actions that the applicant might take to place the application in a condition for approval. If a complete response letter is issued, the applicant may either resubmit the NDA, addressing all of the deficiencies identified in the letter, or withdraw the application or request an opportunity for a hearing.

If after such review a product receives regulatory approval, the approval may be significantly limited to specific diseases and dosages or the indications for use may otherwise be limited, which could restrict the commercial value of the product. Further, the FDA may require that certain contraindications, warnings or precautions be included in the product labeling. Any products for which we receive the FDA approval would be subject to continuing regulation by the FDA, including, among other things, record-keeping requirements, reporting of adverse experiences with the product, providing the FDA with updated safety and efficacy information, product sampling and distribution requirements, complying with certain electronic records and signature requirements and complying with the FDA promotion and advertising requirements. In addition, the FDA may require post-approval studies, including Phase 4 clinical trials, to further assess a product's safety and effectiveness after NDA approval and may require testing and surveillance programs to monitor the safety of approved products that have been commercialized. The FDA also may conclude that an NDA may only be approved with a Risk Evaluation and Mitigation Strategy designed to mitigate risks through, for example, a medication guide, physician communication plan, or other elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools.

### ***Post-Approval Requirements***

Any products for which we receive the FDA approval are subject to continuing regulation by the FDA, including, among other things, record-keeping requirements, reporting of adverse experiences with the product, providing the FDA with updated safety and efficacy information, product sampling and distribution requirements, complying with certain electronic records and signature requirements and complying with the FDA promotion and advertising requirements. The FDA strictly regulates labeling, advertising, promotion and other types of information on products that are placed on the market. Products may be promoted only for the approved indications and in accordance with the provisions of the approved label. Further, manufacturers must continue to comply with cGMP requirements, which are extensive and require considerable time, resources and ongoing investment to ensure compliance. In addition, changes to the manufacturing process generally require prior the FDA approval before being implemented and other types of changes to the approved product, such as adding new indications and additional labeling claims, are also subject to further the FDA review and approval.

The FDA may withdraw a product approval if compliance with regulatory requirements is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product may result in restrictions on the product's marketing or even complete withdrawal of the product from the market. Further, the failure to maintain compliance with regulatory requirements may result in administrative or judicial actions, such as fines, untitled or warning letters, holds on clinical trials, product seizures, product detention or refusal to permit the import or export of products, refusal to approve pending applications or supplements, restrictions on marketing or manufacturing, injunctions or consent decrees, or civil or criminal penalties, or may lead to voluntary product recalls.

### ***Patent Term Restoration and Marketing Exclusivity***

Because drug approval can take an extended period of time, there may be limited remaining life for the patents covering the approved drug, meaning that the company has limited time to use the patents to protect the sponsor's exclusive rights to make, use and sell that drug. In such a case, U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, commonly referred to as the Hatch-Waxman Act. The Hatch-Waxman Act permits a patent restoration term of up to five years as compensation for patent term lost during product development and the FDA regulatory review process. However, patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date.

In addition, the FDCA provides a five-year period of non-patent marketing exclusivity within the United States to the first applicant to gain approval of an NDA for a new chemical entity. A drug is a new chemical entity if the FDA has not previously approved any other new drug containing the same active moiety, which is the molecule or ion responsible for the action of the drug substance. During the exclusivity period, the FDA may not accept for review an abbreviated new drug application ("ANDA") or a 505(b)(2) Application submitted by another company for another version of such drug where the applicant does not own or have a legal right of reference to all the data required for approval.

In the future, if appropriate, we intend to apply for restorations of patent term and/or marketing exclusivity for some of our products; however, there can be no assurance that any such extension or exclusivity will be granted to us.

### ***Disclosure of Clinical Trial Information***

Sponsors of clinical trials of the FDA-regulated products, including drugs are required to register and disclose certain clinical trial information, which is publicly available at [www.clinicaltrials.gov](http://www.clinicaltrials.gov). Information related to the product, patient population, phase of investigation, study sites and investigators, and other aspects of the clinical trial is then made public as part of the registration. Sponsors are also obligated to disclose the results of their clinical trials after completion. Disclosure of the results of these trials can be delayed until the new product or new indication being studied has been approved. Competitors may use this publicly available information to gain knowledge regarding the progress of development programs.

### ***Pharmaceutical Coverage, Pricing and Reimbursement***

Much of the revenue generated by new Regulated Products depends on the willingness of third-party payors to reimburse the price of the product. Significant uncertainty exists as to the coverage and reimbursement status of any products for which we may obtain regulatory approval. In the United States, sales of any products for which we may receive regulatory approval for commercial sale will depend in part on the availability of coverage and reimbursement from third-party payors. Third-party payors include government authorities, managed care providers, private health insurers and other organizations. The process for determining whether a payor will provide coverage for a product may be separate from the process for setting the reimbursement rate that the payor will pay for the product. Third-party payors may limit coverage to specific products on an approved list, or formulary, which is not required to include all of the FDA-approved products for a particular indication. Moreover, a payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved. Adequate third-party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development.

Third-party payors are increasingly challenging the price and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. To obtain coverage and reimbursement for any product that might be approved for sale, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of any products, in addition to the costs required to obtain regulatory approvals. Our product candidates may not be considered medically necessary or cost-effective. If third-party payors do not consider a product to be cost-effective compared to other available therapies, they may not cover the product after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow a company to sell its products at a profit.

The U.S. government and state legislatures have shown significant interest in implementing cost containment programs to limit the growth of government-paid health care costs, including price controls, restrictions on reimbursement and requirements for substitution of generic products for branded prescription drugs. Adoption of government controls and measures, and tightening of restrictive policies in jurisdictions with existing controls and measures, could limit payments for pharmaceuticals.

Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future. Unfavorable coverage or reimbursement policies regarding any of the Company's products would have a material adverse impact on the value of that product.

### ***Other Healthcare Laws and Compliance Requirements***

If we obtain regulatory approval of our products, we may be subject to various federal and state laws targeting fraud and abuse in the healthcare industry. These laws may impact, among other things, our proposed sales, marketing and education programs. In addition, we may be subject to patient privacy regulation by both the federal government and the states in which we conduct our business.

### ***Patient Protection and the Affordable Care Act***

The Affordable Care Act, enacted in March 2010, includes measures that have or will significantly change the way health care is financed in the United States by both governmental and private insurers. Among the provisions of the Affordable Care Act of greatest importance to the pharmaceutical industry are the following:

- The Medicaid Drug Rebate Program requires pharmaceutical manufacturers to enter into and have in effect a national rebate agreement with the Secretary of the Department of Health and Human Services as a condition for states to receive federal matching funds for the manufacturer's outpatient drugs furnished to Medicaid patients. The Affordable Care Act increased pharmaceutical manufacturers' rebate liability on most branded prescription drugs from 15.1% of the average manufacturer price to 23.1% of the average manufacturer price, added a new rebate calculation for line extensions of solid oral dosage forms of branded products, and modified the statutory definition of average manufacturer price. The Affordable Care Act also expanded the universe of Medicaid utilization subject to drug rebates by requiring pharmaceutical manufacturers to pay rebates on Medicaid managed care utilization and expanding the population potentially eligible for Medicaid drug benefits.

- In order for a pharmaceutical product to receive federal reimbursement under the Medicare Part B and Medicaid programs or to be sold directly to U.S. government agencies, the manufacturer must extend discounts to entities eligible to participate in the 340B drug pricing program. The Affordable Care Act expanded the types of entities eligible to receive discounted 340B pricing.
- The Affordable Care Act imposed a requirement on manufacturers of branded drugs to provide a 50% discount off the negotiated price of branded drugs dispensed to Medicare Part D patients in the coverage gap (i.e., the “donut hole”).
- The Affordable Care Act imposed an annual, non-deductible fee on any entity that manufactures or imports certain branded prescription drugs, apportioned among these entities according to their market share in certain government healthcare programs, although this fee does not apply to sales of certain products approved exclusively for orphan indications.

In addition to these provisions, the Affordable Care Act established a number of bodies whose work may have a future impact on the market for certain pharmaceutical products. These include the Patient-Centered Outcomes Research Institute, established to oversee, identify priorities in, and conduct comparative clinical effectiveness research, the Independent Payment Advisory Board, which has authority to recommend certain changes to the Medicare program to reduce expenditures by the program, and the Center for Medicare and Medicaid Innovation within the Centers for Medicare and Medicaid Services, to test innovative payment and service delivery models to lower Medicare and Medicaid spending.

These and other laws may result in additional reductions in healthcare funding, which could have a material adverse effect on customers for our product candidates, if we gain approval for any of them. Although we cannot predict the full effect on our business of the implementation of existing legislation or the enactment of additional legislation pursuant to healthcare and other legislative reform, we believe that legislation or regulations that would reduce reimbursement for, or restrict coverage of, our products could adversely affect how much or under what circumstances healthcare providers will use our product candidates if we gain approval for any of them.

### **Canadian Regulation**

In Canada, our pharmaceutical product candidates and our research and development activities are primarily regulated by the *Food and Drugs Act* and the rules and regulations thereunder, which are enforced by Health Canada. Health Canada regulates, among other things, the research, development, testing, manufacture, packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, post-approval monitoring, marketing and import and export of pharmaceutical products. Drug approval laws require licensing of manufacturing facilities, carefully controlled research and testing of products, government review and approval of experimental results prior to giving approval to sell drug products. Regulators also typically require that rigorous and specific standards such as Good Manufacturing Practices (GMP), Good Laboratory Practices, or GLP, and Good Clinical Practices, or GCP, are followed in the manufacture, testing and clinical development, respectively, of any drug product. The processes for obtaining regulatory approvals in Canada, along with subsequent compliance with applicable statutes and regulations, require the expenditure of substantial time and financial resources.

The principal steps required for drug approval in Canada is as follows:

#### ***Preclinical Toxicology Studies***

Non-clinical studies are conducted *in vitro* and in animals to evaluate pharmacokinetics, metabolism and possible toxic effects to provide evidence of the safety of the drug candidate prior to its administration to humans in clinical studies and throughout development. Such studies are conducted in accordance with applicable laws and GLP.

### ***Initiation of Human Testing***

In Canada, the process of conducting clinical trials with a new drug cannot begin until we have received a NOL (No objection Letter) from Health Canada, typically within 30 days (during Covid the 30 days extended to 45 days) of a CTA submission. Similar regulations apply in Canada to a CTA as to an IND in the United States. Once approved, two key factors influencing the rate of progression of clinical trials are the rate at which patients can be enrolled to participate in the research program and whether effective treatments are currently available for the disease that the drug is intended to treat. Patient enrollment is largely dependent upon the incidence and severity of the disease, the treatments available and the potential side effects of the drug to be tested and any restrictions for enrollment that may be imposed by regulatory agencies.

### ***Clinical Trials***

Similar regulations apply in Canada regarding clinical trials as in the United States. In Canada, Research Ethics Boards, or REBs, instead of IRBs, are used to review and approve clinical trial plans. Clinical trials involve the administration of an investigational new drug to human subjects under the supervision of qualified investigators in accordance with current Good Clinical Practices, or cGCP, requirements, which include review and approval by REBs. Clinical trials are conducted under protocols detailing, among other things, the objectives of the trial, the trial procedures, the parameters to be used in monitoring safety and the efficacy criteria to be evaluated and a statistical analysis plan. Human clinical trials are typically conducted in three sequential phases, as discussed above in similar context to government regulation in the United States.

The manufacture of investigational drugs for the conduct of human clinical trials is subject to current Good Manufacturing Practice, or cGMP, requirements. Investigational drugs and active pharmaceutical ingredients imported into Canada are also subject to regulation by Health Canada relating to their labeling and distribution. Post authorization requirements include reporting of serious adverse events and clinical trial site inspection program. Phase 1, Phase 2 and Phase 3 clinical trials are subject to a clinical trial application (CTA) for each phase of study. Furthermore, in Canada, Health Canada or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects are being exposed to an unacceptable health risk. Similarly, an REB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the REB's requirements or if the drug has been associated with unexpected serious harm to subjects. Additionally, some clinical trials are overseen by an independent group of qualified experts organized by the clinical trial sponsor, known as a data safety monitoring board or committee. This group regularly reviews accumulated data and advises the study sponsor regarding the continuing safety of trial subjects, potential trial subjects and the continuing validity and scientific merit of the clinical trial. We may also suspend or terminate a clinical trial based on evolving business objectives or competitive climate.

### ***New Drug Submission (NDS)***

Upon successful completion of Phase 3 clinical trials, in Canada the company sponsoring a new drug then assembles all the preclinical and clinical data and other testing relating to the product's pharmacology, chemistry, manufacture, and controls, and submits it to Health Canada as part of a New Drug Submission, or NDS. The NDS is then reviewed by Health Canada for approval to market the drug.

As part of the approval process, an additional application for a Drug Establishment License (DEL) 90 days prior the NDS submission to Health Canada to initiate review and inspection of the facility or the facilities at which the drug is manufactured are compliant with GMP requirements. Health Canada will not approve the product unless compliance with cGMP—a quality system regulating manufacturing—is satisfactory and the NDS contains data that provide substantial evidence that the drug is safe and effective in the indication studied. In addition, before approving an NDS, Health Canada will typically inspect one or more clinical sites to assure compliance with GCP.

The testing and approval process for an NDS requires substantial time, effort and financial resources, and may take several years to complete. Data obtained from preclinical and clinical testing are not always conclusive and may be susceptible to varying interpretations, which could delay, limit or prevent regulatory approval. Health Canada may not grant approval of an NDS on a timely basis, or at all. In Canada, NDSs are subject to user fees and these fees are typically increased annually to reflect inflation.

Even if Health Canada approves a product candidate, the relevant authority may limit the approved indications for use of the product candidate, require that contraindications, warnings or precautions be included in the product labeling, including a black box warning, require that post-approval studies, including Phase 4 clinical trials, be conducted to further assess a drug's safety after approval, require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution restrictions or other risk management mechanisms.

Health Canada may prevent or limit further marketing of a product based on the results of post-marketing studies or surveillance programs. After approval, some types of changes to the approved product, such as adding new indications, manufacturing changes, and additional labeling claims, are subject to further testing requirements, notification, and regulatory authority review and approval. Further, should new safety information arise, additional testing, product labeling or regulatory notification may be required.

## **European Union Regulation**

### ***Regulation in the European Union***

The process governing approval of medicinal products in the EU generally follows the same lines as in the United States. It entails satisfactory completion of pharmaceutical development, non-clinical studies and adequate and well-controlled clinical trials to establish the safety and efficacy of the medicinal product for each proposed indication. It also requires the submission to relevant competent authorities for clinical trials authorization and to the European Medicines Authority, or EMA, for a marketing authorization application, or MAA, and granting of a marketing authorization by these authorities before the product can be marketed and sold in the EU.

### ***Clinical Trial Approval***

Pursuant to the currently applicable Clinical Trials Directive 2001/20/EC and the Directive 2005/28/EC on cGCP, a system for the approval of clinical trials in the EU (the equivalent of the IND process in the United States) has been implemented through national legislation of the EU member states. Under this system, an applicant must obtain approval from the competent national authority of an EU member state in which the clinical trial is to be conducted or in multiple EU member states if the clinical trial is to be conducted in a number of EU member states. Furthermore, the applicant may only start a clinical trial at a specific study site after the independent ethics committee has issued a favorable opinion. The clinical trial application, or CTA, must be accompanied by an investigational medicinal product dossier with supporting information prescribed by Directive 2001/20/EC and Directive 2005/28/EC and corresponding national laws of the EU member states and further detailed in applicable guidance documents.

In April 2014, the EU adopted a new Clinical Trials Regulation (EU) No 536/2014, which is set to replace the current Clinical Trials Directive 2001/20/EC. It is expected that the new Clinical Trials Regulation will apply in 2019. It will overhaul the current system of approvals for clinical trials in the EU. Specifically, the new regulation, which will be directly applicable in all EU member states, aims at simplifying and streamlining the approval of clinical trials in the EU. For instance, the new Clinical Trials Regulation provides for a streamlined application procedure using a single entry point and strictly defined deadlines for the assessment of clinical trial applications.

### ***Marketing Authorization***

To obtain a marketing authorization for a product under the EU regulatory system (the equivalent of the NDA process in the United States), an applicant must submit an MAA, either under a centralized procedure administered by the EMA or one of the procedures administered by competent authorities in EU member states (decentralized procedure, national procedure, or mutual recognition procedure). A marketing authorization may be granted only to an applicant established in the EU. Regulation (EC) No. 1901/2006 provides that prior to obtaining a marketing authorization in the EU, an applicant must demonstrate compliance with all measures included in an EMA-approved Pediatric Investigation Plan, or PIP, covering all subsets of the pediatric population, unless the EMA has granted a product-specific waiver, class waiver, or a deferral for one or more of the measures included in the PIP.

The centralized procedure provides for the grant of a single marketing authorization by the European Commission that is valid for all EU member states. Pursuant to Regulation (EC) No. 726/2004, the centralized procedure is compulsory for specific products, including for medicines produced by certain biotechnological processes, products designated as orphan medicinal products, advanced therapy products and products with a new active substance indicated for the treatment of certain diseases, including products for the treatment of cancer. For products with a new active substance indicated for the treatment of other diseases and products that are highly innovative or for which a centralized process is in the interest of patients, the centralized procedure may be optional.

Under the centralized procedure, the Committee for Medicinal Products for Human Use, or the CHMP, established by the EMA is responsible for conducting the assessment of a product to define its risk/benefit profile. Under the centralized procedure, the maximum timeframe for the evaluation of an MAA is 210 days, excluding clock stops when additional information or written or oral explanation is to be provided by the applicant in response to questions of the CHMP. Accelerated evaluation may be granted by the CHMP in exceptional cases, when a medicinal product is of major interest from the point of view of public health and, in particular, from the viewpoint of therapeutic innovation.

If the CHMP accepts such a request, the time limit of 210 days will be reduced to 150 days, but it is possible that the CHMP may revert to the standard time limit for the centralized procedure if it determines that it is no longer appropriate to conduct an accelerated assessment.

#### ***Periods of Authorization and Renewals***

A marketing authorization is valid for five years, in principle, and it may be renewed after five years on the basis of a reevaluation of the risk benefit balance by the EMA or by the competent authority of the authorizing Member State. To that end, the marketing authorization holder must provide the EMA or the competent authority with a consolidated version of the file in respect of quality, safety and efficacy, including all variations introduced since the marketing authorization was granted, at least six months before the marketing authorization ceases to be valid. Once renewed, the marketing authorization is valid for an unlimited period, unless the European Commission or the competent authority decides, on justified grounds relating to pharmacovigilance, to proceed with one additional five-year renewal period. Any authorization that is not followed by the placement of the drug on the EU market (in the case of the centralized procedure) or on the market of the authorizing Member State within three years after authorization ceases to be valid.

#### ***Regulatory Requirements after Marketing Authorization***

Following approval, the holder of the marketing authorization is required to comply with a range of requirements applicable to the manufacturing, marketing, promotion and sale of the medicinal product. These include compliance with the EU's stringent pharmacovigilance or safety reporting rules, pursuant to which post-authorization studies and additional monitoring obligations can be imposed. In addition, the manufacturing of authorized products, for which a separate manufacturer's license is mandatory, must also be conducted in strict compliance with the EMA's cGMP requirements and comparable requirements of other regulatory bodies in the EU, which mandate the methods, facilities and controls used in manufacturing, processing and packing of drugs to assure their safety and identity. Finally, the marketing and promotion of authorized products, including industry-sponsored continuing medical education and advertising directed toward the prescribers of drugs and/or the general public, are strictly regulated in the EU under Directive 2001/83EC, as amended.

#### ***Orphan Drug Designation and Exclusivity***

Regulation (EC) No. 141/2000 and Regulation (EC) No. 847/2000 provide that a product can be designated as an orphan drug by the European Commission if its sponsor can establish: that the product is intended for the diagnosis, prevention or treatment of (1) a life-threatening or chronically debilitating condition affecting not more than five in ten thousand persons in the EU when the application is made, or (2) a life-threatening, seriously debilitating or serious and chronic condition in the EU and that without incentives it is unlikely that the marketing of the drug in the EU would generate sufficient return to justify the necessary investment. For either of these conditions, the applicant must demonstrate that there exists no satisfactory method of diagnosis, prevention, or treatment of the condition in question that has been authorized in the EU or, if such method exists, the drug has to be of significant benefit compared to products available for the condition.

An orphan drug designation provides a number of benefits, including fee reductions, regulatory assistance and the possibility to apply for a centralized EU marketing authorization. Marketing authorization for an orphan drug leads to a ten-year period of market exclusivity. During this market exclusivity period, neither the EMA nor the European Commission or the EU member states can accept an application or grant a marketing authorization for a “similar medicinal product.” A “similar medicinal product” is defined as a medicinal product containing a similar active substance or substances as contained in an authorized orphan medicinal product, and which is intended for the same therapeutic indication. The market exclusivity period for the authorized therapeutic indication may, however, be reduced to six years if, at the end of the fifth year, it is established that the product no longer meets the criteria for orphan drug designation because, for example, the product is sufficiently profitable not to justify market exclusivity.

### **PRC Regulation**

In order to protect our potential market in the PRC, we have obtained an exclusive license of certain PRC patents directed to certain of the drug candidates that we are developing and are currently seeking approval of additional patent and other IP filings in the PRC. We do not otherwise conduct business in the PRC. Seeking IP approval in the PRC subjects us to some of the rules and practices of the PRC government. Since the Company intends eventually to market its products in the PRC, at least some of our drug candidates may become subject to regulatory approval and marketing authorization in the PRC.

### **Hong Kong Regulation**

The operations of AML Clinic in Hong Kong are subject to certain general laws and regulations in relation to clinic medical professionals, trade description and safety of consumer goods, medical advertisement and importation, exportation, dealing in and sale of pharmaceutical products and drugs.

### ***Medical Clinics Ordinance***

The Medical Clinics Ordinance provides for the registration, control and inspection of medical clinics. It requires a medical clinic to be registered, with name and address and other prescribed particulars. “Medical clinic” means any premises used or intended to be used for the medical diagnosis or treatment of persons suffering from, or believed to be suffering from, any disease, injury or disability of mind or body, with specific exceptions, including private consulting rooms used exclusively by registered medical practitioners in the course of their practice on their own account and not bearing any title or description which includes the word “clinic” or “polyclinic” in the English language.

The application of registration may be refused if:

- (i) the income derived or to be derived from the establishment or operation of the clinic is not, or will not be, applied solely towards the promotion of the objects of the clinic; or
- (ii) any portion of such income, except payment of remuneration to employed registered medical practitioners, nurses and menial servants, will be paid by way of dividend, bonus or otherwise howsoever by way of profit to the applicant himself, or to any persons properly so employed, or to any other persons howsoever.

We do not believe that the Medical Clinic Ordinance is applicable to the business of our Company and its subsidiaries, having considered, among others, the following:

- (iii) the legislative intent behind the Medical Clinics Ordinance was to provide for registration of non-profit making clinics;
- (iv) the Food and Health Bureau of Hong Kong published a consultation document, “Regulation of Private Healthcare Facilities” in 2014 which specifically states that the Medical Clinics Ordinance and the Code of Practice For Clinics Registered Under The Medical Clinics Ordinance (Chapter 343 of the Laws of Hong Kong) set out the regulatory framework for non-profit-making medical clinics and that other private healthcare facilities, such as ambulatory medical centers and clinics operated by medical groups or individual medical practitioners, are not subject to direct statutory control beyond the regulation of an individual’s professional practice; and

- (v) our business is one which makes and intends to continue making profit as a listed entity. The payment of bonuses to some of our Hong Kong Doctors is clearly a reflection of the profit-making nature of our business.

Hence, we do not believe that AML Clinic is required to be registered under the Medical Clinics Ordinance.

#### ***Waste Disposal Ordinance***

The Waste Disposal Ordinance (Chapter 354 of the Laws of Hong Kong) (“WDO”) and the Waste Disposal (Clinical Waste) (General) Regulation (Chapter 354O of the Laws of Hong Kong) (the “WDR”) provide for, among others, the control and regulation of the production, storage, collection and disposal of clinical waste.

Under the WDO, clinical waste means waste consisting of any substance, matter or thing generated in connection with:

- a dental, medical, nursing or veterinary practice;
- any other practice, or establishment (howsoever described), that provides medical care and services for the sick, injured, infirm or those who require medical treatment;
- dental, medical, nursing, veterinary, pathological or pharmaceutical research; or
- a dental, medical, veterinary or pathological laboratory practice,

and which consists wholly or partly of any of the materials specified in one or more of the groups listed below:

- used or contaminated sharps;
- laboratory waste;
- human and animal tissues;
- infectious materials;
- dressings; and
- such other wastes as specified by the Director of the Environmental Protection Department (“EPD”) of Hong Kong.

Given the medical services provided by AML Clinic and the research works in our R&D Center may produce used or contaminated sharps such as syringes and needles as well as dressings, we are subject to WDO, WDR and the Code of Practice.

#### ***Public Health and Municipal Services Ordinance***

We intend to first launch market NativusWell<sup>®</sup> (NLS-2) in Hong Kong. In Hong Kong, natural supplements are defined as “health food” products. “Health food” containing medicines are subject to the Pharmacy and Poisons Ordinance (Cap 138) and such “health food” containing Chinese medicines are regulated by the Chinese Medicine Ordinance (Cap 549), where they must meet the requirements in respect of safety, quality and efficacy before they can be registered.

For other “health food” products which cannot be classified as Chinese medicine or western medicine are regulated under the Public Health and Municipal Services Ordinance (Cap 132) as general food products. The Public Health and Municipal Services Ordinance requires the manufacturers and sellers of food to ensure that their products are fit for human consumption and comply with the requirements in respect of food safety, food standards and labelling. In addition, all prepackaged food should bear labels which correctly list out the ingredients of the food under the Food and Drugs (Composition and Labelling) Regulations (Cap 132W) under the Ordinance.

The NativusWell<sup>®</sup> (NLS-2) is made with the bioactive ingredient extracted Chinese yam powder and does not contain any western or Chinese medicine; therefore, registration is not required under the local laws for marketing in Hong Kong. We will, however, ensure the compliance of the Food and Drugs (Composition and Labelling) Regulations (Cap 132W) with by proper labelling in place.

#### **Rest of the World Regulation**

For other countries in the world, the requirements governing the conduct of clinical trials, medical product licensing, pricing and reimbursement vary from country to country. In all cases if clinical trials are required, they must be conducted in accordance with cGCP requirements and the applicable regulatory requirements and the ethical principles having their origin in the Declaration of Helsinki.

If we fail to comply with applicable foreign regulatory requirements, we may be subject to, among other things, fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

#### **C. Our Structure**

See “Item 4. Information on the Company – A. History and Development of the Company.”

#### **D. Property, plants and equipment**

We have several operating leases for offices, laboratories and clinic. Our offices are located in London, New York and Hong Kong.

Our office space in London consists of approximately 172 square feet under a lease that commenced in August 2019, last renewed in March 2021, expires in May 2021 and has a rent of \$4,154 per month. Our office space in New York consists of approximately 95 square feet under a lease that commenced in February 2020, which will automatically renew until 1 month’s notice for termination, and has a rent of \$1,844 per month. Our facilities in Hong Kong consists of: (i) 2,021 square feet lab space under a lease that commenced in March 2020 and expires in March 2023, that carries a monthly rent of \$6,348 and which is used for the center for R&D; (ii) 851 square feet office space under a lease that commenced in December 2017 and expired in December 2020 that carried a monthly rent of \$2,509, renewed in December 2020 and expires in March 2023 with a monthly rent of \$2,509, (the “HKSTP Office Space”); (iii) 3,173 square feet space under a lease that commenced in March 2018 and expires in March 2022 (the “AML Lease”, which is home to AML Clinic); and (iv) 3,250 square feet office space under a lease that commenced in February 2018 that carries a monthly rent of \$16,667, mutually agreed to early terminate and returned the office on May 31, 2020 (the “Guangdong Investment Tower Lease”) (See “Transactions with Related Persons – Leased Facilities”).

Payments under operating leases are expensed on a straight-line basis over the periods of the respective leases, and the terms of the leases do not contain rent escalation, contingent rent, and renewal or purchase options.

We believe our current facilities are sufficient to meet our needs.

#### **Item 4A. UNRESOLVED STAFF COMMENTS**

Not applicable.

## Item 5. OPERATING AND FINANCIAL REVIEW AND PROSPECTS

The following discussion of our financial condition and results of operations is based upon and should be read in conjunction with our consolidated financial statements and their related notes included in this annual report. This report contains forward-looking statements. See “Item 5. Operating and Financial Review and Prospects—G. Safe Harbor.” In evaluating our business, you should carefully consider the information provided under the caption “Item 3. Key Information—D. Risk Factors” in this annual report. We caution you that our businesses and financial performance are subject to substantial risks and uncertainties.

For purposes of Item 5, reference to the “We”, “Our”, “Ours” or “Group” means Aptorum Group Limited and all of its subsidiaries.

This annual report includes consolidated financial statements for the years ended December 31, 2020, 2019 and 2018. However, as permitted by Instruction 6 to Item 5 of Form 20-F, a discussion of the changes in our results of operations for the years ended December 31, 2018 and the period March 1, 2017 through December 31, 2017 has been omitted from this annual report, but may be found in “Item 5. Operating And Financial Review And Prospects” in our annual report on Form 20-F for the year ended December 31, 2018, filed with the SEC on April 15, 2019.

### A. Operating Results

#### Overview

We are a clinical stage biopharmaceutical company dedicated to the discovery, development and commercialization of therapeutic assets to treat diseases with unmet medical needs, particularly in oncology (including orphan oncology indications) and infectious diseases. The pipeline of Aptorum is also enriched through (i) the establishment of drug discovery platforms that enable the discovery of new therapeutics assets through, e.g. systematic screening of existing approved drug molecules, and microbiome-based research platform for treatments of metabolic diseases, and (ii) the co-development of a novel molecular-based rapid pathogen identification and detection diagnostics technology with Accelerate Technologies Pte Ltd, commercialization arm of the Singapore’s Agency for Science, Technology and Research.

In addition to the above main focus, we are also pursuing therapeutic projects in neurology, gastroenterology, metabolic disorders, women’s health and other disease areas. We also have projects focused on natural supplements for women undergoing menopause and experiencing related symptoms. We also opened a medical clinic, AML Clinic, in June 2018.

Our goal is to develop a broad range of novel and repurposed therapeutics and diagnostics technology across a wide range of disease/therapeutic areas. Key components of our strategy for achieving this goal include: (for details of our strategy, See “Item 4. Information on the Company – B. Business Overview – Our Strategy”)

- Developing therapeutic and diagnostic innovations across a wide range of disease/therapeutic areas;
- Selectively expanding our portfolio with potential products that may be able to attain orphan drug designation and/or satisfy current unmet medical needs;
- Collaborating with leading academic institutions and CROs;
- Expanding our in-house pharmaceutical development center;
- Leveraging our management’s expertise, experience and commercial networks;
- Obtaining and leveraging government grants to fund project development.

We have devoted a substantial portion of the proceeds from our offerings to our Lead Projects. Our Lead Projects are ALS-4, SACT-1 and RPIDD. One of our Lead Projects, ALS-4, received clearance from Health Canada regarding the Clinical Trial Application (“CTA”) to initiate a Phase 1 clinical study. If the results of the remaining preclinical studies of these drug candidates are positive, we expect to be able to submit within 2021, subject to regulatory review, an IND for another Lead Projects to the FDA or an equivalent application to the regulatory authorities in one or more other jurisdictions such as the NMPA, Health Canada and/or the EMA. Acceptance of these applications by the relevant regulatory authority would enable the Company to begin testing that drug candidate in humans in that jurisdiction. Our ability to obtain any approval of such applications is entirely dependent upon the results of our preclinical studies, which are ongoing.

Based on our evaluation of preliminary data and our consideration of a number of factors including substantial unmet needs, benefits over existing therapies, potential market size, competition in market, the Company decides how to prioritize its resources among projects. Overall, our rationale for selecting Lead Projects is not based on any mechanical formula or rigid selection criteria, but instead focused on a combination of the factors and individual attributes of the Lead Projects themselves. See “Item 3. Key Information—D. Risk Factors—Risks Related to the Preclinical and Clinical Development of Our Drug Candidates—“Preclinical development is a long, expensive and uncertain process, and we may terminate one or more of our current preclinical development programs.” and “Management has discretion to terminate the development of any of our projects at any time.”

Our current business consists of “therapeutics” and “non-therapeutics” segments. However, our focus is on the therapeutics segments. Because of the risks, costs and extended development time required for successful drug development, we have determined to pursue projects within our non-therapeutics segments, such as AML Clinic, to provide some interim revenue, as well as diagnostics technology and natural supplements that may be brought to market and generate revenue more quickly.

***Therapeutics Segment.*** In our therapeutics segment (“Aptorum Therapeutics Group”), we are currently seeking to develop various drug molecules (including projects seeking to use extracts or derivatives from natural substances to treat diseases) and certain technologies for the treatment (“therapeutics”) and diagnosis (“diagnostics”) of human disease conditions to tackle unmet needs, in particular, two of our Lead Projects targeting infectious disease and cancer (including orphan oncology indications). In addition to our main areas of focus above, we are also pursuing therapeutic projects in neurology, gastroenterology, metabolic disorders, women’s health and other disease areas. Aptorum Therapeutics Group is operated through Aptorum’s wholly-owned subsidiary, Aptorum Therapeutics Limited, a Cayman Islands exempted company with limited liability, whose principal place of business is in Hong Kong and whose subsidiaries (who we sometimes refer to herein as project companies) are based in the United Kingdom, Singapore and Hong Kong.

***Non-Therapeutics Segment.*** The non-therapeutics segment (“Aptorum Non-Therapeutics Group”) encompasses three businesses: (i) diagnostics projects including a novel molecular-based rapid pathogen identification and detection diagnostics (“RPIDD”) technology, (ii) natural supplements including NativusWell<sup>®</sup>, and (iii) AML Clinic. RPIDD technology is currently under co-development with A\*STAR. The core objectives of RPIDD are to rapidly and accurately identify and detect existing or emerging unknown pathogens (including DNA/RNA-based viruses such as coronavirus, antibiotic-resistant bacteria, fungi, etc.), in a cost-effective, unbiased and broad-spectrum manner, through liquid biopsy (patients’ blood samples and is potentially adaptable for other sample types), genome sequencing and artificial intelligence driven software analytics. A key objective is also to develop RPIDD to leverage existing and emerging Next-Generation Sequencing platforms for pathogenic genome sequencing analysis. The sale of natural supplements is operated through Nativus Life Sciences Limited (“Nativus”), a subsidiary of Aptorum Therapeutics Limited. As part of the commercialization, the Group, through Nativus, entered into a regional distribution and marketing agreement with Multipak Limited, a Hong Kong based group that operates household brands, including the Luk Yu<sup>®</sup> tea bag and other health related products. Through Multipak, the Group will be able to increase the accessibility of the product to a large consumer base regionally. The production of Aptorum Group’s dioscorea opposita bioactive nutraceutical tablets has commenced production in Canada and will be marketed under the brand name NativusWell<sup>®</sup>. The outpatient clinic is operated through our subsidiary, Aptorum Medical Limited. Effective as of March 2018, we leased office space in Central, Hong Kong as the home to our medical clinic (“AML Clinic”). AML Clinic commenced operations under the name of Talem Medical in June 2018.

## The Bond Offering

On April 6, 2018, we entered into a subscription agreement (the “Bond Subscription Agreement”) with Peace Range Limited (“Peace Range”), a company incorporated under the laws of the British Virgin Islands and wholly-owned special purpose vehicle of Adamas Ping An Opportunities Fund L.P. Adamas Ping An Opportunities Fund L.P. is the third fund from Adamas Asset Management (HK) Limited (“Adamas”) and the first fund from the joint venture between Adamas and Yun Sheng Capital Company Limited, a subsidiary of Ping An Insurance (Group) Company of China, Limited and is advised by Ping An Capital Company Limited. Pursuant to the Bond Subscription Agreement, we issued Peace Range a \$15,000,000 convertible bond (the “Bond” and the “Bond Offering”), minus a structuring fee equal to 2% of the principal amount of the Bond, on April 25, 2018. We also agreed to pay certain expenses, up to an aggregate limit of \$250,000, incurred by Peace Range in connection with the Bond Offering. The closing of the transaction contemplated by the Bond Subscription Agreement and the issuance of the Bond are subject to standard closing conditions, which may be satisfied or waived by the impacted party. The Bond earns interest at the rate of 8% per annum, payable semi-annually. The payment of the Bond is guaranteed by our holding company, Jurchen Investment Corporation (“Jurchen”), a company wholly-owned by our CEO, Ian Huen (See “Item 7. Major Shareholders and Related Party Transactions – Share Transfer: Change in direct substantial shareholders of the Company”), pursuant to a deed of guarantee (the “Guarantee”). In addition, the repayment of the principal of the Bond and interest payables is secured by a fund we set aside in a debt service reserve account, with the funds in the debt service reserve account to be released in an amount pro rata to the principal amount of the Bond being converted. The Bond shall mature on the twelfth calendar month following the issuance date, or with prior written consent of the holders of the Bond, the business day falling six calendar months thereafter. 10% of the principal amount of the Bond automatically converted into our Class A Ordinary Shares following the IPO; the rest of the Bond is convertible at the option of the holder commencing on the closing of the IPO until the earlier of the date falling 12 calendar months after the maturity of the Bond and the date falling 12 calendar months after the closing of the IPO. We closed the Bond Offering on April 25, 2018 and issued a Bond to Peace Range pursuant to the Bond Subscription Agreement. Pursuant to the aforementioned conversion rights, we issued an aggregate of 119,217 shares of Class A Ordinary Shares to the Bond holder after the IPO closed. Following the IPO and pursuant to the terms of the related agreements, the shares Jurchen previously submitted to be held in escrow to guarantee the payment of the Bond were released to Jurchen and the related share charge agreement and escrow agreement were terminated.

On April 24, 2019, one of our wholly owned subsidiaries, Aptorum Investment Holding Ltd., repurchased the Bonds from Peace Range. According to the amended and restated terms and conditions of the Bonds, the Bondholder was granted certain rights to subscribe for additional ordinary shares of the Company, in an amount up to the principal amount of the Bonds at a price of US\$12.17 (subject to adjustment) on or before 7 days prior to the maturity date (“Subscription Right”). The total consideration of the repurchase of Bonds and the Subscription Rights was US\$13.6 million in cash, excluding accrued interest. The Bond matured and was redeemed on October 25, 2019.

One of the underwriters in the IPO also served as a placement agent for the Bond Offering and received (i) a cash success fee of \$600,000 and (ii) warrants to purchase 67,790 Class A Ordinary Shares, at an exercise price of \$12.17 per share, subject to adjustment (the “Bond PA Warrants”). The Bond PA Warrants are exercisable on a cashless basis. China Renaissance Securities (HK) Limited also served as a placement agent for the Bond Offering; for such services, China Renaissance Securities (HK) Limited received a cash success fee of \$150,000. Prior to the commencement the IPO, Boustead Securities, LLC assigned all such securities to a non-affiliate; the assignment is non-recourse. As of the date hereof, there are no outstanding Bond PA Warrants.

## The Series A Note Offering

On May 15, 2018, we closed a private financing with certain investors (the “Series A Note Investors”) who purchased an aggregate of approximately \$1,600,400 Series A convertible notes, at a purchase price of \$10,000 per note (the “Series A Notes”), pursuant to a note purchase agreement. Some of the Series A Note Investors are either affiliates of the Company or “related persons” as such term is defined in Item 404 of Regulation S-K (See “Item 7. Major Shareholders and Related Party Transactions”). We refer to this private placement transaction as the “Series A Note Offering.” The Series A Note Investors entered into a lock-up agreement, pursuant to which they agreed not to sell or otherwise transfer or dispose the Series A Notes or the Class A Ordinary Shares underlying the Series A Notes during the six-month period commencing on the date our Class A Ordinary Shares commence trading on NASDAQ Global Market. The Series A Notes automatically converted into Class A Ordinary Shares at the closing of the IPO at a conversion price equal to a 56% discount to the actual price per Class A Ordinary Share (“Conversion Price”). Accordingly, the Series A Notes converted into, and we issued an aggregate of 230,252 shares of Class A Ordinary Shares after the IPO closed.

One of the underwriters in the IPO also served as a placement agent for the Series A Note Offering and received: (i) a cash success fee of \$68,516 and (ii) warrants to purchase 12,663 Class A Ordinary Shares, at an exercise price of \$6.95 per share, subject to adjustment (the “Series A Note PA Warrants”). The Series A Note PA Warrants are also exercisable on a cashless basis, at the holder’s discretion. As of the date hereof, there are no outstanding Series A Note PA Warrants.

### **Registered Direct Offering**

On February 28, 2020, we closed a Registered Direct Offering with certain non-affiliated institutional investors (the “Non-affiliated Purchasers”) and Jurchen Investment Corporation, our largest shareholder and wholly owned by Mr. Ian Huen, our Chief Executive Officer (the “Affiliated Purchaser” collectively with the Non-affiliated Purchasers, the “Purchasers”). The Purchasers purchased an aggregate of 1,351,350 Class A Ordinary Shares and warrants (“Warrants”) to purchase 1,351,350 Class A Ordinary Shares, for gross proceeds of approximately \$10 million. The Warrants are exercisable immediately following the date of issuance for a period of seven years at an initial exercise price of \$7.40. The purchase price for each Share and the corresponding Warrant is \$7.40.

We agreed from the date of the purchase agreement until the date that is the later of (i) the 12 month anniversary of the closing date or (ii) one or more subsequent issuance by the Company or any of its subsidiaries of ordinary share equivalent having aggregate gross proceeds of at least \$20,000,000, the Purchasers shall have the right to participate in the subsequent financing up to an amount equal to 50% of the Subsequent Financing (the “Participation Maximum”) on the same terms, conditions and price provided for in the Subsequent Financing.

We also agreed certain most favored nation treatment of the all the Purchasers pursuant to which each Purchaser will have the opportunity to automatically have the same benefit if the terms and conditions with respect to this Purchase Agreement or any securities offered therein the Company offered to the other Purchasers are more favorable.

### **Public Offering**

On July 24, 2020, our Class A Ordinary Shares began to trade on the Professional Compartment of the regulated market of Euronext Paris under the symbol “APM” and are denominated in Euros on Euronext Paris.

On October 2, 2020, the Company completed a public offering of 2,769,231 shares of Class A ordinary shares, \$1.00 par value per share, and warrants to purchase up to an aggregate of 2,769,231 Class A Ordinary Shares, at a price of \$3.25 per share, for gross proceeds of approximately \$9 million. In connection with the Offering, the Company issued Warrants to purchase an aggregate of 2,769,231 Class A Ordinary Shares. The warrants have an exercise price of \$3.25 per Class A Ordinary Share, are exercisable upon issuance and will expire five years from the date of issuance. The exercise price of the warrants is subject to adjustment for stock splits, reverse splits, and similar capital transactions as described in the form of warrants.

In connection with the public offering, the Company entered into a Securities Purchase Agreement (the “Purchase Agreement”) with certain investors on September 29, 2020. The Purchase Agreement contains customary representations and warranties of the Company, termination rights of the parties, and certain indemnification obligations of the Company and ongoing covenants of the Company.

### **Critical Accounting Policies, Estimates and Assumptions**

#### Principles of presentation and consolidation

The consolidated financial statements of the Group are presented on the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”) and include the accounts of the Company, its direct and indirect wholly and majority owned subsidiaries. All material intercompany balances and transactions have been eliminated in preparation of the consolidated financial statements.

### Use of estimates

The preparation of the consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of increases and decreases in net assets from operations as well as income and expenses during the reporting period. Significant accounting estimates reflected in the Group's consolidated financial statements include valuing equity securities, fair value of investments in securities, convertible debts, finance lease, warrants and share options, the useful lives of intangible assets and property, plant and equipment, impairment of long-lived assets, valuation allowance for deferred tax assets, and collectability of receivables. Actual results could differ from those estimates.

### Foreign currency translation and transaction

USD is the reporting currency. The functional currency of subsidiaries in the Cayman Islands, Seychelles, Samoa and the United States are USD, the functional currency of subsidiaries in Hong Kong is Hong Kong Dollars ("HKD"), the functional currency of a subsidiary in Singapore is Singapore Dollars ("SGD"), the functional currency of a subsidiary in the United Kingdom is Great British Pound ("GBP"), the functional currency of subsidiaries in Canada is Canadian Dollars ("CAD"), and the functional currency of subsidiaries in Ireland is Euro ("EUR"). An entity's functional currency is the currency of the primary economic environment in which it operates, normally that is the currency of the environment in which it primarily generates and expends cash. The management considered various indicators, such as cash flows, market expenses, financing and inter-company transactions and arrangements in determining the Group's functional currency.

In the consolidated financial statements, the financial information of the Company and its subsidiaries, which use HKD, SGD, GBP, CAD and EUR as their functional currency, has been translated into USD. Assets and liabilities are translated from each subsidiary's functional currency at the exchange rates on the balance sheet dates, equity amounts are translated at historical exchange rates, and revenues, expenses, gains, and losses are translated using the average exchange rates for the year. Translation adjustments are reported as cumulative translation adjustments and are shown as a separate component of other comprehensive income or loss in the consolidated statements of operations and comprehensive income or loss.

### Fair value measurement

Fair value is defined as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities required or permitted to be recorded at fair value, the Group considers the principal or most advantageous market in which it would transact its business, and it considers assumptions that market participants would use when pricing the asset or liability.

As a basis for considering such assumptions, a three-tier fair value hierarchy prioritizes the inputs utilized in measuring fair value as follows:

- Level 1 applies to assets or liabilities for which there are quoted prices in active markets for identical assets or liabilities.
- Level 2 applies to assets or liabilities for which there are inputs other than quoted prices included within Level 1 that are observable for the asset or liability such as quoted prices for similar assets or liabilities in active markets; quoted prices for identical assets or liabilities in markets with insufficient volume or infrequent transactions (less active markets); or model-derived valuations in which significant inputs are observable or can be derived principally from, or corroborated by, observable market data.
- Level 3 applies to assets or liabilities for which there are unobservable inputs to the valuation methodology that are significant to the measurement of the fair value of the assets or liabilities.

The hierarchy requires the Group to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. A financial instrument's categorization within the fair value hierarchy is based upon the lowest level of input that is significant to the fair value measurement. The Group has estimated the fair value amounts of its financial instruments using the available market information and valuation methodologies considered to be appropriate and has determined that the carrying value of the Group's cash, restricted cash, accounts receivable, due from brokers, other receivables and prepayments, amounts due from/to related parties and accounts payable and accrued expenses as of December 31, 2020 and 2019 approximate fair value due to the short-term nature of these assets and liabilities.

### Impairment of long-lived assets

The Group reviews its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may no longer be recoverable. When these events occur, the Group measures impairment by comparing the carrying value of the long-lived assets to the estimated undiscounted future cash flows expected to result from the use of the assets and their eventual disposition. If the sum of the expected undiscounted cash flow is less than the carrying amount of the assets, the Group would recognize an impairment loss, which is the excess of carrying amount over the fair value of the assets, using the expected future discounted cash flows.

### Operating leases

Prior to the adoption of Accounting Standards Update (“ASU”) No. 2016-02, Leases (Topic 842) and subsequent amendments to the initial guidance including ASU No. 2017-13, ASU No. 2018-10, ASU No. 2018-11, ASU No. 2018-20, and ASU No. 2019-01 (collectively, “Topic 842”), operating leases were not recognized on the consolidated balance sheets, instead, rental expenses with fixed payments were recognized on a straight-line basis over the lease term.

Effective January 1, 2020, the Group adopted Topic 842 using a modified retrospective transition approach for leases that exist at, or are entered into after January 1, 2020, and has not recast the comparative periods presented in the consolidated financial statements. At the inception of a contract, the Group determines if the arrangement is, or contains, a lease. Operating lease liabilities are recognized at lease commencement based on the present value of lease payments over the lease term. Operating lease right-of-use assets are initially measured at cost, which comprises the initial amount of the lease liability adjusted for lease payments made at or before the lease commencement date, plus any initial direct costs incurred and less any lease incentives received. As the rate implicit in the lease cannot be readily determined, the Group uses incremental borrowing rate at the lease commencement date in determining the imputed interest and present value of lease payments. The incremental borrowing rate is determined based on the rate of interest that the Group would have to pay to borrow an amount equal to the lease payments on a collateralized basis over a similar term in a similar economic environment. The lease term for all of the Group’s leases includes the non-cancellable period of the lease plus any additional periods covered by either a Group’s option to extend (or not to terminate) the lease that the Group is reasonably certain to exercise, or an option to extend (or not to terminate) the lease controlled by the lessor. For operating leases, the Group recognizes a single lease cost on a straight-line basis over the remaining lease term.

The Group has elected not to recognize right-of-use assets or lease liabilities for leases with an initial term of 12 months or less and the Group recognizes lease expense for these leases on a straight-line basis over the lease terms.

### Revenue recognition

Revenue is recognized when (or as) the Group satisfies performance obligations by transferring a promised goods or services to a customer. Revenue is measured at the transaction price which is based on the amount of consideration that the Group expects to receive in exchange for transferring the promised goods or services to the customer. Revenue from healthcare services is measured upon the provision of the relevant services.

### Income taxes

The Group accounts for income taxes under the asset and liability method. Under this method, deferred income taxes are determined based on differences between the financial carrying amounts of existing assets and liabilities and their tax bases. Income taxes are provided for in accordance with the laws of the relevant taxing authorities.

A valuation allowance is provided for deferred tax assets if it is more likely than not that these items will either expire before the Group is able to realize their benefits, or that future deductibility is uncertain. Valuation allowances are established, when necessary, to reduce deferred tax assets to the amount expected to be realized.

## RESULTS OF OPERATION

### Results of Operations for the Years ended December 31, 2020 and 2019

Financial statements and information are presented for the years ended December 31, 2020 and 2019.

The following table summarizes our results of operations for the years ended December 31, 2020 and 2019.

	<b>Year Ended December 31, 2020</b>	<b>Year Ended December 31, 2019</b>
<b>Revenue</b>		
Healthcare services income	\$ 911,509	\$ 535,166
<b>Operating expenses</b>		
Cost of healthcare services	(1,015,023)	(794,545)
Research and development expenses	(11,586,923)	(6,939,051)
General and administrative fees	(4,853,488)	(7,373,425)
Legal and professional fees	(2,854,225)	(3,405,705)
Other operating expenses	(877,391)	(220,891)
Total expenses	<u>(21,187,050)</u>	<u>(18,733,617)</u>
<b>Other income (loss), net</b>		
Gain (loss) on investments in marketable securities, net	25,241,556	(81,839)
Gain on non-marketable investments	-	1,147,190
(Loss) gain on investments in derivatives, net	(199,031)	87,599
Gain on use of digital currencies	-	46,717
Gain on extinguishment of convertible debts	-	1,198,490
Changes in fair value of warrant liabilities	-	(866,300)
Interest expense, net	(243,628)	(3,699,672)
Rental income	30,894	16,868
Sundry income	365,917	232,460
Total other income (loss), net	<u>25,195,708</u>	<u>(1,918,487)</u>
<b>Net income (loss)</b>	<u>4,920,167</u>	<u>(20,116,938)</u>

### **Impact of COVID-19 Outbreak**

On January 30, 2020, the World Health Organization declared the coronavirus outbreak a “Public Health Emergency of International Concern” and on March 10, 2020, declared it to be a pandemic. Actions taken around the world to help mitigate the spread of the coronavirus include restrictions on travel, and quarantines in certain areas, and forced closures for certain types of public places and businesses. The coronavirus and actions taken to mitigate it have had and are expected to continue to have an adverse impact on the economies and financial markets of many countries, including the geographical area in which the Company operates. While the closures and limitations on movement, domestically and internationally, are expected to be temporary, if the outbreak continues on its current trajectory the duration of the supply chain disruption could reduce the availability, or result in delays, of materials or supplies to and from the Group, which in turn could materially interrupt the Group’s business operations. There was no material negative impact on the Company’s 2020 consolidated result of operations. However, given the speed and frequency of the continuously evolving developments with respect to this pandemic, the Group cannot reasonably estimate the magnitude of the impact to its consolidated results of operations in the future. We have taken every precaution possible to ensure the safety of our employees.

Additionally, it is reasonably possible that estimates made in the financial statements have been, or will be, materially and adversely impacted in the near term as a result of these conditions, including losses on investments; impairment losses related to long-lived assets and current obligations.

## Revenue

Healthcare services income was \$911,509 and \$535,166 for the years ended December 31, 2020 and 2019, which related to the service income derived from the AML clinic. The increase in revenue was mainly due to the number of patients increased when compared to last year.

## Cost of healthcare services

Cost of healthcare services was \$1,015,023 and \$794,545 for the years ended December 31, 2020 and 2019, which related to the cost incurred by the AML clinic. The increase in cost of healthcare services was mainly due to the number of patients increased when compared to last year.

## Research and development expenses

Research and development expenses comprised of costs incurred related to research and development activities, including payroll expenses to our research and development staff, sponsored research programs with various universities and research institutions and costs in acquiring IP rights which did not meet the criteria of capitalization under the U.S. GAAP. The following table sets forth a summary of our research and development expenses for the years ended December 31, 2020 and 2019. The increase in research and development expenses was mainly due to the increase in consultation services provided by our consultants, advisors and contracted research organizations as a results of the progress of our projects' development.

	<b>Year Ended December 31, 2020</b>	<b>Year Ended December 31, 2019</b>
Research and Development Expenses:		
Payroll expenses	\$ 1,145,550	\$ 1,784,647
Sponsored research	1,561,273	1,403,689
Amortization and depreciation	986,836	873,239
Consultation	7,090,507	2,431,997
Other R&D expenses	515,413	445,479
Impairment loss of intangible assets	200,000	-
Milestone payment	87,344	-
Total Research and Development Expenses	<u>11,586,923</u>	<u>6,939,051</u>

## General and administrative fees

The following table sets forth a summary of our general and administrative expenses for the years ended December 31, 2020 and 2019. The decrease in general and administration fees was mainly due to decrease in bonus expenses to our directors, employees, external consultants and advisors. Also there was a significant decrease in business trips and sponsoring conference in 2020 due to the outbreak of COVID-19.

	<b>Year Ended December 31, 2020</b>	<b>Year Ended December 31, 2019</b>
General and Administrative Fees:		
Payroll expenses	\$ 3,255,274	\$ 4,329,039
Rent and rates	366,615	490,975
Travelling expenses	140,019	797,446
Amortization and depreciation	347,824	426,378
Insurance	509,593	620,312
Advertising and marketing expenses	55,430	316,227
Other expenses	178,733	393,048
Total General and Administrative Fees	<u>4,853,488</u>	<u>7,373,425</u>

### Legal and professional fees

For the years ended December 31, 2020 and 2019, the legal and professional fees were \$2,854,225 and \$3,405,705, respectively. The decrease in legal and professional fees was mainly due to the decrease of consultancy services engaged during 2020.

### Other operating expenses

For the years ended December 31, 2020 and 2019, the other operating expenses were \$877,391 and \$220,891, respectively. The increase in other operating expenses was mainly due to the impairment loss and loss on disposal of fixed assets, and increased exchange loss during 2020.

### Other income (loss), net

For the years ended December 31, 2020 and 2019, the other income (loss), net were \$25,195,708 and \$(1,918,487), respectively. The other income, net in 2020 was mainly derived from gains on investment in marketable securities. The other loss, net in 2019 was mainly consists of interest expense, net incurred by convertible debts with beneficial conversion feature.

### Net income (loss) attributable to Aptorum Group Limited

For the years ended December 31, 2020 and 2019, net income (loss) attributable to Aptorum Group Limited (excluding net loss attributable to non-controlling interests) was \$6,311,340 and \$(18,686,762), respectively.

### Results of Operations for the Years ended December 31, 2019 and 2018

Financial statements and information are presented for the years ended December 31, 2019 and 2018.

The following table summarizes our results of operations for the years ended December 31, 2019 and 2018.

	<b>Year Ended December 31, 2019</b>	<b>Year Ended December 31, 2018</b>
<b>Revenue</b>		
Healthcare services income	\$ 535,166	\$ 383,450
<b>Operating expenses</b>		
Cost of healthcare services	(794,545)	(318,011)
Research and development expenses	(6,939,051)	(3,101,432)
General and administrative fees	(7,373,425)	(4,919,626)
Legal and professional fees	(3,405,705)	(1,811,770)
Other operating expenses	(220,891)	(560,709)
Total expenses	<u>(18,733,617)</u>	<u>(10,711,548)</u>
<b>Other (loss) income</b>		
(Loss) gain on investments in marketable securities, net	(81,839)	501,522
Gain on non-marketable investments	1,147,190	-
Gain (loss) on investments in derivatives, net	87,599	(974,444)
Gain on use of digital currencies	46,717	-
Gain on extinguishment of convertible debts	1,198,490	-
Changes in fair value of warrant liabilities	(866,300)	124,726
Interest expense, net	(3,699,672)	(4,458,191)
Rental income	16,868	-
Sundry income	232,460	-
Total other loss, net	<u>(1,918,487)</u>	<u>(4,806,387)</u>
<b>Net loss</b>	<u>(20,116,938)</u>	<u>(15,134,485)</u>

### Revenue

Healthcare services income was \$535,166 and \$383,450 for the years ended December 31, 2019 and 2018, which related to the service income derived from the AML clinic.

### Research and development expenses

Research and development expenses comprised of costs incurred related to research and development activities, including payroll expenses to our research and development staff, sponsored research programs with various universities and research institutions and costs in acquiring IP rights which did not meet the criteria of capitalization under the U.S. GAAP. The following table sets forth a summary of our research and development expenses for the years ended December 31, 2019 and 2018. The increase in research and development expenses was mainly due to the increase in consultation service for projects.

	<b>Year Ended December 31, 2019</b>	<b>Year Ended December 31, 2018</b>
Research and Development Expenses:		
Payroll expenses	\$ 1,784,647	\$ 1,363,740
Sponsored research	1,403,689	796,943
Amortization and depreciation	873,239	437,453
Consultation	2,431,997	298,315
Other R&D expenses	445,479	174,981
Milestone payment	-	30,000
<b>Total Research and Development Expenses</b>	<b>6,939,051</b>	<b>3,101,432</b>

### General and administrative fees

The following table sets forth a summary of our general and administrative expenses for the years ended December 31, 2019 and 2018. The increase in general and administration fees was mainly due to the issuance of share options to our directors, employees, external consultants and advisors in 2019 for motivation.

	<b>Year Ended December 31, 2019</b>	<b>Year Ended December 31, 2018</b>
General and Administrative Fees:		
Administrative fees	\$ -	\$ 448,718
Payroll expenses	4,329,039	2,510,331
Rent and rates	490,975	681,502
Travelling expenses	797,446	414,696
Amortization and depreciation	426,378	244,839
Insurance	620,312	199,698
Advertising and marketing expenses	316,227	125,388
Other expenses	393,048	294,454
<b>Total General and Administrative Fees</b>	<b>7,373,425</b>	<b>4,919,626</b>

### Legal and professional fees

For the years ended December 31, 2019 and 2018, the legal and professional fees were \$3,405,705 and \$1,811,770, respectively. The increase in legal and professional fees was mainly due to the increased business consultant services engaged in 2019 and the increased in token related expenses.

### Other operating expenses

The following table sets forth a summary of our other operating expenses for the years ended December 31, 2019 and 2018. The decrease in other operating expenses was mainly due to less corporate events held to promote the Company in 2019.

	<b>Year Ended December 31, 2019</b>	<b>Year Ended December 31, 2018</b>
Other Operating Expenses:		
Event and meeting expenses	\$ 93,382	\$ 385,483
Commission expenses	2,761	1,517
Other expenses	124,748	173,709
<b>Total Other Operating Expenses</b>	<b>220,891</b>	<b>560,709</b>

### Other (loss) income

The following table sets forth a summary of our other (loss) income for the years ended December 31, 2019 and 2018. The interest expense, net, was mainly related the convertible debts which were fully repaid in 2019.

	<b>Year Ended December 31, 2019</b>	<b>Year Ended December 31, 2018</b>
Other (loss) income:		
(Loss) gain on investments in marketable securities, net	\$ (81,839)	\$ 501,522
Gain on non-marketable investments	1,147,190	-
Gain (loss) on investments in derivatives, net	87,599	(974,444)
Gain on use of digital currencies	46,717	-
Gain on extinguishment of convertible debts	1,198,490	-
Changes in fair value of warrant liabilities	(866,300)	124,726
Interest expense, net	(3,699,672)	(4,458,191)
Rental income	16,868	-
Sundry income	232,460	-
Total other loss, net	<u>(1,918,487)</u>	<u>(4,806,387)</u>

### Net loss attributable to Aptorum Group Limited

For the years ended December 31, 2019 and 2018, net loss attributable to Aptorum Group Limited (excluding net loss attributable to non-controlling interests) was \$18,686,762 and \$14,831,723, respectively.

### B. Liquidity and Capital Resources

The Group reported a net operating loss of \$20,275,541 and net operating cash outflow of \$15,931,913 for the year ended December 31, 2020. In addition, the Group had an accumulated deficit of \$30,489,126 as of December 31, 2020. The Group's operating results for future periods are subject to numerous uncertainties and it is uncertain if the Group will be able to reduce or eliminate its net losses for the foreseeable future. If management is not able to generate significant revenues from its product candidates currently in development, the Group may not be able to achieve profitability.

The Group's principal sources of liquidity have been cash, marketable securities and line of credit facility from related parties. As of the date of issuance of the consolidated financial statements, the Group has approximately \$2.4 million of restricted and unrestricted cash and approximately \$10.7 million of undrawn line of credit facility from related parties. Based upon the current market price of the Group's marketable securities, it anticipates it can liquidate such marketable securities, if necessary. In addition, the Group will need to maintain its operating costs at a level through strictly cost control and budget to ensure operating costs will not exceed such aforementioned sources of funds in order to continue as a going concern for a period within one year after the issuance of its consolidated financial statements.

The Group believes that available cash, together with the efforts from aforementioned management plan and actions, should enable the Group to meet current anticipated cash needs for at least the next 12 months after the date that the consolidated financial statements are issued and the Group has prepared the consolidated financial statements on a going concern basis.

*Condensed Summary of Cash Flows for the Years Ended December 31, 2020 and 2019*

	<b>Year Ended December 31, 2020</b>	<b>Year Ended December 31, 2019</b>
Net cash used in operating activities	\$ (15,931,913)	\$ (13,382,633)
Net cash provided by (used in) investing activities	1,842,164	(108,061)
Net cash provided by (used in) financing activities	12,421,932	(7,323,371)
Net decrease in cash and restricted cash	<u>(1,667,817)</u>	<u>(20,814,065)</u>

*Operating activities*

Net cash used in operating activities amounted to \$15.9 million and \$13.4 million for the years ended December 31, 2020 and 2019. The increase in net cash used in operating activities is mainly due to our increased operating expenses by \$2.5 million.

*Investing activities*

Net cash provided by investing activities amounted to \$1.8 million for the year ended December 31, 2020. Net cash used in investing activities amounted to \$0.1 million for the year ended December 31, 2019. The change from net cash used in investing activities to net cash provided by investing activities was due to the proceeds from disposal of fixed assets and investment in marketable securities of \$1.0 million and \$0.9 million, respectively, in 2020.

*Financing activities*

Net cash provided by financing activities amounted to \$12.4 million for the year ended December 31, 2020. Net cash used in financing activities amounted to \$7.3 million for the year ended December 31, 2019. The change from net cash used in financing activities to net cash provided by financing activities was due to the net proceeds from issuance of Class A Ordinary Shares and warrants of \$16.8 million in 2020.

*Condensed Summary of Cash Flows for the Years Ended December 31, 2019 and 2018*

	<b>Year Ended December 31, 2019</b>	<b>Year Ended December 31, 2018</b>
Net cash used in operating activities	\$ (13,382,633)	\$ (10,035,531)
Net cash used in investing activities	(108,061)	(6,061,987)
Net cash (used in) provided by financing activities	(7,323,371)	25,478,949
Net (decrease) increase in cash and restricted cash	<u>(20,814,065)</u>	<u>9,381,431</u>

*Operating activities*

Net cash used in operating activities amounted to \$13.4 million and \$10.0 million for the years ended December 31, 2019 and 2018. The increase in net cash used in operating activities is mainly due to our increased net loss by \$5.0 million, partly offset by the increase in non-cash share-based compensation by \$1.6 million.

*Investing activities*

Net cash used in investing activities amounted to \$0.1 million and \$6.1 million for the years ended December 31, 2019 and 2018. The decrease in net cash used in investing activities is mainly due to the decrease in purchases of property, plant and equipment by \$4.8 million and increase in proceeds from sales of investment securities by \$1.0 million.

*Financing activities*

Net cash used in financing activities amounted to \$7.3 million for the year ended December 31, 2019. Net cash provided by financing activities amounted to \$25.5 million for the year ended December 31, 2018. The change from net cash provided by financing activities to net cash used in financing activities was due to the payment for settlement of convertible debts of \$13.6 million, and decrease in proceeds from issuance of convertible debts and shares by \$16.1 million and \$11.1 million respectively. It is partly offset by the increase in loan from related parties by \$6.3 million.

## CAPITAL EXPENDITURES

Our capital expenditures were \$0.2 million, \$0.9 million and \$6.0 million for the years ended December 31, 2020, 2019 and 2018, respectively. These capital expenditures were incurred primarily for investments in facilities, leasehold improvements, equipment and technology.

### C. Research and Development, Patents and Licenses, etc.

As of the date of this annual report, the Company has 9 exclusively licensed technologies in the area of neurology, infectious diseases, gastroenterology, oncology, diagnostics and natural health. In addition, the Company is actively developing 5 proprietary technologies.

For the years ended December 31, 2020, 2019 and 2018, the Group incurred \$11,586,923, \$6,939,051 and \$3,101,432, respectively, on research and development expenses.

### D. Trend Information

Other than as disclosed elsewhere in this annual report, we are not aware of any trends, uncertainties, demands, commitments or events for the year ended December 31, 2020 that are reasonably likely to have a material adverse effect on our revenues, net income, profitability, liquidity or capital resources, or that would cause reported financial information not necessarily to be indicative of future operating results or financial conditions.

### E. Off-balance Sheet Arrangements

As at December 31, 2020, the Company did not have any off-balance sheet debt, nor do we have any transactions, arrangements or relationships with any special purpose entities.

### F. Contractual Obligations

The following table sets forth our contractual obligations as of December 31, 2020.

	Payment Due by Period			
	Total	less than one year	One to three years	Three to five years
	US\$	US\$	US\$	US\$
Operating lease commitments	647,146	480,464	166,682	-
Debts obligations	2,268,232	160,583	2,107,649	-
Finance lease	103,203	53,845	49,358	-
Total	3,018,581	694,892	2,323,689	-

#### *Operating lease commitments*

We have several operating leases for office, laboratories and clinic. Operating lease commitments reflect our obligation to make payments under these operating leases.

#### *Debt obligations*

Debt obligations reflects outstanding principal obligations due to Aeneas Group Limited, a wholly-owned subsidiary of Aeneas Limited, and Jurchen Investment Corporation, the ultimate parent of the Group, under a line of credit arrangement. The Group can access up to a total \$15 million under this arrangement. The line of credit will mature on August 12, 2022 and the interest on the outstanding principal indebtedness will be at the rate of 8% per annum. The Group may early repay, in whole or in part, the principal indebtedness and all interest accrued at any time prior to the maturity date without the prior written consent of the lender and without payment of any premium or penalty.

#### *Finance lease*

Finance lease obligation reflect our outstanding payment obligations in connections with our hire purchased vehicle.

## CONTINGENT PAYMENT OBLIGATIONS

We have entered into agreements with independent third parties for purchasing office and laboratory equipment. As of December 31, 2020, we had non-cancellable purchase commitments of \$49,166.

We have additional contingency payment obligations under each of the license agreements, such as milestone payments, royalties, research and development funding, if certain condition or milestone is met.

Milestone payments are to be made upon achievements of certain conditions, such as Investigational New Drugs (“IND”) filing or U.S. Food and Drug Administration (“FDA”) approval, first commercial sale of the licensed products, or other achievements. The aggregate amount of the milestone payments that we are required to pay up to different achievements of conditions and milestones for all the license agreements signed as of December 31, 2020 are below:

	<b>Amount</b>
<b>Drug molecules: up to the conditions and milestones of</b>	
Preclinical to IND filing	\$ 282,564
From entering phase 1 to before first commercial sale	22,276,410
First commercial sale	14,956,410
Net sales amount more than certain threshold in a year	70,769,231
Subtotal	<u>\$ 108,284,615</u>
<b>Diagnostics technology: up to the conditions and milestones of</b>	
Before FDA approval	\$ 1,423,360
	<u>\$ 109,707,975</u>

For the years ended December 31, 2020, 2019 and 2018, we incurred \$129,203, \$nil and \$30,000 milestone payments, respectively. For the years ended December 31, 2020, 2019 and 2018, we did not incur any royalties or research and development funding, respectively.

### G. Safe Harbor

This annual report contains forward-looking statements that are based on our management’s beliefs and assumptions and on information currently available to us. These statements involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements to be materially different from those expressed or implied by the forward-looking statements.

You can identify these forward-looking statements by words or phrases such as “may,” “will,” “expect,” “anticipate,” “aim,” “estimate,” “intend,” “plan,” “believe,” “potential,” “continue,” “is/are likely to” or other similar expressions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy and financial needs. These forward-looking statements include, among other things, statements relating to:

- our goals and strategies;
- our future business development, financial conditions and results of operations;
- our expectations regarding demand for and market acceptance of our products once available;
- our expectations regarding our development and commercialization of our therapeutics;
- competition in our industry; and
- relevant government policies and regulations relating to our industry.

You should thoroughly read this annual report and the documents that we refer to in this annual report with the understanding that our actual results in the future may be materially different from or worse than what we expect. We qualify all of our forward-looking statements by these cautionary statements. Other sections of this annual report include additional factors which could adversely affect our business and financial performance. Moreover, we operate in an evolving environment. New risk factors and uncertainties emerge from time to time and it is not possible for our management to predict all risk factors and uncertainties, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Important risks and factors that could cause our actual results to be materially different from our expectations are generally set forth in “Item 3. Key Information—D. Risk Factors” and elsewhere in this annual report.

The forward-looking statements made in this annual report relate only to events or information as of the date on which these statements are made in this annual report. We undertake no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, after the date of this annual report. You should not rely upon forward-looking statements as predictions of future events.

## Item 6. DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES

### A. Directors and Senior Management

Below is a list of our directors, senior management and any employees upon whose work we are dependent as of the date of this annual report, and a brief account of the business experience of each of them. The business address for the directors and officers of Aptorum Group Limited is 17 Hanover Square, London, W1S 1BN, United Kingdom.

<b>Name</b>	<b>Age</b>	<b>Position</b>
<i>Executive Officers</i>		
Ian Huen	41	Founder, Chief Executive Officer and Executive Director
Darren Lui	40	President and Executive Director
Clark Cheng	41	Chief Medical Officer and Executive Director
Sabrina Khan	39	Chief Financial Officer
Thomas Lee	48	Head of Research and Development
Angel Ng	40	Chief Operating Officer
<i>Non-Management Directors</i>		
Charles Bathurst	65	Independent Non-Executive Director and Chair of Audit Committee
Mirko Scherer	52	Independent Non-Executive Director
Justin Wu	51	Independent Non-Executive Director and Chair of Compensation Committee
Douglas Arner	51	Independent Non-Executive Director and Chair of Nominating and Corporate Governance Committee

#### *Executive Officers*

#### **MR. IAN HUEN, Founder, Chief Executive Officer and Executive Director**

Mr. Ian Huen is the Founder, Chief Executive Officer and Executive Director of Aptorum Group Limited. He has over 18 years of global asset management experience and previously covered the U.S. healthcare sector as an equity research analyst at Janus Henderson Group plc (formerly known as Janus Capital). Mr. Huen was the financial advisor in the sale of Seng Heng Bank Limited (Macau) to Industrial and Commercial Bank of China in 2007 and was appointed as the vice president of the Board of General Meeting in Industrial and Commercial Bank of China (Macau) Capital Limited in March 2007 for a term of 12 years until March 2019.

As a trustee board member of the Dr. Stanley Ho Medical Development Foundation, Mr. Huen facilitates advisory, development funding, access to research resources across Asia and continues to establish relationships with leading academic institutions to propel innovations in healthcare.

Mr. Huen graduated from Princeton University with an A.B. degree in Economics in June 2001, earned a MA in Comparative and Public History from CUHK in June 2016. Mr. Huen is also a Chartered Financial Analyst (“CFA”).

#### **MR. DARREN LUI, President and Executive Director**

Mr. Darren Lui is the President and an Executive Director of Aptorum Group Limited. Mr. Lui was previously the founder, director and responsible officer of Varengold Capital Securities Limited and Varengold Capital Asset Management Limited in Hong Kong, with subsidiaries operating brokerage, asset management, and investment businesses in Asia established since January 2015.

Prior to this, he was a Director within the Fixed Income Group of Barclays Capital, where he spent over nine years from September 2005 to February 2014 developing and establishing their London, Singapore and New York teams. From September 2002 to August 2005 he was qualified as a Chartered Accountant with Ernst & Young LLP (London), specializing in capital markets advisory.

Mr. Lui graduated with First-Class Honors from Imperial College, London with a BSc degree in Biochemistry in June 2002. He is a Chartered Accountant (ICAS), accredited with Chartered Financial Analyst designation, and an Associate of Chartered Institute of Securities & Investments (UK).

**DR. CLARK CHENG, Chief Medical Officer and Executive Director, Aptorum Group Limited**

**Executive Director, Aptorum Medical Limited**

Dr. Clark Cheng is the Chief Medical Officer and Executive Director of Aptorum Group Limited; he is also an executive director of Aptorum Medical Limited (one of the Company's subsidiaries); Dr. Cheng also serves as a director of several other of our subsidiaries. Prior to this appointment, Dr. Cheng served as the Operations Director since 2009 of Raffles Medical Group, and the company's Deputy General Manager since 2011, representing an expanded role in the region. During his employment with Raffles Medical Group, he practiced as a full-time medical administrator to mainly overlook Raffles Medical Hong Kong operations and also supported its development in the PRC headquarter.

Dr. Cheng received his medical training at the University College London, UK, in 2005 and completed his foundation year training at The Royal Free Hospital in 2007. Pursuing his career in surgery, he obtained his membership of the Royal College of Surgeons of Edinburgh in 2009 and commenced his training in Orthopaedics where he practiced as Specialist Registrar at the National University Hospital, Singapore, with special interest in Traumatology of the lower limbs. In 2011, he also obtained his Master in Business & Administration with distinction from Tippie College of Business, University of Iowa, US.

Dr. Cheng is an active member of the Singapore Chamber of Commerce, and appears regularly as a guest speaker for The Open University of Hong Kong, The Airport Authority Hong Kong and other corporate events.

**MISS SABRINA KHAN, Chief Financial Officer**

Miss Sabrina Khan is the Chief Financial Officer of Aptorum Group Limited; she is also the company secretary. She leads the Company's financial strategy and operations, as well as Investor Relations. She has extensive experience working at KPMG (Hong Kong) and Ernst & Young LLP (Hong Kong). She was a regional financial controller in Asia for St. James's Place Wealth Management (Hong Kong), which St. James's Place Wealth Management Group (LON: STJ) is a FTSE100 company. Prior to that, she served as the senior finance manager of Neo Derm Group, a leading medical aesthetic group in Asia, in charge of its finance-related matters and expansion in the PRC. From August 2009 to May 2013, she served as the senior finance manager of Global Cord Blood Corporation (formerly known as China Cord Blood Corporation (NYSE: CO)), which was previously a subsidiary of Golden Meditech Holdings Limited (HK: 801), where she played an important role with the NYSE listing filings, investor relations and post IPO reporting. During her employment with Global Cord Blood Corporation, she was actively involved in the issuance of convertible bonds to Kohlberg Kravis Roberts and various merger and acquisition projects, facilitated and liaised with investment banks on due diligence, deal structuring, and also involved in commercial negotiation with respect to major contract terms.

Miss Khan qualified as certified public accountant and graduated with a BBA (Hons) in Accounting & Finance at The University of Hong Kong in 2003. She was qualified as an Advanced China Certified Taxation Consultant in 2015.

**DR. THOMAS LEE, Head of Research and Development**

Dr. Thomas Lee serves as the Head of R&D of Aptorum Group Limited since April 1, 2019; he is also the Chairman of our Scientific Advisory Board. Dr. Lee served as Chief Executive Officer and Chief Scientific Officer of Aptorum Therapeutics Limited, a wholly-owned therapeutics subsidiary of Aptorum Group Limited from January 2018 to March 2019. Prior to that, Dr. Lee served as an Assistant Professor in the School of Pharmacy, Faculty of Medicine, The Chinese University of Hong Kong from August 2013 to January 2018. Dr. Lee's key area of research involves drug delivery with specialties including: formulation development of poorly soluble compounds, oral delivery, Nanotechnology, and similar fields.

Prior to academia, Dr. Lee accumulated big-pharma experience from the decade he spent at two multinational pharmaceutical companies in the U.S. From November 2008 to July 2013, Dr. Lee worked at Celgene Corporation as a Senior Scientist of the Formulations Research & Development. From June 2003 to November 2008, Dr. Lee worked at Novartis Pharmaceuticals Corporation, as a Principal Scientist.

Dr. Lee graduated with B.Pharm. (Hons) Degree from The Chinese University of Hong Kong in December 1995, and received his Ph.D. in Pharmaceutical Sciences (Drug Delivery) from the University of Wisconsin-Madison in the U.S in May 2003.

## **DR. ANGEL NG, Chief Operating Officer**

Dr. Angel Ng serves as the Chief Operating Officer (“COO”) of Aptorum Group Limited since April 1, 2019. Dr. Ng served as the COO of Aptorum Therapeutics Limited, a wholly-owned therapeutics subsidiary of Aptorum Group Limited from September 2017 to March 2019. During this time, Dr. Ng led Aptorum Therapeutics Limited and its subsidiaries’ operations and business strategies. Dr. Ng has extensive experience in project management with Innovation and Technology government funds and academic institutions.

Since September 2016, Dr. Ng works as a Research Officer cum Project Manager at The University of Hong Kong (“HKU”) in project management for various research projects including government funded project of novel medical device. During this time, Dr. Ng led the research team towards cadaveric trial for a novel soft robotics medical device and coordinated all research related agreements. During December 2014 to September 2015, Dr. Ng served as Project Manager at Hong Kong Science & Technology Parks Corporation (“HKSTP”), where she worked on technology transfer and commercialization for research and development projects through partnerships between local universities and the worldwide network and expertise of the Oxford University commercial arm. Dr. Ng also worked for The Chinese University of Hong Kong (“CUHK”) as Project Manager from September 2007 to January 2009. She managed a HK\$60M government funded R & D project with a team of specialists in CUHK where she kept close liaison with industry and government authorities. Dr. Ng was in the precision chemical machining industry from 2003 to 2007, where she managed the manufacturing team and business operations in PRC.

Dr. Ng serves as a Director of Tecford Trading & Technology Company Limited since December 2017. Dr. Ng graduated with a B.Sc (Hons) from Department of Chemistry at HKU in December 2002, received her M.Sc in Composite Materials from Imperial College London in November 2003 and obtained her Ph.D. in Mechanical Engineering from HKU in December 2015.

## ***Independent Non-Executive Directors***

### **MR. CHARLES BATHURST**

Mr. Bathurst is an Independent Non-Executive Director of Aptorum Group Limited, chairs the Audit Committee and is a member of both the Compensation Committee and the Nominating and Corporate Governance Committee. He has over 46 years’ experience of management and senior executive roles across the financial services, technology and healthcare industries. In 2011, he set up his own independent consultancy service, Summerhill Advisors Limited, advising on management structure, business development, financial reporting, internal audit controls and compliance to both emerging and multinational companies. Today he holds Non-Executive and Advisory board positions on fast-growing companies in healthcare, technology and financial services.

Prior to establishing Summerhill, he served as a Director for J.O. Hambro Investment Management from September 2008 to August 2011, where he oversaw the restructuring and commercialization of a range of in-house investment funds. He was appointed to the management board and supervised reporting teams including Business development, accounting, regulatory reporting and internal controls.

From April 2004 to March 2008, Mr. Bathurst served in multiple roles at Old Mutual Asset Managers (UK), including being a member of the senior management team and head of international sales. Duties included business development, launching new investment funds, recruitment, establishing and supervision of regulatory and financial reporting teams, as well as ensuring compliance with funds’ regulatory requirements and corporate governance standards.

Prior to this, Mr. Bathurst was an advisor to Lion Capital Advisors Limited from April 2003 to March 2004, and from June 2002 to March 2003 business development consultant reporting to the board of management of LCF Rothschild Asset Management Limited.

From April 1995 to March 2002, Mr. Bathurst joined a newly formed alternative investment management team at Credit Agricole Asset Management, establishing the London Branch as the Managing Director in 1998. He was responsible for the recruitment and development strategy for marketing, sales, investment, financial reporting, compliance and regulatory controls and investor relations.

Between the period of September 1989 and December 1994, Mr. Bathurst worked for GNI, the largest futures and options execution and clearing broker on the London International Financial Futures Exchange, where he focused on marketing to European and Middle East financial institutions. In 1991, he joined a new management team to launch a series of specialist investment funds while serving as the Head of Sales and Product Development.

Mr. Bathurst graduated from the Royal Military Academy Sandhurst in November 1974 and commissioned into the British Army serving in the UK and Germany.

#### **DR. MIRKO SCHERER**

Dr. Mirko Scherer is an Independent Non-Executive Director of Aptorum Group Limited. Dr. Scherer has been serving as the Chief Executive Officer at CoFeS China (formerly known as “TVM Capital China”) in Hong Kong since March 2015. CoFeS China focuses on cross-border activities in the life science industry between China and the West. CoFeS China acts as a bridge between China and the West, assisting Chinese investors and pharmaceutical companies accessing western innovations, while collaborating with innovative life science companies from the West to enter the fast-growing China market.

Dr. Mirko Scherer has served on the Board of the Frankfurt Stock Exchange from 2005 to 2007 and has been a board member of the Stichting Preferente Aandelen QIAGEN since 2004. From August 2016 through July 2018, Dr. Scherer served as a Non-Executive board member of Quantapore Inc. and from April 2015 through September 2017, he was a director of China BioPharma Capital I, (GP).

Dr. Scherer is an experienced biotechnology executive and has led numerous financing M&A and licensing transactions, in both public and private markets, in Europe and the U.S. for over 20 years. He consulted MPM Capital for the period between July 2012 and December 2014. Dr. Scherer was also a co-founder and partner of KI Kapital from November 2008 to February 2014, a company which was specialized in providing consultation in life science industry.

Prior to working in the venture capital industry, Dr. Scherer co-founded GPC Biotech (Munich and Princeton, NJ) and served as the Chief Financial Officer from October 1997 to December 2007. GPC Biotech engaged in numerous pharmaceutical alliances with companies such as Sanofi Aventis, Boehringer Ingelheim, Altana (now part of Takeda), Yakult, and Pharmion (now part of Celgene). Over the past 20 years, Dr. Scherer has established an extensive network in the U.S., European, and China’s biotechnology and venture capital industry. Prior to his time at GPC Biotech, Dr. Scherer worked as a consultant from May 1993 to June 1994 at the Boston Consulting Group.

Dr. Scherer earned a Doctorate in Finance from the European Business School in Oestrich-Winkel/Germany in 1998, a MBA from Harvard Business School in June 1996, and a degree in Business Administration from the University of Mannheim/Germany in February 1993.

#### **DR. JUSTIN WU**

Dr. Justin Wu is an Independent Non-Executive Director of Aptorum Group Limited. He also has been serving as the Chief Operating Officer of CUHK Medical Centre since August 2018. He served as the Associate Dean (Development) of the Faculty of Medicine at CUHK from July 2014 to June 2018 and the Associate Dean (Clinical) of the Faculty of Medicine at CUHK from December 2012 to July 2014, and has been serving a Professor in the Department of Medicine and Therapeutics since 2009, also the Director of the S. H. Ho Center for Digestive Health, a research center specializing in functional gastrointestinal diseases, reflux and motility disorders, and digestive endoscopy. Active in research publications and assessments, Dr. Wu served as the International Associate Editor of American Journal of Gastroenterology (“AJG”), and Managing Editor of Journal of Gastroenterology and Hepatology (“JGH”). He is also the Secretary General of the Asian Neurogastroenterology and Motility Association (“ANMA”), and Secretary General of the Asia Pacific Association of Gastroenterology (“APAGE”).

Dr. Wu has won a number of awards including the Emerging Leader in Gastroenterology Award by the JGH Foundation, and the Vice Chancellor’s Exemplary Teaching Award at CUHK. Aside from his expertise in gastroenterology, Dr. Wu has an extensive interest in the development of Integrative Medicine in Hong Kong. He is the Founding Director of the Hong Kong Institute of Integrative Medicine, working closely with the School of Chinese Medicine to develop an integrative model at an international level. The institute aims at maximizing the strength of Western and Chinese medicine to provide a safe and effective integrative treatment to patients.

Dr. Wu served as a consultant and an advisory board member for Takeda Pharmaceutical, AstraZeneca, Menarini, Reckitt Benckiser and Abbott Laboratory. He earned his Bachelor of Medicine and Bachelor of Surgery Degree (1993), and his Doctor of Medicine Degree (2000) from CUHK. Additionally, he attained Fellowships of the Royal College of Physicians of Edinburgh and London in 2007 and 2012 respectively, Fellowship of the Hong Kong College of Physicians in 2002, Fellowship of the Hong Kong Academy of Medicine in 2002, and has been an American Gastroenterological Association Fellow since 2012.

## **PROFESSOR DOUGLAS ARNER**

Professor Douglas W. Arner is an Independent Non-Executive Director of Aptom Group Limited. Douglas is the Kerry Holdings Professor in Law and Director and co-founder of the Asian Institute of International Financial Law at the University of Hong Kong, as well as Faculty Director and co-founder of the LLM in Compliance and Regulation, LLM in Corporate and Financial Law, and Law, Innovation, Technology and Entrepreneurship (LITE) Programmes. He served as Head of the HKU Department of Law from 2011 to 2014 and as Co-Director of the Duke University-HKU Asia-America Institute in Transnational Law from 2005 to 2016. Douglas has published eighteen books and more than 200 articles, chapters and reports on international financial law and regulation, most recently *Reconceptualising Global Finance and its Regulation* (Cambridge 2016) (with Ross Buckley and Emiliios Avgouleas) and *The RegTech Book* (Wiley 2019) (Janos Barberis and Ross Buckley). His recent papers are available on SSRN at [https://papers.ssrn.com/sol3/cf\\_dev/AbsByAuth.cfm?per\\_id=524849](https://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=524849), where he is among the top 75 authors in the world by total downloads. Professor Arner led the development of Introduction to FinTech – launched with edX in May 2018 and now with over 80,000 learners spanning the world – and the foundation of the edX-HKU Online Professional Certificate in FinTech. He is a Senior Visiting Fellow of Melbourne Law School, University of Melbourne, a non-executive director of NASDAQ and Euronext listed Aptom Group and an Advisory Board Member of the Centre for Finance, Technology and Entrepreneurship (CFTE). Professor Arner was an inaugural member of the Hong Kong Financial Services Development Council (2013-2019) and has served as a consultant with, among others, the World Bank, Asian Development Bank, APEC, Alliance for Financial Inclusion, and European Bank for Reconstruction and Development. He has lectured, co-organised conferences and seminars and been involved with financial sector reform projects around the world. Professor Arner has been a visiting professor or fellow at Duke, Harvard, the Hong Kong Institute for Monetary Research, IDC Herzliya, McGill, Melbourne, National University of Singapore, University of New South Wales, Shanghai University of Finance and Economics, and Zurich, among others. Professor Arner is the Senior Regulatory & Strategic Advisor of Aeneas Group, a multi-disciplinary financial services institution with technology-driven growth initiatives.

He holds a BA from Drury College (where he studied literature, economics and political science) in 1992, a JD (cum laude) from Southern Methodist University in 1995, an LLM (with distinction) in banking and finance law from the University of London (Queen Mary College) in 1996, and a PhD from the University of London in 2005.

### **B. Compensation of Directors and Executive Officers**

The following table sets forth all cash compensation paid by us, as well as certain other compensation paid or accrued, in fiscal 2020 to each of the following named executive officers. The total amount was \$2.75 million in 2020. A total 378,193 options were awarded to directors and executive officers in 2020. This amount does not include business travel, relocation, professional and business association dues and expenses reimbursed to such persons, and other benefits commonly reimbursed or paid by companies in our industry. In addition to the compensation included in the table below, which covers the fiscal year ended December 31, 2020, we issued an aggregate of 483,697 options to the persons included in the table below since January 1, 2021 through the date of this report. (See “Item 6. Directors, Senior Management and Employees – E. Share Ownership”)

The base salary of Mr. Ian Huen, Mr. Darren Lui and Dr. Clark Cheng will be reviewed in June 2021.

The base salary of Dr. Cheng has been adjusted to US\$6,410 per month with effect from December 1, 2020 due to the change in Dr. Cheng’s compensation structure. An additional monthly salary of SGD5,200 (approximately US\$3,885 per month) is paid to Dr. Clark Cheng to serve the role as Director of Aptom Innovations Holding Pte. Limited with effect from December 1, 2020. In connection with the change to Dr. Cheng’s compensation structure, the Company also entered into a consulting agreement with ACC Medical Limited effective on December 1, 2020, with a monthly service fee of HK\$101,542 (approximately US\$13,018 per month). Dr. Cheng is the sole director and shareholder of ACC Medical Limited. Hence, for the purposes of this filing and disclosure, the consulting service fee and share options grant to ACC Medical Limited will be deemed as Dr. Cheng’s compensation.

The Company entered into a consulting agreement with CGY Investment Limited effective on January 10, 2020, with a monthly service fee of HK\$104,000 (approximately US\$13,333 per month). CGY is 50% held by Seng Fun Yee (Mr. Lui's spouse), 25% held by Mandy Lui (Mr. Lui's sister) and 25% held by Adrian Lui (Mr. Lui's brother). Mr. Lui controls and/or has substantial influence on the disposition and voting rights of the shares held by his spouse, but no such control over the shares held by his sister or brother. Hence, for the purposes of this filing and disclosure, 50% of the consulting service fee and share options will be deemed as Mr. Lui's compensation.

The Board also determined to issue Dr. Cheng and Miss Sabrina Khan a discretionary cash bonus equal to one-month and four-month of their base salary, respectively.

<b>Name and Principal Position</b>	<b>Fiscal Year</b>	<b>Salary (\$)<sup>(1)</sup></b>	<b>Bonus (\$)</b>	<b>Option Awards (\$)</b>	<b>Non-Equity Incentive Plan Compensation (\$)<sup>(9)</sup></b>	<b>Change in Pension Value and Nonqualified Deferred Compensation Earnings (\$)</b>	<b>All Other Compensation (\$)</b>	<b>Total (\$)</b>
<b>Ian Huen<sup>(2)</sup> (CEO)</b>	2020	288,000	24,000	150,178	162,533	2,308	-	627,019
<b>Darren Lui<sup>(3)</sup> (President)</b>	2020	168,602	6,667	75,089	81,267	2,308	-	333,933
<b>Clark Cheng<sup>(4)</sup> (CMO)</b>	2020	279,334	23,275	150,178	162,533	2,968	117 <sup>(6)</sup>	618,405
<b>Sabrina Khan<sup>(5)</sup> (CFO)</b>	2020	196,000	65,333	107,627	111,208	2,308	-	482,476
<b>Thomas Lee<sup>(7)</sup> (Head of R&amp;D)</b>	2020	224,000	18,667	150,178	162,533	2,308	-	557,686
<b>Angel Ng<sup>(8)</sup> (COO)</b>	2020	96,000	8,000	16,152	16,825	2,308	-	139,285

- (1) The Appointment Letters provide salaries in HKD; for purposes of this table, we used a conversion ratio of HKD7.80 to USD1.00 to determine the salary in USD.
- (2) Mr. Huen is the founder and was appointed as the Chief Executive Officer of Aptorum Group on October 1, 2017. Before that, he was a director of the Company.
- (3) Mr. Lui was appointed as the Chief Business Officer and President of Aptorum Group on October 1, 2017 and resigned as Chief Business Officer on October 10, 2019.
- (4) Dr. Cheng was appointed as the Chief Medical Officer of Aptorum Group on January 2, 2018.
- (5) Miss Khan was appointed as the Chief Financial Officer of Aptorum Group on October 16, 2017. The monthly salary of Miss Khan was adjusted to HK\$135,590 (approximately US\$17,383) since January 1, 2021.
- (6) Pursuant to Dr. Cheng's appointment letter, Dr. Cheng received a share bonus of 526 ordinary shares of AML, representing 5% of AML's issued and outstanding ordinary shares (the "Share Bonus") in 2018. Based on the Company's financial position and Dr. Cheng's performance, on each anniversary of Dr. Cheng's employment commencement date, the Share Bonus is eligible to increase by 1% of AML's then issued and outstanding ordinary share count per year up to a maximum additional amount of 5% of AML's then issued and outstanding ordinary share count by the 5th anniversary from his employment commencement date. As of the date of this annual report, Dr. Cheng received a total of 870 ordinary shares of AML, representing 8% of AML's issued and outstanding ordinary shares; during fiscal 2020, Dr. Cheng received 115 ordinary shares of AML, the cash value of which is USD115; during fiscal 2021, Dr. Cheng received 117 ordinary shares with cash value of which is USD117.

- (7) Dr. Lee was appointed as the Head of Research & Development of Aptorum Group on April 1, 2019. Before that, he was the Chief Executive Officer and Chief Scientific Officer of Aptorum Therapeutics Limited, a wholly-owned therapeutics subsidiary of Aptorum Group Limited from January 2018 to March 2019. The monthly salary of Dr. Lee was adjusted to HK\$149,240 (approximately US\$19,133) since January 1, 2021.
- (8) Dr. Ng was appointed as the Chief Operating Officer of Aptorum Group on April 1, 2019. Before that, she was the Chief Operating Officer of Aptorum Therapeutics Limited, a wholly-owned therapeutics subsidiary of Aptorum Group Limited from September 2017 to March 2019. The monthly salary of Dr. Ng was adjusted to HK\$63,960 (approximately US\$8,200) since January 1, 2021.
- (9) Represents deferred bonuses provided to directors and executive officers, which will be vested after 1-2 year vesting period.

*Compensation of Non-executive Directors*

The following table sets forth information for the fiscal year ended December 31, 2020 regarding the compensation of our non-executive directors who at December 31, 2020, were not also named executive officers. A total 45,504 options were awarded to non-executive directors in 2020. In addition to the compensation included in the table below, which covers the fiscal year ended December 31, 2020, we issued an aggregate of 43,480 options to the persons included in the table below since January 1, 2021 through the date of this report.

Name	Fees Earned or Paid in Cash (\$)	Stock Awards (\$)	Option Awards (\$)	Non-Equity Incentive Plan Compensation (\$)	Non-qualified Deferred Compensation Earnings (\$)	All Other Compensation (\$)	Total (\$)
Charles Bathurst <sup>(1)</sup>	48,000 <sup>(2)</sup>	-	19,281	20,256	-	-	87,537
Mirko Scherer <sup>(3)</sup>	30,000	-	19,281	20,256	-	-	69,537
Justin Wu <sup>(4)</sup>	30,000	-	19,281	20,256	-	-	69,537
Douglas Arner <sup>(5)</sup>	30,000	-	19,281	20,256	-	-	69,537

- (1) Mr. Bathurst was appointed as one of our directors as of October 2017 and pursuant to his appointment letter, is entitled to receive \$48,000 annually for his combined services as a director and a committee member. Effective from January 1, 2021, the director's fee is adjusted to \$49,200 annually.
- (2) Mr. Bathurst's appointment Letter provides his salary in GBP. For purposes of this table, we used a conversion ratio of GBP0.75 to USD1.00 to determine his salary in USD; however, the ultimate amount paid is based on the actual rate as of the relevant pay day at the end of each month.
- (3) Dr. Scherer was appointed as one of our directors as of October 2017 and pursuant to his appointment letter, is entitled to receive \$30,000 annually for his services as a director. Effective from January 1, 2021, the director's fee is adjusted to \$30,750 annually.
- (4) Dr. Wu was appointed as one of our directors as of October 2017 and pursuant to his appointment letter, is entitled to receive \$30,000 annually for his combined services as a director and a committee member. Effective from January 1, 2021, the director's fee is adjusted to \$30,750 annually.
- (5) Professor Arner's appointment as one of our directors became effective as of April 1, 2018. Pursuant to his appointment letter, Professor Arner is entitled to receive \$30,000 annually for his combined services as a director and a committee member. Effective from January 1, 2021, the director's fee is adjusted to \$30,750 annually.

## 2017 Share Option Plan

On October 13, 2017, we adopted the 2017 Share Option Plan (the “Option Plan”). Under the Option Plan, up to an aggregate of 5,500,000 Class A Ordinary Shares (subject to subsequent adjustments described more fully below) may be issued pursuant to awards under the Option Plan. Subsequent adjustments include that on each January 1, starting with January 1, 2020, an additional number of shares equal to the lesser of (A) 2% of the outstanding number of Class A Ordinary Shares (on a fully diluted basis) on the immediate preceding December 31, and (B) such lower number of Class A Ordinary Shares as may be determined by the board of directors, subject in all cases to adjustments as provided in Section 10 of the Option Plan. Awards will be made pursuant to agreements and may be subject to vesting and other restrictions as determined by the board of directors.

We adopted the Option Plan to provide additional incentives to selected directors, officers, employees and consultants, and enable our Company to obtain and retain the services of these individuals. The Option Plan will enable us to grant options, restricted shares or other awards to our directors, employees and consultants. Awards will be made pursuant to agreements and may be subject to vesting and other restrictions as determined by the board of directors.

218,222 options were granted on March 15, 2019 to directors, employees, external consultants and advisors of the Group. One-half of each option grant vests on January 1, 2020 and expires on December 31, 2030, and the other half vests on January 1, 2021 and expires on December 31, 2031. The exercise price is \$12.91 per share, which was based on the closing price of the shares traded on the NASDAQ stock exchange on the trading day preceding the grant date.

536,777 options were granted on March 16, 2020 to directors, employees, external consultants and advisors of the Group. One-half of each option grant vests on January 1, 2021 and expires on December 31, 2031 and the other half vests on January 1, 2022 and expires on December 31, 2032. The exercise price is \$2.99 per share, which was based on the average closing price of the shares traded on the NASDAQ stock exchange for the five trading days immediately preceding the grant date.

148,792 options were granted on June 1, 2020 to directors and employees of the Group. Nearly one-half of each option grant vests on December 1, 2020 and expires on November 30, 2030 and the remaining vests on January 1, 2021 and expires on December 31, 2031. The exercise price is US\$3.11 per share, which was based on the average closing price of the shares traded on the NASDAQ stock exchange for the five trading days immediately preceding the grant date.

27,473 options were granted on August 10, 2020 to Dr. Weiss, which will be vested on August 10, 2021 and expires on August 9, 2032. The exercise price is \$3.64 per share, which was based on the average closing price of the shares traded on the NASDAQ stock exchange for the five trading days immediately preceding the grant date.

752,185 options were granted on March 11, 2021 to directors, employees, external consultants and advisors of the Group with an exercise price of \$2.76 per share, which was based on the average closing price of the shares traded on the NASDAQ stock exchange for the five trading days immediately preceding the grant date. 367,950 options vest on January 1, 2022 and expire on December 31, 2032; 367,930 options vest on January 1, 2023 and expire on December 31, 2033; 9,058 options vest on June 8, 2021 and expire on June 7, 2032; and 7,247 options vest on July 14, 2021 and expire on July 13, 2032.

### C. Board Practices

#### **Board of Directors**

Our Board of Directors currently consists of seven members, all of whom were elected pursuant to our current Memorandum and Articles. Our nominating and governance committee and board of directors will consider a broad range of factors relating to the qualifications and background of nominees, which may include diversity and is not limited to race, gender or national origin. We have no formal policy regarding board diversity. Our nominating and governance committee’s and board of directors’ priority in selecting board members is identification of persons who will further the interests of our shareholders through his or her established record of professional accomplishment, the ability to contribute positively to the collaborative culture among board members, knowledge of our business, understanding of the competitive landscape and professional and personal experiences and expertise relevant to our growth strategy.

## Committees of the Board of Directors

Our Board of Directors has established an audit committee, a compensation committee and a nominating and corporate governance committee, each of which operates pursuant to a separate charter adopted by our Board of Directors. The composition and functioning of all of our committees will comply with all applicable requirements of the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the NASDAQ Global Market and SEC rules and regulations. Our Board of Directors may establish other committees from time to time.

### *Audit Committee*

Charles Bathurst, Douglas Arner and Justin Wu currently serve on the audit committee, which is chaired by Charles Bathurst. Our Board of Directors has determined that each member of the audit committee is “independent” for audit committee purposes as that term is defined in the rules of the SEC and the applicable rules of the NASDAQ Global Market. The audit committee’s responsibilities include:

- selecting and appointing our independent registered public accounting firm, and approving the audit and permitted non-audit services to be provided by our independent registered public accounting firm;
- evaluating the performance and independence of our independent registered public accounting firm;
- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements or accounting matters;
- reviewing the adequacy and effectiveness of our accounting and internal control policies and procedures;
- establishing procedures for the receipt, retention and treatment of accounting-related complaints and concerns;
- reviewing and discussing with the independent registered public accounting firm the results of our year-end audit, and recommending to our Board of Directors, based upon such review and discussions, whether our financial statements shall be included in our annual report on Form 20-F;
- reviewing all related party transactions for potential conflict of interest situations and approving all such transactions; and
- reviewing the type and presentation of information to be included in our earnings press releases, as well as financial information and earnings guidance provided by us to analysts and rating agencies.

### *Audit Committee Financial Expert*

We have one financial expert as of the date of this report. Our Board of Directors has determined that Mr. Charles Bathurst, Chair of our audit committee, qualifies as an “audit committee financial expert” as defined in the SEC rules and satisfies the financial sophistication requirements of The NASDAQ Global Market.

### *Compensation Committee*

Charles Bathurst, Douglas Arner and Justin Wu currently serve on the compensation committee, which is chaired by Justin Wu. Our Board of Directors has determined that each member of the compensation committee is “independent” as that term is defined in the applicable rules of the NASDAQ Global Market. The compensation committee’s responsibilities include:

- reviewing the goals and objectives of our executive compensation plans, as well as our executive compensation plans in light of such goals and objectives;
- evaluating the performance of our executive officers in light of the goals and objectives of our executive compensation plans and recommending to our Board of Directors with respect to the compensation of our executive officers;

- reviewing the goals and objectives of our general compensation plans and other employee benefit plans as well as our general compensation plans and other employee benefit plans in light of such goals and objectives;
- retaining and approving the compensation of any compensation advisors;
- reviewing all equity-compensation plans to be submitted for shareholder approval under the NASDAQ listing rules, and reviewing and approving all equity-compensation plans that are exempt from such shareholder approval requirement;
- evaluating the appropriate level of compensation for board and board committee service by non-employee directors; and
- reviewing and approving description of executive compensation included in our annual report on Form 20-F.

#### *Nominating and Corporate Governance Committee*

Charles Bathurst, Douglas Arner and Justin Wu currently serve on the nominating and corporate governance committee, which is chaired by Professor Arner. Our Board of Directors has determined that each member of the nominating and corporate governance committee is “independent” as that term is defined in the applicable rules of the NASDAQ Global Market. The nominating and corporate governance committee’s responsibilities include:

- assisting our Board of Directors in identifying prospective director nominees and recommending nominees for election by the shareholders or appointment by our Board of Directors;
- advising the board of directors periodically with respect to significant developments in the law and practice of corporate governance as well as our compliance with applicable laws and regulations, and making recommendations to our Board of Directors on all matters of corporate governance and on any corrective action to be taken;
- overseeing the evaluation of our Board of Directors; and
- recommending members for each board committee of our Board of Directors.

#### *Scientific Advisory Boards*

We restructured the Scientific Assessment Committee into a newly formed Scientific Advisory Board. The Scientific Advisory Board shall help the Company sharpen its focus on innovation and technological advancements and address critical scientific challenges in our research and development; it will provide overall advise on the scientific development of the company. As of the date of this annual report, we have 24 members on this board.

In light of the Company’s focus on developing treatment for infectious diseases, we have established a second scientific advisory board, i.e., the Infectious Diseases Scientific Advisory Board in April 2020. As of the date hereof, the Infectious Diseases Scientific Advisory Board has 4 members.

#### **Family Relationships**

There is no family relationship among any of our directors or executive officers.

#### **Duties of Directors**

Under Cayman Islands law, our directors have a duty to act honestly, in good faith and bona fide with a view to our best interests. Our directors also have a duty to exercise the care, diligence and skills that a reasonably diligent person would exercise in comparable circumstances. In fulfilling their duty of care to us, our directors must ensure compliance with our Memorandum and Articles. We have the right to seek damages if a duty owed by our directors is breached.

The functions and powers of our Board of Directors include, among others:

- appointing officers and determining the term of office of the officers;
- authorizing the payment of donations to religious, charitable, public or other bodies, clubs, funds or associations as deemed advisable;
- exercising the borrowing powers of the company and mortgaging the property of the company;
- executing checks, promissory notes and other negotiable instruments on behalf of the company; and
- maintaining or registering a register of mortgages, charges or other encumbrances of the company.

#### **Terms of Directors and Officers**

There is no Cayman Islands law requirement that a director must hold office for a certain term and stand for re-election unless the resolutions appointing the director impose a term on the appointment. The Memorandum and Articles provide that our directors will be elected annually to serve a term of one year, or until his or her earlier resignation or removal. We do not have any age limit requirements relating to our director's term of office.

Our Memorandum and Articles also provide that our directors may be removed by the directors or ordinary resolution of the shareholders, and that any vacancy on our Board of Directors, including a vacancy resulting from an enlargement of our Board of Directors (which shall not exceed any maximum number stated therein), may be filled by ordinary resolution or by vote of a majority of our directors then in office.

#### **Employment Agreements**

We have entered into agreements with our executive officers. Each of our executive officers is employed for a specified time period, which will be renewed upon both parties' agreement. We may terminate the employment for cause, at any time, without notice or remuneration, for certain acts of the executive officer, including but not limited to the commitments of any serious or persistent breach or non-observance of the terms and conditions of the employment, conviction of a criminal offense, willful disobedience of a lawful and reasonable order, fraud or dishonesty, receipt of bribery, or severe neglect of his or her duties.

Each executive officer has agreed to hold, both during and after the employment agreement expires, in strict confidence and not to use or disclose to any person, corporation or other entity without written consent, any confidential information. Each executive officer has also agreed to assign to our group all his or her all inventions, improvements, designs, original works of authorship, formulas, processes, compositions of matter, computer software programs, databases, mask works, concepts and trade secrets.

#### **D. Employees**

As of the date of this annual report, we have 26 employees, including 24 full-time employees and 2 part-time employee. Of these, 7 are engaged in full-time research and development and laboratory operations, 15 are engaged in general and administrative functions, 2 are full-time employees engaged in the clinic operation and 2 part-time employee is engaged in legal clerical support. As of the date of this annual report, 25 of our employees are located in Asia and 1 of our employees is located in Europe. In addition, we have engaged and may continue to engage 48 independent contracted consultants and advisors to assist us with our operations. None of our employees are represented by a labor union or covered by a collective bargaining agreement. We have never experienced any employment related work stoppages, and we consider our relations with our employees to be good.

#### **E. Share Ownership**

The following table sets forth information with respect to the beneficial ownership, within the meaning of Rule 13d-3 under the Exchange Act, of our Ordinary Shares as of the date of this annual report.

- each of our directors and executive officers who beneficially own our Ordinary Shares; and
- each person known to us to own beneficially more than 5.0% of our Ordinary Shares.

Beneficial ownership includes voting or investment power with respect to the securities. Except as indicated below, and subject to applicable community property laws, the persons named in the table have sole voting and investment power with respect to all Ordinary Shares shown as beneficially owned by them. Percentage of beneficial ownership of each listed person is based on 11,755,242 Class A Ordinary Shares and 22,437,754 Class B Ordinary Shares outstanding as of the date of this annual report.

Information with respect to beneficial ownership has been furnished by each director, officer or beneficial owner of 5% or more of our Ordinary Shares. Beneficial ownership is determined in accordance with the rules of the SEC and generally requires that such person have voting or investment power with respect to securities. In computing the number of Ordinary Shares beneficially owned by a person listed below and the percentage ownership of such person, Ordinary Shares underlying options, warrants or convertible securities held by each such person that are exercisable or convertible within 60 days of the date of this annual report are deemed outstanding, but are not deemed outstanding for computing the percentage ownership of any other person. Except as otherwise indicated in the footnotes to this table, or as required by applicable community property laws, all persons listed have sole voting and investment power for all Ordinary Shares shown as beneficially owned by them. As of the date of the annual report, we have 3 shareholders of record holding beneficial ownership of 5% or more, none of which are located in the United States.

Unless otherwise indicated, the business address of each of the individuals is 17 Hanover Square, London, W1S 1BN, United Kingdom.

Name and Address of Beneficial Owner	Class A Ordinary Shares Beneficially Owned	Class B Ordinary Shares Beneficially Owned	Percentage of Total Class A and Class B Ordinary Shares <sup>(1)</sup>	Percentage of Total Voting Power <sup>(2)</sup>
Ian Huen <sup>(3)</sup>	2,909,240	16,061,469	54.53%	69.08%
Darren Lui <sup>(4)</sup>	277,531	2,141,333	7.07%	9.19%
Clark Cheng <sup>(5)</sup>	*	-	*	*
Sabrina Khan <sup>(6)</sup>	*	-	*	*
Thomas Lee <sup>(7)</sup>	*	-	*	*
Angel Ng <sup>(8)</sup>	*	-	*	*
Charles Bathurst <sup>(9)</sup>	*	-	*	*
Mirko Scherer <sup>(10)</sup>	*	-	*	*
Justin Wu <sup>(11)</sup>	213,254	-	0.62%	0.09%
Douglas Arner <sup>(12)</sup>	*	-	*	*
All directors and executive officers as a group (10 persons)	3,400,025	18,202,802	61.89%	78.29%
<i>5% Beneficial Owner</i>				
Jurchen Investment Corporation <sup>(3)</sup>	2,855,688	16,061,469	54.46%	69.07%
Sui Fong Isabel Huen Ng <sup>(13)</sup>	211,986	1,907,870	6.20%	8.17%
CGY Investments Limited <sup>(14)</sup>	525,361	4,015,367	13.26%	17.22%

\* Less than 1%.

- (1) For each person and group included in this column, percentage ownership is calculated by dividing the number of Class A Ordinary Shares and Class B Ordinary Shares beneficially owned by such person or group, including shares that such person or group has the right to acquire within 60 days after the date of this annual report, by the sum of Class A Ordinary Shares and Class B Ordinary Shares, and the number of Class A Ordinary Shares that such person or group has the right to acquire beneficial ownership within 60 days after the date of this annual report. Following the IPO, each Class B Ordinary Share can be converted at any time on a one-for-one basis into Class A Ordinary Shares at the discretion of the holder.
- (2) For each person and group included in this column, percentage of total voting power represents voting power based on both Class A Ordinary Shares and Class B Ordinary Shares beneficially owned by such person or group with respect to all of our outstanding Class A Ordinary Shares and Class B Ordinary Shares as one single class. Holders of Class A Ordinary Shares are entitled to one vote per share and holders of Class B Ordinary Shares are entitled to ten votes per share on all matters subject to a shareholders' vote.
- (3) Includes 2,315,148 Class A Ordinary Shares owned by Jurchen, warrants held by Jurchen to purchase 540,540 Class A Ordinary Shares, options granted to Mr. Huen to purchase 53,552 Class A Ordinary Shares, and 16,061,469 Class B Ordinary Shares owned by Jurchen. Jurchen Investment Corporation, is a company wholly-owned by Mr. Huen. Mr. Huen maintains sole voting control over the shares held by Jurchen, the principal office address of which is at 17th Floor, Guangdong Investment Tower, 148 Connaught Road Central, Hong Kong. Does not include 33,445 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 16, 2020 and 144,928 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 11, 2021 to Mr. Huen pursuant to the Option Plan, since such options have not vested and will not be exercisable within 60 days of the date of this annual report.
- (4) Includes (i) 14,850 Class A Ordinary Shares and 133,649 Class B Ordinary Shares held by DSF Investment Holdings Limited, which is 29.5% held by Mr. Lui, and 70.5% held by Eternal Clarity Holdings Limited which is wholly-owned by Mr. Lui's mother, Ms. Emily Woo, and is located at Flat A2, 11th Floor, Wing Hang Insurance Building, 11 Wing Kut Street, Hong Kong, (ii) 240,932 Class A Ordinary Shares and 2,007,684 Class B Ordinary Shares held by CGY Investments Limited, which is 50% held by Seng Fun Yee (Mr. Lui's spouse), 25% held by Mandy Lui (Mr. Lui's sister) and 25% held by Adrian Lui (Mr. Lui's brother), and (iii) options held by CGY Investments Limited to purchase 21,749 Class A Ordinary Shares. Mr. Lui only controls and/or has substantial influence on the disposition and voting rights of 29.5% of the Aptorum shares DSF owns; Mr. Lui controls and/or has substantial influence on the disposition and voting rights of the shares held by his spouse, but no such control over the shares held by his sister or brother regarding the CGY shares. Does not include 33,445 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 16, 2020 and 144,928 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 11, 2021 to CGY Investments Limited, of which 50% is deemed controlled by Mr. Lui, pursuant to the Option Plan, since such options have not vested and will not be exercisable within 60 days of the date of this annual report.
- (5) Pursuant to his appointment letter, Dr. Cheng received 8% of Aptorum Medical Limited's ordinary shares as of the date of this annual report. Does not include 33,445 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 16, 2020 to Dr. Cheng, and 99,638 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 11, 2021 to ACC Medical Limited, pursuant to the Option Plan, since such options have not vested and will not be exercisable within 60 days of the date of this annual report. ACC Medical Limited, is a company wholly-owned by Dr. Cheng. Dr. Cheng maintains sole voting control over the shares held by ACC Medical Limited, the principal office address of which is at Unit 1, 13/F, Block A, 19-25 Jervois Street, Hong Kong.
- (6) Does not include 27,313 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 16, 2020 and 67,029 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 11, 2021 to Miss Khan pursuant to the Option Plan, since such options have not vested and will not be exercisable within 60 days of the date of this annual report.
- (7) Does not include 33,445 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 16, 2020 to and 90,580 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 11, 2021 to Dr. Lee pursuant to the Option Plan, since such options have not vested and will not be exercisable within 60 days of the date of this annual report.

- (8) Does not include 4,013 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 16, 2020 and 9,058 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 11, 2021 to Dr. Ng pursuant to the Option Plan, since such options have not vested and will not be exercisable within 60 days of the date of this annual report.
- (9) Does not include 4,682 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 16, 2020 and 10,870 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 11, 2021 to Mr. Bathurst pursuant to the Option Plan, since such options have not vested and will not be exercisable within 60 days of the date of this annual report.
- (10) Does not include 4,682 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 16, 2020 and 10,870 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 11, 2021 to Mr. Scherer pursuant to the Option Plan, since such options have not vested and will not be exercisable within 60 days of the date of this annual report.
- (11) Includes (i) 129,589 Class A Ordinary Shares held by Chi Ling Lily Heung, the wife of Dr. Wu, (ii) 76,971 Class A Ordinary Shares held by Dr. Wu, and (iii) options granted to Dr. Wu to purchase 6,694 Class A Ordinary Shares. Does not include 4,682 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 16, 2020 and 10,870 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 11, 2021 to Dr. Wu pursuant to the Option Plan, since such options have not vested and will not be exercisable within 60 days of the date of this annual report.
- (12) Does not include 4,682 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 16, 2020 and 10,870 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 11, 2021 to Dr. Arner pursuant to the Option Plan, since such options have not vested and will not be exercisable within 60 days of the date of this annual report.
- (13) Sui Fong Isabel Huen Ng is the mother of Mr. Ian Huen. Mr. Ian Huen does not have control nor substantial influence on the disposition and voting rights of the shares held by his mother.
- (14) CGY Investments Limited is 50% held by Seng Fun Yee (Mr. Lui's spouse), 25% held by Mandy Lui (Mr. Lui's sister) and 25% held by Adrian Lui (Mr. Lui's brother). Mr. Lui controls and/or has substantial influence on the disposition and voting rights of the shares held by his spouse, but no such control over the shares held by his sister or brother. Includes (i) 481,863 Class A Ordinary Shares and 4,015,367 Class B Ordinary Shares held by CGY Investments Limited, and (ii) options held by CGY Investments Limited to purchase 43,498 Class A Ordinary Shares. Does not include 33,445 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 16, 2020 and 144,928 Class A Ordinary Shares issuable upon exercise of outstanding options issued on March 11, 2021 to CGY Investments Limited pursuant to the Option Plan, since such options have not vested and will not be exercisable within 60 days of the date of this annual report.

## Item 7. MAJOR SHAREHOLDERS AND RELATED PARTY TRANSACTIONS

### A. Major Shareholders

Please refer to “Item 6. Directors, Senior Management and Employees—E. Share Ownership.”

### B. Related Party Transactions

#### **Sales and Purchases of Securities**

##### ***IPO***

A total of 5,504 shares were purchased in the IPO by related persons.

##### ***Registered Direct Offering***

Jurchen Investment Corporation, our largest shareholder and wholly owned by Mr. Huen, our Chief Executive Officer, purchased 540,540 Class A Ordinary Shares and warrants to purchase 540,540 Class A Ordinary Shares in a Registered Direct Offering, which closed on February 28, 2020. The Warrants will be exercisable immediately following the date of issuance for a period of seven years at an initial exercise price of \$7.40.

#### **Share Transfer: Change in direct substantial shareholders of the Company**

On May 4, 2017, Mr. Huen transferred all of the ordinary shares in the Company he owned (in the amount of 22,307,596) to Jurchen, a company incorporated in the British Virgin Islands and wholly-owned by Mr. Huen. On October 13, 2017, the ordinary shares held by Jurchen were redesignated as 2,230,760 Class A Ordinary Shares and 20,076,836 Class B Ordinary Shares.

On March 23, 2018, Jurchen transferred 446,152 Class A Ordinary Shares and 4,015,367 Class B Ordinary Shares to CGY Investments Limited, a company incorporated in Hong Kong and which we deem Mr. Darren Lui controls and/or of which he has substantial influence on the disposition rights and voting rights of such shares. Following this transfer, Jurchen owned approximately 33% and 72% of our Class A Ordinary Shares and Class B Ordinary Shares, respectively.

#### **Consulting Arrangements**

##### Aeneas Group

a. In March 2017, we entered into a new Management Agreement with AENEAS CAPITAL LIMITED, a wholly-owned subsidiary of Aeneas Limited (the “2017 Agreement”), pursuant to which Aeneas will provide certain management and administrative functions, as well as investment functions related to the Company, IP acquisitions and other investor relations services (the “Services”). In consideration for the Services, we agreed to pay Aeneas HK\$500,000 per month (approximately US\$64,103 per month), payable on the last day of each month. The 2017 Agreement was terminated in July 2018. Prior to the termination, we paid Aeneas an aggregate of \$1.1 million pursuant to the terms of the 2017 Agreement.

b. On April 24, 2019, the Company signed an agreement with AENEAS CAPITAL LIMITED, a wholly-owned subsidiary of Aeneas Limited, and A\*ccelerate Technologies Pte. Ltd, the enterprise office of the Agency for Science, Technology and Research (“A\*STAR”), (collectively, the “Parties”) to co-create local deep tech startups. This agreement, which is part of A\*ccelerate’s venture co-creation (“VCC”) initiative, commits all parties to the co-creation of local startups in the healthcare and life science sector (the “Master Collaboration Agreement”). The goal is to create a total of up to 20 deep tech ventures in Singapore will be created by this partnership over the next 5 years. A\*STAR shall contribute a total of up to \$30,000,000 to any suitable startups, at their discretion. The Company and AENEAS CAPITAL LIMITED will contribute a total of up to \$30,000,000 to any suitable startups at their discretion with a focus on (i) securing pilot customers; (ii) incorporation of the startups as companies and financial commitments of such customers; (iii) capital raising and capital market plans; (iv) recruiting and building of the startup teams; (v) equipment and infrastructure; and (vi) licensing of IP to the startups under the Technology License Agreements. The Master Collaboration Agreement shall continue for a period of 5 years, unless otherwise terminated or extended by the Parties.

c. On January 1, 2019, Aptus Management Limited (one of our wholly-owned subsidiaries) (“Aptus Management”) entered into an Administrative consultant Services Agreement with Aeneas Management Limited, a wholly-owned subsidiary of Aeneas Limited. Pursuant to this agreement, Aeneas shall provide certain business and financial services to Aptus Management Limited; Aeneas shall be paid a monthly service fee of HK\$452,000 per month (approximately US\$57,949 per month), payable by the 25th day of each month during the term of the agreement, which was until December 31, 2019. Either party was able to terminate the agreement by providing 3-months written notice to the other party. On December 16, 2019, the parties agreed to renew the agreement under the same terms, but with an expiration date of December 31, 2020. On April 30, 2020, the agreement was mutually agreed to be terminated.

d. On January 1, 2019, Aenco Limited (“Aenco”), a wholly owned subsidiary of Aeneas Limited and Aptus Management entered into a Secondment Agreement. Pursuant to this agreement, Aenco shall assign certain of its employees to Aptus Management from time to time to assist Aptus Management with information technology development and maintenance activities for Aptus Management’s affiliates; such employees shall be integrated into Aptus Management’s organization only to the extent necessary to carry out such employees specific duties for Aptus Management. Aptus Management shall pay all salary and benefits up to HK\$540,000 per month (approximately US\$69,231 per month); Aenco shall be responsible for the costs associated with any employee relocation required as a result of this agreement. The agreement was originally set to terminate on December 31, 2019, although either party may terminate the agreement upon giving the other party 3-months written notice.

On April 1, 2020, the agreement was replaced and superseded with a New Secondment Agreement. Pursuant to this New Secondment Agreement, Aenco shall assign certain of its employees to Aptus Management from time to time to assist Aptus Management with information technology application development and maintenance activities for Aptus Management’s affiliates; such employees shall be integrated into Aptus Management’s organization only to the extent necessary to carry out such employees specific duties for Aptus Management. Aptus Management shall pay all salary and benefits up to HK\$700,000 per month (approximately US\$89,744 per month); Aenco shall be responsible for the costs associated with any employee relocation required as a result of this agreement. The agreement shall terminate on December 31, 2020, although either party may terminate the agreement upon giving the other party 3-months written notice. On September 30, 2020, the New Secondment Agreement was mutually agreed to be terminated.

e. On April 30, 2020, Aptorum Therapeutics Limited entered into a contract research agreement with Aeneas Technology (Hong Kong) Limited (“Aeneas Technology”), a wholly owned subsidiary of Aeneas Limited. Pursuant to this agreement, Aeneas Technology shall perform the research in accordance with the terms and conditions of this agreement. Aptorum Therapeutics Limited shall pay a research fee of HK\$963,760 per month (approximately US\$123,559 per month). The agreement was set to terminate on September 30, 2021, but on September 30, 2020, the parties mutually agreed to terminate the agreement.

f. In July 2019, Smart Pharmaceutical Limited Partnership, (“SPLP”), a wholly owned subsidiary of the Group, transferred 100,000,000 Smart Pharma Tokens (“SMPT token”) to Aenco Solutions Limited, a related party, in exchange of the service to deal with the token creation, offering and 5-years consultancy service. The 100,000,000 SMPT tokens were equivalents to \$300,000. On March 5, 2021, all agreements regarding the SMPT tokens, including the agreement between SPLP and Aenco Solutions Limited in exchange of the service to deal with the token creation, have been terminated.

Aeneas Group refers to Aeneas Limited and its subsidiaries. Aeneas Limited is 76.8% owned by Jurchen Investment Corporation, which is wholly-owned by Mr. Huen, our CEO. Professor Arner, one of our directors, is a Senior Regulatory and Strategic Advisor for Aeneas Group. Under his agreement with Aeneas Group dated March 12, 2018, Professor Arner shall, among other services, advise the board of Aeneas Group with its management, execution of business, and regulatory initiatives of Aeneas Group, assist Aeneas Group with access to expert networks as appropriate and required. Professor Arner’s compensation thereunder is HK\$240,000 per year (approximately US\$30,900 per year) and Professor Arner is entitled to participate in Aeneas Group’s share option plans.

In addition, AENEAS CAPITAL LIMITED, an indirectly and wholly-owned subsidiary of Aeneas Limited, was one of the selected broker-dealers for our IPO.

#### CGY Investment Limited

We entered into a consulting agreement with CGY Investment Limited (“CGY”) effective on January 10, 2020. Pursuant to this agreement, CGY shall provide certain consultancy, advisory, and management services to the Group on potential investment projects related to health care or R&D platform; CGY shall be paid a monthly service fee of HK\$104,000 per month (approximately US\$13,333 per month), during the term of the agreement, which is remain in effect unless it is terminated. The agreement may be terminated by either party providing 1-months written notice to the other party.

CGY is 50% held by Seng Fun Yee (Mr. Lui’s spouse), 25% held by Mandy Lui (Mr. Lui’s sister) and 25% held by Adrian Lui (Mr. Lui’s brother). Mr. Lui, President and Executive Director of the Group, controls and/or has substantial influence on the disposition and voting rights of the shares held by his spouse, but no such control over the shares held by his sister or brother. Hence, 50% of the consulting service fee will be deemed as Mr. Lui’s compensation.

#### ACC Medical Limited

We entered into a consulting agreement with ACC Medical Limited (“ACC”) effective on December 1, 2020. Pursuant to this agreement, ACC shall provide certain consultancy, advisory, and management services to the Group on clinic operations and other related projects for clinics’ business development; ACC shall be paid a monthly service fee of HK\$101,542 per month (approximately US\$13,018 per month), during the term of the agreement, which is to remain in effect unless it is terminated. The agreement may be terminated by either party providing 1-months written notice to the other party. ACC is wholly owned by Dr. Clark Cheng, who is also the sole director of ACC, the Group’s Chief Medical Officer and one of its executive directors.

#### GloboAsia, LLC

We entered into a consulting agreement with GloboAsia effective as of August 18, 2017 (the “2017 GA Agreement”); GloboAsia is not associated or affiliated with any FINRA members. However, the 2017 GA Agreement was terminated when Dr. Chan resigned from his position as our Chief Scientific Officer in March 2019. Dr. Chan serves as the Director of International Affairs of GloboAsia.

Effective as of April 1, 2019, GloboAsia, through Dr. Chan, shall serve as a member on our Scientific Advisory Board. To formalize such service, we entered into that certain consulting agreement with GloboAsia dated March 13, 2019 (the “2019 GA Agreement”). Pursuant to the 2019 GA Agreement, GloboAsia provides advisory and management services to us and as a member of the Scientific Advisory Board, they provide advice to us regarding research and development, the scientific merit of licenses or products and other related scientific issues. We agreed to pay GloboAsia an hourly rate of USD300 for work actually performed. The initial term of 2019 GA Agreement is until December 31, 2020 and shall thereafter be automatically renewed for successive one-year terms, unless earlier terminated by either party upon three months’ notice prior to the end of the then applicable term; either party may also terminate the agreement upon 2 months written notice and the Company may terminate the agreement if Dr. Chan is no longer with GloboAsia or if GloboAsia commits any act of fraud or dishonesty.

#### **Lease**

Our lease for our office at Guangdong Investment Tower is a Sub-Tenancy Agreement between Jurchen Investment Corporation and Aptus Management Limited, which is one of our wholly-owned subsidiaries. In May 2020, Jurchen Investment Corporation and the Group mutually agreed to early terminate the rental agreement and returned the office on May 31, 2020.

## **The Series A Note Offering**

On May 15, 2018, we closed a private financing with certain investors (the “Series A Note Investors”) who purchased an aggregate of \$1,600,400 Series A convertible notes, at a purchase price of \$10,000 per note (the “Series A Notes”), pursuant to a note purchase agreement. Some of the Series A Note Investors are either affiliates of the Company or “related persons,” as such term is defined in Item 404 of Regulation S-K (See “Item 7. Major Shareholders and Related Party Transactions”). We refer to this private placement transaction as the “Series A Note Offering.” The Series A Note Investors entered into a lock-up agreement, pursuant to which they agreed not to sell or otherwise transfer or dispose the Series A Notes or the Class A Ordinary Shares underlying the Series A Notes during the six-month period commencing on the date our Class A Ordinary Shares commence trading on NASDAQ Global Market. The Series A Notes automatically converted into 230,252 Class A Ordinary Shares at the closing of the Offering and at the commencement of trading our Class A Ordinary Shares on NASDAQ Global Market at a conversion price equal to a 56% discount to the actual price per Class A Ordinary Share (“Conversion Price”). Accordingly, the Series A Notes converted into, and we issued an aggregate of 230,252 shares of Class A Ordinary Shares after the IPO closed.

One of the underwriters in the IPO also served as a placement agent for the Series A Note Offering and received: (i) a cash success fee of \$68,516 and (ii) warrants to purchase 12,663 Class A Ordinary Shares, at an exercise price of \$6.95 per share, subject to adjustment (the “Series A Note PA Warrants”). The Series A Note PA Warrants are also exercisable on a cashless basis, at the holder’s discretion.

The issuance and sale of Series A Notes, and the underlying Class A Ordinary Shares to the Series A Note Investors in the Series A Note Offering were made in reliance on an exemption from registration contained in either Regulation D or Regulation S of the Securities Act of 1933, as amended (the “Securities Act”). The securities sold in the Series A Note Offering are not registered by the Registration Statement and may be offered or sold only pursuant to an effective registration statement or pursuant to an available exemption from the registration requirements of the Securities Act. However, the Series A Note Investors have piggyback registration rights with respect to the Class A Ordinary Shares underlying the Series A Notes that entitle the Series A Note Investors to request their securities be included in a future Securities Act registration statement, after our IPO, subject to certain exceptions and conditions.

## **The Bond Offering**

We entered into the Bond Subscription Agreement with Peace Range. We repurchased the Bond on April 24, 2019 and the Bond matured and was redeemed on October 25, 2019.

## **Credit Agreements and Promissory Notes**

On August 13, 2019 (the “Effective Date”), Aptorum Therapeutics Limited (“ATL”), one of our wholly-owned subsidiaries, entered into two separate Promissory Notes and Line of Credit Agreements (the “Agreements”) with Aeneas Group Limited and Jurchen Investment Corporation (“Jurchen”). The Aeneas Group Limited Agreement and Jurchen Agreement provide ATL with a line of credit up to twelve million dollars (\$12,000,000) and three million dollars (\$3,000,000), respectively (collectively, the “Line of Credit”), representing the maximum aggregate amount of the advances of funds from the Line of Credit that may be outstanding at any time under the Line of Credit (the “Principal Indebtedness”). ATL may draw down from the Line of Credit at any time through the day immediately preceding the third anniversary of the Effective Date (the “Maturity Date”). Interest will be payable on the outstanding Principal Indebtedness at the rate of eight percent (8%) per annum, payable semi-annually in arrears on February 12 and August 12 in each year. ATL may pre-pay in whole or in part, the Principal Indebtedness of the Line of Credit, and all interest accrued at any time prior to the Maturity Date, without penalty. Under the Agreements, in addition to certain standard covenants, we are also not permitted, without the prior written consent of Aeneas Group and Jurchen to (i) liquidate, dissolve or wind-up our business and affairs; (ii) effect any merger or consolidation transaction; (iii) sell, lease, transfer, license or otherwise dispose, in a single transaction or series of related transactions, all or substantially all of our assets; or (iv) consent to any of the foregoing. The Agreements are subject to standard events of default, which if not cured within the agreed upon cure period, permits Aeneas Group Limited or Jurchen, as applicable, to declare the outstanding Principal Indebtedness immediately due and payable, to exercise any other remedy provided for in the Agreements or any other right available to Aeneas Group Limited or Jurchen as provided at law or in equity. Jurchen and Aeneas Group Limited also maintain the right to set-off during the term of the Agreements.

## **Employment Agreements**

See “Item 6. Directors, Senior Management and Employees — C. Board Practices — Employment Agreements”.

### **C. Interests of Experts and Counsel**

Not applicable.

## **Item 8. FINANCIAL INFORMATION**

### **A. Consolidated Statements and Other Financial Information**

We have appended consolidated financial statements filed as part of this annual report.

### **Legal Proceedings**

From time to time, we are subject to legal proceedings, investigations and claims incidental to the conduct of our business. We are not currently a party to any legal proceeding or investigation which, in the opinion of our management, is likely to have a material adverse effect on our business, financial condition or results of operations.

### **Dividend Policy**

We have never declared or paid cash dividends to our shareholders, and we do not intend to pay cash dividends in the foreseeable future. We intend to reinvest any earnings in developing and expanding our business. Any future determination relating to our dividend policy will be at the discretion of our Board of Directors and will depend on a number of factors, including future earnings, our financial condition, operating results, contractual restrictions, capital requirements, business prospects, our strategic goals and plans to expand our business, applicable law and other factors that our Board of Directors may deem relevant.

Under Cayman Islands law, dividends may be declared and paid only out of funds legally available therefor, namely out of either profit or our share premium account, and provided further that a dividend may not be paid if this would result in our Company being unable to pay its debts as they fall due in the ordinary course of business.

### **B. Significant Changes**

Except as disclosed elsewhere in this annual report, we have not experienced any significant changes since the date of our audited consolidated financial statements included in this annual report.

## **Item 9. THE OFFER AND LISTING**

### **A. Offering and Listing Details.**

Our Class A Ordinary Shares are currently listed on NASDAQ Global Market under the symbol “APM” and the Professional Compartment of Euronext in Paris under the Euronext ticker symbol “APM.”

### **B. Plan of Distribution**

Not applicable.

### **C. Markets**

Our Class A Ordinary Shares are currently listed on NASDAQ Global Market under the symbol “APM” and the Professional Compartment of Euronext in Paris under the Euronext ticker symbol “APM.”

D. Selling Shareholders

Not applicable.

E. Dilution

Not applicable.

F. Expenses of the Issue

Not applicable.

**Item 10. ADDITIONAL INFORMATION**

A. Share Capital

Not applicable.

B. Amended and Restated Memorandum and Articles of Association

The description of our Amended and Restated Memorandum and Articles of Association is incorporated by reference from the Registration Statement. Our amended and restated memorandum and articles of association were filed as Exhibit 3.1 to the Registration Statement and are hereby incorporated by reference into this annual report.

C. Material Contracts

We have not entered into any material contracts other than in the ordinary course of business and other than those described in “Item 4. Information on the Company” or elsewhere in this annual report.

D. Exchange Controls

There are no governmental laws, decrees, regulations or other legislation in the Cayman Islands, the United Kingdom or Hong Kong that may affect the import or export of capital, including the availability of cash and cash equivalents for use by us, or that may affect the remittance of dividends, interest, or other payments by us to non-resident holders of our ordinary shares, other than withholding tax requirements. There is no limitation imposed by Cayman Islands law, the United Kingdom law, Hong Kong law or our articles of association on the right of non-residents to hold or vote shares.

E. Taxation

**Cayman Islands Tax Considerations**

The Cayman Islands currently levies no taxes on individuals or corporations based upon profits, income, gains or appreciation and there is no taxation in the nature of inheritance tax or estate duty. There are no other taxes likely to be material to us levied by the government of the Cayman Islands except for stamp duties which may be applicable on instruments executed in, or brought within, the jurisdiction of the Cayman Islands. The Cayman Islands is not party to any double tax treaties which are applicable to any payments made by or to our Company. There are no exchange control regulations or currency restrictions in the Cayman Islands.

Payments of dividends and capital in respect of our Class A Ordinary Shares will not be subject to taxation in the Cayman Islands and no withholding will be required on the payment of a dividend or capital to any holder of our Class A Ordinary Shares, nor will gains derived from the disposal of our Class A Ordinary Shares be subject to Cayman Islands income or corporation tax.

No stamp duty is payable in respect of the issue of our Class A Ordinary Shares or on an instrument of transfer in respect of our Class A Ordinary Shares except on instruments executed in, or brought within, the jurisdiction of the Cayman Islands.

#### **Material U.S. Federal Income Tax Considerations for U.S. Holders**

The following is a description of the material U.S. federal income tax consequences to U.S. Holders (as defined below) of purchasing, owning and disposing of Class A Ordinary Shares. It is not a comprehensive description of all U.S. federal income tax considerations that may be relevant to a particular person's decision to acquire Class A Ordinary Shares. This discussion applies only to a U.S. Holder that holds a Class A Ordinary Share as a capital asset for U.S. federal income tax purposes (generally, property held for investment). In addition, it does not describe all of the tax consequences that may be relevant in light of a U.S. Holder's particular circumstances, including state and local tax consequences, non-U.S. tax consequences, federal estate or gift tax consequences, alternative minimum tax consequences, the potential application of the provisions of the Code known as the Medicare Contribution Tax, and tax consequences applicable to U.S. Holders subject to special rules, such as:

- banks and other financial institutions;
- insurance companies;
- dealers or traders in securities who use a mark-to-market method of tax accounting;
- persons holding Class A Ordinary Shares as part of a hedging transaction, "straddle," wash sale, conversion transaction or integrated transaction or persons entering into a constructive sale with respect to the Class A Ordinary Shares;
- persons whose "functional currency" for U.S. federal income tax purposes is not the U.S. dollar;
- tax exempt entities, including "individual retirement accounts" and "Roth IRAs";
- former citizens or long-term residents of the United States;
- entities or arrangements classified as partnerships for U.S. federal income tax purposes;
- regulated investment companies or real estate investment trusts;
- persons who acquired our Class A Ordinary Shares pursuant to the exercise of an employee share option or otherwise as compensation;
- persons that own or are deemed to own ten percent or more of our shares; and
- persons holding Class A Ordinary Shares in connection with a trade or business conducted outside the United States.

If an entity or arrangement that is classified as a partnership for U.S. federal income tax purposes holds Class A Ordinary Shares, the U.S. federal income tax treatment of such partnership and each partner thereof will generally depend on the status of the partner and the activities of the partnership. Partnerships holding Class A Ordinary Shares and partners in such partnerships are encouraged to consult their tax advisors as to the particular U.S. federal income tax consequences of purchasing, holding and disposing of Class A Ordinary Shares.

The discussion is based on the Code, the Treasury Regulations issued thereunder, and administrative and judicial interpretations thereof, all as in effect on the date hereof and all of which are subject to change, possibly with retroactive effect, or to different interpretation. Such change could materially and adversely affect the tax consequences described below.

For purposes of this discussion, a “U.S. Holder” is a holder who, for U.S. federal income tax purposes, is a beneficial owner of Class A Ordinary Shares and that is:

- (1) an individual citizen or resident of the United States;
- (2) a corporation, or other entity taxable as a corporation, created or organized in or under the laws of the United States, any state therein or the District of Columbia;
- (3) an estate, the income of which is subject to U.S. federal income taxation regardless of its source; or
- (4) a trust, (i) if a court within the United States is able to exercise primary supervision over its administration and one or more “U.S. persons” (within the meaning of the Code) have the authority to control all of its substantial decisions, or (ii) if a valid election is in effect for the trust to be treated as a U.S. person.

U.S. Holders are encouraged to consult their tax advisors concerning the U.S. federal, state, local and foreign tax consequences of purchasing, owning and disposing of Class A Ordinary Shares in their particular circumstances.

### ***Taxation of Distributions***

Subject to the discussion below under “Passive Foreign Investment Company Rules,” a U.S. Holder will be required to include in gross income as dividend income the gross amount of any distributions paid on Class A Ordinary Shares (including any amount of taxes withheld), other than certain *pro rata* distributions of Class A Ordinary Shares, to the extent paid out of our current or accumulated earnings and profits (as determined under U.S. federal income tax principles). Distributions in excess of our current and accumulated earnings and profits would be treated as a non-taxable return of capital to the extent of the U.S. Holder’s adjusted tax basis in the Class A Ordinary Shares and thereafter as a gain from the sale of the Class A Ordinary Shares. However, because we do not calculate our earnings and profits under U.S. federal income tax principles, we expect that distributions generally will be reported to U.S. Holders as dividends.

In case of a U.S. Holder that is a corporation, dividends paid on the Class A Ordinary Shares will be subject to regular corporate rates and will not be eligible for the “dividends received” deduction generally allowed to corporate shareholders with respect to dividends received from U.S. corporations.

Dividends received by an individual, trust or estate will be subject to taxation at standard tax rates. A reduced income tax rate applies to dividends paid by a “qualified foreign corporations” (if certain holding period requirements and other conditions are met). A non-U.S. corporation generally will be considered to be a qualified foreign corporation (i) if it is eligible for the benefits of a comprehensive tax treaty with the United States which includes an exchange of information program or (ii) with respect to any dividend it pays on stock which is readily tradable on an established securities market in the United States. US. Treasury Department guidance indicates that our Class A Ordinary Shares, which is listed on the NASDAQ Global Market is readily tradable on an established securities market in the United States. There can be no assurance, however, that our Class A Ordinary Shares will be considered readily tradable on an established securities market in later years.

Non-corporate U.S. Holders will not be eligible for reduced rates of taxation on any dividends received from us if we are a PFIC in the taxable year in which such dividends are paid or in the preceding taxable year (See “Item 10. Additional Information – E. Taxation – Material U.S. Federal Income Tax Considerations for U.S. Holders – Passive Foreign Investment Company Rules” below).

A U.S. Holder may be eligible, subject to a number of complex limitations, to claim a foreign tax credit in respect of any foreign withholding taxes imposed on dividends received on the Class A Ordinary Shares. A U.S. Holder who does not elect to claim a foreign tax credit for foreign income tax withheld may instead claim a deduction for U.S. federal income tax purposes in respect of such withholding, but only for a year in which such investor elects to do so for all creditable foreign income taxes. For purposes of calculating the foreign tax credit limitation, dividends paid by us will, depending on the circumstances of the U.S. Holder, be either general or passive income.

While we do not expect to pay dividends in the near future, in the event any dividends are paid and if a dividend is paid in non-U.S. currency, it must be included in a U.S. Holder's income as a U.S. dollar amount based on the exchange rate in effect on the date such dividend is actually or constructively received, regardless of whether the dividend is in fact converted into U.S. dollars. If the dividend is converted to U.S. dollars on the date of receipt, a U.S. Holder generally will not recognize a foreign currency gain or loss. If the non-U.S. currency is converted into U.S. dollars on a later date, however, the U.S. Holder must include in income any gain or loss resulting from any exchange rate fluctuations. Such gain or loss will generally be ordinary income or loss and will be from sources within the United States for foreign tax credit limitation purposes. U.S. Holders should consult their own tax advisors regarding the tax consequences to them if we pay dividends in non-U.S. currency.

#### ***Sale or Other Taxable Disposition of Ordinary Shares***

Subject to the discussion below under "Passive Foreign Investment Company Rules," gain or loss realized on the sale or other taxable disposition of Class A Ordinary Shares will be capital gain or loss, and will be long-term capital gain or loss if the U.S. Holder held the Class A Ordinary Shares for more than one year. The amount of the gain or loss will equal the difference between the U.S. Holder's tax basis in the Class A Ordinary Shares disposed of and the amount realized on the disposition. Long-term capital gain of a non-corporate U.S. Holder is generally taxed at preferential rates. This gain or loss will generally be U.S.-source gain or loss for foreign tax credit purposes. The deductibility of capital losses is subject to limitations. U.S. Holders are urged to consult their tax advisors regarding the tax consequences if a foreign tax is imposed on the disposition of Class A Ordinary Shares, including the availability of the foreign tax credit under an investor's own particular circumstances.

A U.S. Holder that receives non-U.S. currency on the disposition of the Class A Ordinary Shares will realize an amount equal to the U.S. dollar value of the foreign currency received on the date of disposition (or in the case of cash basis and electing accrual basis taxpayers, the settlement date) whether or not converted into U.S. dollars at that time. Very generally, the U.S. Holder will recognize currency gain or loss if the U.S. dollar value of the currency received on the settlement date differs from the amount realized with respect to the Class A Ordinary Shares. Any currency gain or loss on the settlement date or on any subsequent disposition of the foreign currency generally will be U.S.-source ordinary income or loss.

#### ***Passive Foreign Investment Company Rules***

Special U.S. federal income tax rules apply to a U.S. Holder that holds stock in a foreign corporation classified as a PFIC for U.S. federal income tax purposes. In general, a non-U.S. corporation will be classified as a PFIC for any taxable year in which, after applying certain look-through rules, either:

- at least 75% of its gross income for such taxable year is passive income (e.g., dividends, interest, capital gains and rents derived other than in the active conduct of a rental business); or
- at least 50% of its gross assets (determined on the basis of a quarterly average) is attributable to assets that produce passive income or are held for the production of passive income.

We will be treated as owning our proportionate share of the assets and earning our proportionate share of the income of any other corporation in which we own, directly or indirectly, 25% or more (by value) of the equity.

A separate determination must be made after the close of each taxable year as to whether we are a PFIC for that year. As a result, our PFIC status may change. In particular, the total value of our assets generally will be calculated using the market price of our Class A Ordinary Shares, which may fluctuate considerably. Fluctuations in the market price of our Class A Ordinary Shares may result in our being a PFIC for any taxable year.

Due to the amount of restricted and unrestricted cash and investments that we had on hand during our year ending December 31, 2020, we believe that we were classified as a PFIC for that tax year. Depending on the future composition and value of our assets, we may be classified as a PFIC for future years.

If we were to be classified as a PFIC, a U.S. Holder would be subject to different taxation rules depending on whether the U.S. Holder (i) takes no action, (ii) makes an election to treat us as a “Qualified Electing Fund” (a “QEF election”) or (iii) if permitted, makes a “mark-to-market” election with respect to our Class A Ordinary Shares. A U.S. Holder of our Class A Ordinary Shares will also be required under applicable Treasury Regulations to file an annual information return (Form 8621) containing information regarding our company. Additional explanations of the PFIC rules are set forth below: this material is complex and may affect different U.S. Holders differently. Accordingly, U.S. Holders should consult their own tax advisors about the consequences of our company being classified as a PFIC and about what steps, if any, they might take to lessen the tax impact of our PFIC status on them.

A U.S. Holder who does not make a timely QEF or mark-to-market election (a “Non-Electing Holder”), as discussed below, will be subject to special tax rules with respect to any “excess distribution” that you receive and any gain you realize from a sale or other disposition (including a pledge) of Class A Ordinary Shares. Distributions you receive in a taxable year that are greater than 125% of the average annual distributions you received during the shorter of the three preceding taxable years or your holding period for the Class A Ordinary Shares will be treated as an excess distribution. Under these special tax rules:

- the excess distribution or gain will be allocated ratably over your holding period for the Class A Ordinary Shares;
- the amount allocated to the current taxable year, and any taxable year prior to the first taxable year in which we became a PFIC, will be treated as ordinary income; and
- the amount allocated to each other year will be subject to the highest tax rate in effect for that year and the interest charge generally applicable to underpayments of tax will be imposed on the resulting tax attributable to each such year.

It should be noted that, until such time as we make a distribution, there are no tax consequences to Non-Electing Holders. However, if we ever did make a distribution it would in all likelihood be an excess distribution (because we would not have previously made any distributions to holders of Class A Ordinary Shares). At that point, and for all subsequent distributions, the rules described above would apply to Non-Electing Holders. The tax liability for amounts allocated to years prior to the year of disposition or “excess distribution” cannot be offset by any net operating losses for such years, and gains (but not losses) realized on the sale of the Class A Ordinary Shares cannot be treated as capital, even if you hold the Ordinary Shares as capital assets.

Certain elections may be available that would result in alternative treatments. The adverse consequences of owning stock in a PFIC could be mitigated if a U.S. Holder makes a valid QEF election (a U.S. Holder which we refer to as an “Electing Holder”) which, among other things, would require the Electing Holder to include currently in income its pro rata share of the PFIC’s net capital gain and ordinary earnings, if any, for our taxable year that ends with or within the taxable year of the Electing Holder, regardless of whether or not the Electing Holder actually received distributions from us. When an Electing Holder makes a QEF election, its adjusted tax basis in our Class A Ordinary Shares is increased to reflect taxed but undistributed earnings and profits. Distributions of earnings and profits that had been previously taxed will result in a corresponding reduction in the adjusted tax basis in our Class A Ordinary Shares and will not be taxed again once distributed. An Electing Holder would generally recognize capital gain or loss on the sale, exchange or other disposition of our Class A Ordinary Shares.

A U.S. Holder can make a QEF election with respect to any year that we are a PFIC by filing IRS Form 8621 with its U.S. federal income tax return. This election must be made by the deadline (including extensions) for filing the U.S. Holder’s federal tax return for the year in question. U.S. Holders should discuss their election alternatives with their own tax advisors. Once an election is made, the Electing Holder is subject to the QEF rules for as long as we are a PFIC.

It should be noted that in order to make a QEF election a U.S. Holder needs information from us concerning our PFIC status and our financial results for the year. We cannot assure our U.S. Holders that we will provide such information.

As an alternative to making a QEF election, a U.S. Holder may make a “mark-to-market” election with respect to our Class A Ordinary Shares provided our Class A Ordinary Shares are treated as “marketable stock.” The Class A Ordinary Shares generally will be treated as marketable stock if they are regularly traded on a “qualified exchange or other market” (within the meaning of applicable Treasury Regulations) on at least 15 days during each calendar quarter (other than in de minimis amounts).

If a U.S. Holder makes an effective mark-to-market election, for each taxable year that we are a PFIC, the U.S. Holder will include as ordinary income the excess of the fair market value of its Class A Ordinary Shares at the end of the year over its adjusted tax basis in the Class A Ordinary Shares. You will be entitled to deduct as an ordinary loss in each such year the excess of your adjusted tax basis in the Class A Ordinary Shares over their fair market value at the end of the year, but only to the extent of the net amount previously included in income as a result of the mark-to-market election. A U.S. Holder’s adjusted tax basis in the Class A Ordinary Shares will be increased by the amount of any income inclusion and decreased by the amount of any deductions under the mark-to-market rules. In addition, upon the sale or other disposition of your Class A Ordinary Shares in a year that we are PFIC, any gain will be treated as ordinary income and any loss will be treated as ordinary loss, but only to the extent of the net amount of previously included income as a result of the mark-to-market election.

If a U.S. Holder makes a mark-to-market election, it will be effective for the taxable year for which the election is made and all subsequent taxable years unless the Class A Ordinary Shares are no longer regularly traded on a qualified exchange or other market, or the IRS consents to the revocation of the election. You are urged to consult your tax advisor about the availability of the mark-to-market election, and whether making the election would be advisable in your particular circumstances.

#### ***Information Reporting and Backup Withholding***

Payments of dividends and sales proceeds that are made within the United States or through certain U.S.-related financial intermediaries generally are subject to information reporting, and may be subject to backup withholding, unless (i) the U.S. Holder is a corporation or other exempt recipient or (ii) in the case of backup withholding, the U.S. Holder provides a correct taxpayer identification number and certifies that it is not subject to backup withholding.

Backup withholding is not an additional tax. The amount of any backup withholding from a payment to a U.S. Holder will be allowed as a credit against the holder’s U.S. federal income tax liability and may entitle it to a refund, provided that the required information is timely furnished to the IRS.

#### ***Information with Respect to Foreign Financial Assets***

Certain U.S. Holders may be required to report information relating to the Class A Ordinary Shares, subject to certain exceptions (including an exception for Class A Ordinary Shares held in accounts maintained by certain U.S. financial institutions). U.S. Holders should consult their tax advisors regarding their reporting obligations with respect to their purchase, ownership and disposition of the Class A Ordinary Shares.

#### **F. Dividends and Paying Agents**

Not applicable.

#### **G. Statement by Experts**

Not applicable.

#### **H. Documents on Display**

We have previously filed the Registration Statement with the SEC.

We are subject to the periodic reporting and other informational requirements of the Exchange Act. Under the Exchange Act, we are required to file reports and other information with the SEC. Specifically, we are required to file annually a Form 20-F within four months after the end of each fiscal year. Copies of reports and other information, when so filed, may be inspected without charge and may be obtained at prescribed rates at the public reference facilities maintained by the SEC at Judiciary Plaza, 100 F Street, N.E., Washington, D.C. 20549. The public may obtain information regarding the Washington, D.C. Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains a web site at <http://www.sec.gov> that contains reports, proxy and information statements, and other information regarding registrants that make electronic filings with the SEC using its EDGAR system. As a foreign private issuer, we are exempt from the rules of the Exchange Act prescribing, among other things, the furnishing and content of proxy statements to shareholders, and our executive officers, directors and principal shareholders are exempt from the reporting and short-swing profit recovery provisions contained in Section 16 of the Exchange Act.

We also maintain a corporate website at [www.aporumgroup.com](http://www.aporumgroup.com). Information contained on, or that can be accessed through, our website does not constitute a part of this report.

#### I. Subsidiary Information

For a listing of our subsidiaries, see “Item 4. Information on the Company — A. History and Development of the Company.”

#### **Item 11. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK**

*For purposes of Item 11, reference to the “Group” means Aptorum Group Limited and all of its subsidiaries.*

##### **Foreign Exchange Risk**

Currency risk is the risk that the value of financial assets or liabilities will fluctuate due to changes in foreign exchange rates.

##### *Currency risk sensitivity analysis*

At December 31, 2020, 2019 and 2018, the Group has no significant foreign currency risk because most of the transactions are denominated in Hong Kong dollar or the United States dollar. Since the Hong Kong dollar is pegged to the United States dollar, the Group’s exposure to foreign currency risk in respect of the balances denominated in Hong Kong dollars is considered to be minimal.

##### **Credit Risk**

Financial assets which potentially subject the Group to concentrations of credit risk consist principally of bank deposits and balances.

The Group takes on exposure to credit risk on cash and restricted cash balances held with HSBC, DBS Bank Ltd, Industrial and Commercial Bank of China (Macao) Limited, Bank of China (Hong Kong) Limited and Silicon Valley Bank for the purposes of payments of Group expenses.

All transactions in listed securities are settled or paid for upon delivery using approved and reputable brokers. The risk of default is considered minimal, as delivery of securities sold is only made when the broker has received payment. Payment is made on a purchase when the securities have been received by the broker. The trade will fail if either party fails to meet its obligation. The Group limits its exposure to credit risk by transacting all of its securities and contractual commitment activities with broker-dealers, banks and regulated exchanges with high credit ratings and that the Group considers to be well established.

**Liquidity Risk**

Liquidity risk is the risk that the Group will encounter difficulty in raising funds to meet commitments associated with financial assets and liabilities. Liquidity risk may result from an inability to sell a financial asset quickly at an amount close to its fair value.

The Group invests in private equities which are generally unquoted and not readily marketable. The Group manages its liquidity risk by setting investment limits on unlisted securities that cannot be readily disposed of. Investment of the Group's assets in unquoted securities may restrict the ability of the Group to dispose of its investment at a price and time it wishes to do so.

**Interest Rate Risk**

Interest rate risk arises from the possibility that changes in interest rates will affect future cash flows or the fair values of financial instruments.

*Interest rate risk sensitivity analysis*

The Group's cash held with the banks are exposed to interest rate risk. However, Management considers the risk to be minimal as they are short-term with terms less than one month.

**Inflation Risk**

In recent years, inflation has not had a material impact on our results of operations.

**Item 12. DESCRIPTION OF SECURITIES OTHER THAN EQUITY SECURITIES**

Items 12.D.3 and 12.D.4 of this Item 12 is not applicable, as the Company does not have any American Depositary Shares; all other applicable information required by this Item 12 is included in Exhibit 2.3.

## Part II

### Item 13. DEFAULTS, DIVIDEND ARREARAGES AND DELINQUENCIES

None.

### Item 14. MATERIAL MODIFICATIONS TO THE RIGHTS OF SECURITY HOLDERS AND USE OF PROCEEDS

See “Item 10. Additional Information” for a description of the rights of securities holders, which remain unchanged.

#### Use of Proceeds

The following “Use of Proceeds” information relates to the Registration Statement (File No. 333-227198), which was initially filed on September 5, 2018 and which became effective on December 3, 2018, in relation to our initial public offering of 761,419 Class A Ordinary Shares, at an initial offering price of \$15.8 per share, and the issuance to the underwriter in the initial public offering of warrants to purchase up to 38,071 Class A Ordinary Shares. Our initial public offering closed in December 17, 2018, for which Boustead Securities LLC, China Renaissance Securities (HK) Limited and AMTD Global Markets Limited served as underwriters.

We received gross proceeds of approximately \$12.0 million from our initial public offering. As of the date of this annual report, in addition to our expenses relating to our IPO, all remaining IPO proceeds have been used on our lead projects and other projects, as described herein.

### Item 15. CONTROLS AND PROCEDURES

#### (a) Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our chief executive officer and our chief financial officer, we carried out an evaluation of the effectiveness of our disclosure controls and procedures, which is defined in Rules 13a-15(e) of the Exchange Act, as of December 31, 2020. Based on that evaluation, our chief executive officer and chief financial officer concluded that our disclosure controls and procedures, as of December 31, 2020, were effective.

#### (b) Management’s Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with Generally Accepted Accounting Principles (GAAP) in the United States of America and includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of our company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of consolidated financial statements in accordance with GAAP, and that receipts and expenditures of our company are being made only in accordance with authorizations of our management and directors; and (3) provide reasonable assurance regarding prevention or timely detection of the unauthorized acquisition, use or disposition of our company’s assets that could have a material effect on the consolidated financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risks that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

As required by Section 404 of the Sarbanes-Oxley Act of 2002 and related rules as promulgated by the Securities and Exchange Commission, our management including our Chief Executive Officer and Chief Financial Officer assessed the effectiveness of internal control over financial reporting as of December 31, 2020 using the criteria set forth in the report “Internal Control—Integrated Framework (2013)” published by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2020.

In connection with the audit of our financial statements for the year ended December 31, 2018, we and our independent registered public accounting firm identified one material weakness in our internal control over financial reporting, as defined in the standards established by the Public Company Accounting Oversight Board of the United States. The material weakness identified was the lack of dedicated resources to take responsibility for the finance and accounting functions and the preparation of financial statements in compliance with generally accepted accounting principles in the United States, or U.S. GAAP.

Since 2019, we took actions to remediate the abovementioned material weakness, and we believe we have remediated the material weakness by implementing the following measures:

- provide trainings to staff regarding to the preparation of financial statements in compliance with generally accepted accounting principles in the United States;
- change to a new and well-established accounting system to enhance effectiveness and financial and system control;
- establish clear roles and responsibilities for accounting and financial reporting staff to address finance and accounting issues; and
- continue to monitor the improvement on internal control over financial reporting.

As of December 31, 2020 and 2019, we determined that the aforementioned measures remediated the material weakness. However, since we are still in the process of replenishing and building up a qualified finance and accounting team with sufficient dedicated resources, our management assessed that the deficiency related to the lack of dedicated resources to take responsibility for the finance and accounting functions and the preparation of financial statements in compliance with generally accepted accounting principles in the United States, or U.S. GAAP, still existed as of December 31, 2020. Based on the definition of “material weakness” and “significant deficiency” in the standards established by the Public Company Accounting Oversight Board of the United States, our management concluded that the deficiency now only rises to the level of a significant deficiency.

We cannot assure you that we will not identify additional material weaknesses or significant deficiencies in the future. See “Item 3. Key Information—D. Risk Factors — Risks Related to Our Industry, Business and Operation — If we fail to establish and maintain proper internal financial reporting controls, our ability to produce accurate financial statements or comply with applicable regulations could be impaired.”

Notwithstanding there is a significant deficiency identified as described above, we believe that our consolidated financial statements contained in this annual report on Form 20-F fairly present our financial position, results of operations and cash flows for the years covered thereby in all material respects.

**(c) Attestation Report of the Company’s Registered Public Accounting Firm**

We did not include an attestation report of the company’s registered public accounting firm due to rules of the SEC where domestic and foreign registrants that are non-accelerated filers, which we are, and “emerging growth companies” which we also are, are not required to provide the auditor attestation report.

**(d) Changes in Internal Control over Financial Reporting**

Other than those disclosed above in (b) Management’s Annual Report on Internal Control over Financial Reporting, there were no changes in our internal controls over financial reporting that occurred during the period covered by this annual report on Form 20-F that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

**Item 16. [RESERVED]****Item 16A. AUDIT COMMITTEE FINANCIAL EXPERT**

We have one financial expert as of the date of this report. Our Board of Directors has determined that Mr. Charles Bathurst, Chair of our audit committee, qualifies as an “audit committee financial expert” as defined in the SEC rules and satisfies the financial sophistication requirements of The NASDAQ Global Market. Mr. Bathurst is “independent” as that term is defined in the rules of the SEC and the applicable rules of the NASDAQ Global Market.

**Item 16B. CODE OF ETHICS**

The Company’s Code of Ethics became effective on the effective date of the Registration Statement. The Code of Ethics is incorporated by reference to exhibit 14.1 of the Registration Statement.

**Item 16C. PRINCIPAL ACCOUNTANT FEES AND SERVICES**

The following table sets forth the aggregate fees by categories specified below in connection with certain professional services rendered by our principal external auditors, for the periods indicated.

	For the years ended December 31,	
	2020	2019
	(In thousand)	
Audit fees	\$ 253	\$ 154
Audit-related fees	45	65
Tax fees	-	-
All other fees	-	-
Total	<u>\$ 298</u>	<u>\$ 219</u>

“Audit fees” represents the aggregate fees billed or to be billed for each of the fiscal years listed for professional services rendered by our principal auditor for the audit of our annual financial statements.

“Audit-related fees” are the aggregate fees billed for assurance and related services that are reasonably related to the performance of the audit and are not reported under audit fees. These fees primarily include review of documents filed with the SEC.

“Tax fees” include fees for professional services rendered by our principal auditor for tax compliance and tax advice on actual or contemplated transactions.

“Other fees” include fees for services rendered by our independent registered public accounting firm with respect to other matters not reported under “Audit fees”, “Audit-related fees” and “Tax fees”.

The policy of our audit committee is to pre-approve all audit and non-audit services provided by our principal auditor including audit services, audit-related services, tax services and other services.

**Item 16D. EXEMPTIONS FROM THE LISTING STANDARDS FOR AUDIT COMMITTEES**

Not applicable.

**Item 16E. PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS**

Not applicable.

**Item 16F. CHANGE IN REGISTRANT’S CERTIFYING ACCOUNTANT**

Not applicable.

**Item 16G. CORPORATE GOVERNANCE**

See “Item 6. Directors, Senior Management and Employees” for more information.

**Item 16H. MINE SAFETY DISCLOSURE**

Not applicable.

### Part III

#### Item 17. FINANCIAL STATEMENTS

We have elected to provide financial statements pursuant to Item 18.

#### Item 18. FINANCIAL STATEMENTS

The consolidated financial statements of Aptorum Group Limited, and its subsidiaries are included at the end of this annual report.

#### Item 19. EXHIBITS

##### EXHIBIT INDEX

Exhibit No.	Description
1.1	<a href="#">Second Amended and Restated Articles of Association*</a>
2.1	<a href="#">Registrant's Specimen Certificate for Ordinary Shares*</a>
2.2	<a href="#">Form of Underwriter's Warrant+++</a>
2.3	<a href="#">Description of Securities registered under Section 12 of the Exchange Act of 1934, as amended**</a>
2.4	<a href="#">Form of Warrant+</a>
4.1	<a href="#">Form of Underwriting Agreement+++</a>
4.2	<a href="#">Appointment Letter between the Company and Ian Huen (Founder, Chief Executive Officer &amp; Executive Director), dated September 25, 2017*</a>
4.3	<a href="#">Employment Letter between the Company and Sabrina Khan (Chief Financial Officer), dated September 1, 2017*</a>
4.4	<a href="#">Addendum to Employment Letter between Company and Sabrina Khan (Chief Financial Officer) dated April 24, 2018*</a>
4.5	<a href="#">Appointment Letter between the Company and Darren Lui (Chief Business Officer, President &amp; Director), dated September 25, 2017*</a>
4.6	<a href="#">Employment Letter between the Company and Clark Cheng (Chief Medical Officer &amp; Director), dated August 31, 2017*</a>
4.7	<a href="#">Addendum to Appointment Letter between the Company and Clark Cheng (Chief Medical Officer &amp; Director), dated September 25, 2017*</a>
4.8	<a href="#">Second Addendum to Appointment Letter between the Company and Clark Cheng (Chief Medical Officer &amp; Director), dated October 30, 2017*</a>
4.9	<a href="#">Third Addendum to Appointment Letter between the Company and Clark Cheng (Chief Medical Officer &amp; Director), dated January 2, 2018*</a>
4.10	<a href="#">Appointment letter between the Company and Keith Chan (former Chief scientific officer) (Terminated March 13, 2019)*</a>
4.11	<a href="#">Appointment Letter between the Company and Charles Bathurst (Independent Non-Executive Director), dated September 24, 2017*</a>
4.12	<a href="#">Appointment Letter between the Company and Mirko Scherer (Independent Non-Executive Director), dated September 24, 2017*</a>
4.13	<a href="#">Employment Agreement between the Company and Justin Wu (Independent Non-Executive Director), dated September 18, 2017*</a>
4.14	<a href="#">Employment Agreement between the Company and Douglas Arner (Independent Non-Executive Director), dated February 13, 2018*</a>
4.26	<a href="#">2017 Share Option Plan*</a>
4.29	<a href="#">Service Agreement Between Covar Pharmaceuticals Incorporated and Videns Incorporation Limited*</a>
4.32	<a href="#">Consulting Agreement between the Company and GloboAsia, LLC (includes provisions for the appointment of Keith Chan as member of the Scientific Advisory Board) dated March 13, 2019<sup>(5)</sup></a>
4.33	<a href="#">Exclusive Patent License Agreement for ALS-4 dated October 18, 2017<sup>(3)</sup></a>
4.34	<a href="#">First Amendment to Exclusive License Agreement for ALS-4 dated June 7, 2018*</a>
4.35	<a href="#">Second Amendment to Exclusive License Agreement for ALS-4 dated July 10, 2019<sup>(6)</sup></a>
4.36	<a href="#">Exclusive License Agreement for ALS-4 dated January 11, 2019<sup>(4)</sup></a>

4.37	<a href="#">Employment Agreement with Dr. Lee dated March 13, 2019++</a>
4.38	<a href="#">Employment Agreement with Dr. Ng, dated March 13, 2019++</a>
4.39	<a href="#">Master Collaboration Agreement by and between the Company, Accelerate Technologies Pte. Ltd, and AENEAS CAPITAL LIMITED dated April 24, 2019<sup>(1)</sup></a>
4.40	<a href="#">Bond Repurchase Agreement dated April 24, 2019<sup>(1)</sup></a>
4.41	<a href="#">Form of Line of Credit Agreement<sup>(2)</sup></a>
4.42	<a href="#">Form of Promissory Note<sup>(2)</sup></a>
4.43	<a href="#">Form of Securities Purchase Agreement+</a>
4.44	<a href="#">Consulting agreement with CGY Investment Limited effective on January 10, 2020<sup>(12)</sup></a>
4.45	<a href="#">Distribution and Marketing Agreement between Nativus Life Sciences Limited and Multipak Limited<sup>(12)</sup></a>
4.46	<a href="#">Administrative Consultant Services Agreement with Aeneas Management Limited dated January 1, 2019<sup>(12)</sup> (Terminated April 30, 2020)</a>
4.47	<a href="#">Secondment Agreement between the Company and Aenco Limited dated January 1, 2019<sup>(12)</sup> (Replaced April 1, 2020)</a>
4.48	<a href="#">Secondment Agreement (2) between the Company and Aenco Limited dated April 1, 2020<sup>(12)</sup> (Terminated September 30, 2020)</a>
4.49	<a href="#">Evaluation Agreement with Illumina Inc. (portions of the exhibit have been omitted because they (i) are not material and (ii) would likely cause competitive harm to the Registrant if publicly disclosed.)<sup>(2)</sup></a>
4.55	<a href="#">Placement Agency Agreement, dated February 25, 2020 between the Company and Alliance Global Partners<sup>(8)</sup></a>
4.56	<a href="#">Form of Securities Purchase Agreement<sup>(8)</sup></a>
4.57	<a href="#">Form of Warrant<sup>(8)</sup></a>
4.58	<a href="#">Form of Securities Purchase Agreement dates as of September 29, 2020, by and among the Company and the purchasers named therein<sup>(9)</sup></a>
4.59	<a href="#">Form of Warrant<sup>(9)</sup></a>
4.60	<a href="#">Form of Pre-Funded Warrant<sup>(9)</sup></a>
4.61	<a href="#">Form of Placement Agent Warrant<sup>(9)</sup></a>
4.62	<a href="#">Exclusive License Agreement with Accelerate Technologies Pte Ltd.'s dated September 25, 2020**<sup>(11)</sup></a>
4.63	<a href="#">Sales Agreement, dated March 26, 2021 between the Company and H.C. Wainwright<sup>(10)</sup></a>
4.64	<a href="#">Share Subscription and Shareholders Agreement dated as of September 25, 2020**<sup>(11)</sup></a>
4.65	<a href="#">Contract Research Agreement between Aptorum Therapeutics Limited and Aeneas Technology (Hong Kong) Limited<sup>(9)</sup></a>
8.1	<a href="#">List of Subsidiaries**</a>
12.1	<a href="#">Certification of Chief Executive Officer Pursuant to Rule 13a-14(a)/15d-14(a)**</a>
12.2	<a href="#">Certification of Chief Financial Officer Pursuant to Rule 13a-14(a)/15d-14(a)**</a>
13.1	<a href="#">Certification of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002***</a>
15.1	<a href="#">Consent of Marcum Bernstein &amp; Pinchuk LLP**</a>
99.1	<a href="#">Code of Business Ethics*</a>
101.INS	XBRL Instance Document**
101.SCH	XBRL Taxonomy Extension Schema Document**
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document**
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document**
101.LAB	XBRL Taxonomy Extension Label Linkbase Document**
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document***

\*\*\* Furnished with this annual report on Form 20-F

\*\* Filed with this annual report on Form 20-F

\* Incorporated by reference to our Registration Statement Filed on Form F-1 on September 5, 2018

+++ Incorporated by reference to our Registration Statement Filed on Form F-1 on November 15, 2018

++ Incorporated by reference to our Current Report on Form 6-K filed on April 1, 2019

+ Incorporated by reference to our Current Report on Form 6-K filed on February 26, 2020

- (1) Incorporated by reference to our Current Report on Form 6-K filed on April 24, 2019
- (2) Incorporated by reference to our Current Report on Form 6-K filed on August 14, 2019
- (3) Incorporated by reference to our Registration Statement Filed on Form F-1 on September 5, 2018; portions of the exhibit were previously omitted in reliance on the confidential treatment provisions available pursuant to revised paragraph 4(a) of Instructions as to Exhibits of Form 20-F.
- (4) Incorporated by reference to our annual report on Form 20-F filed on April 15, 2019; portions of the exhibit were previously omitted in reliance on the confidential treatment provisions available pursuant to revised paragraph 4(a) of Instructions as to Exhibits of Form 20-F.
- (5) Incorporated by reference to our annual report on Form 20-F filed on April 15, 2019.
- (6) Incorporated by reference to our annual report on Form 20-F filed on April 29, 2020. Certain information from this exhibit has been excluded from this exhibit because it both (i) is not material and (ii) would likely cause competitive harm to the Registrant if publicly disclosed.
- (7) Incorporated by reference to our Current Report on Form 6-K filed on January 25, 2021; portions of the exhibit were omitted because they (i) are not material and (ii) would likely cause competitive harm to the Company if publicly disclosed.
- (8) Incorporated by reference to our Current Report on Form 6-K filed on February 26, 2020
- (9) Incorporated by reference to our Current Report on Form 6-K filed on October 2, 2020
- (10) Incorporated by reference to our Current Report on Form 6-K filed on March 26, 2021.
- (11) Certain information from this exhibit has been excluded from this exhibit because it both (i) is not material and (ii) is the type that the registrant treats as private or confidential.
- (12) Incorporated by reference to our annual report on Form 20-F filed on April 29, 2020.

**SIGNATURES**

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

Date: April 19, 2021

Aptorum Group Limited

By: /s/ Ian Huen  
Ian Huen  
Chief Executive Officer,  
Chairman of the Board of Directors  
(Principal Executive Officer)

/s/ Sabrina Khan  
Sabrina Khan  
Chief Financial Officer  
Principal Accounting and Financial Officer

**APTORUM GROUP LIMITED**  
**Financial Statements**

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## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors of Aptorum Group Limited

### Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Aptorum Group Limited (the “Company”) as of December 31, 2020 and 2019, the related consolidated statements of operations and comprehensive income (loss), equity and cash flows for each of the three years in the period ended December 31, 2020, and the related notes (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020, in conformity with accounting principles generally accepted in the United States of America.

### Basis for Opinion

These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (“PCAOB”) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Marcum Bernstein & Pinchuk LLP

Marcum Bernstein & Pinchuk LLP

We have served as the Company’s auditor since 2017.

New York, New York  
April 19, 2021

**APTORUM GROUP LIMITED**  
**CONSOLIDATED BALANCE SHEETS**  
December 31, 2020 and 2019  
(Stated in U.S. Dollars)

	<u>December 31,</u> <u>2020</u>	<u>December 31,</u> <u>2019</u>
<b>ASSETS</b>		
<b>Current assets:</b>		
Cash	\$ 3,495,231	\$ 5,189,003
Restricted cash	130,125	104,170
Digital currencies	1,539	1,539
Accounts receivable	62,221	40,543
Inventories	39,133	34,185
Marketable securities, at fair value	28,384,944	1,063,111
Investments in derivatives	4,289	203,320
Amounts due from related parties	-	962
Due from brokers	160,337	317,005
Other receivables and prepayments	1,378,996	1,079,043
<b>Total current assets</b>	<u>33,656,815</u>	<u>8,032,881</u>
Property, plant and equipment, net	4,686,323	7,093,035
Operating lease right-of-use assets	547,389	-
Non-marketable investments	4,079,707	7,112,180
Intangible assets, net	964,857	1,311,683
Amounts due from related parties	-	50,000
Long-term deposits	296,225	294,606
Other non-current assets	-	59,833
<b>Total Assets</b>	<u>\$ 44,231,316</u>	<u>\$ 23,954,218</u>
<b>LIABILITIES AND EQUITY</b>		
<b>LIABILITIES</b>		
<b>Current liabilities:</b>		
Amounts due to related parties	\$ 145,926	\$ 41,593
Accounts payable and accrued expenses	3,240,772	2,586,527
Finance lease liabilities current	49,396	46,555
Operating lease liabilities, current	432,600	-
<b>Total current liabilities</b>	<u>3,868,694</u>	<u>2,674,675</u>
Finance lease liabilities, non-current	47,923	97,319
Operating lease liabilities, non-current	155,121	-
Loan payables to related parties	2,007,285	6,330,472
<b>Total Liabilities</b>	<u>\$ 6,079,023</u>	<u>\$ 9,102,466</u>
<b>Commitments and contingencies</b>	-	-
<b>EQUITY</b>		
Class A Ordinary Shares (\$1.00 par value; 60,000,000 shares authorized, 11,584,324 and 6,597,362 shares issued and outstanding as of December 31, 2020 and 2019, respectively)	\$ 11,584,324	\$ 6,597,362
Class B Ordinary Shares (\$1.00 par value; 40,000,000 shares authorized, 22,437,754 shares issued and outstanding as of December 31, 2020 and 2019)	22,437,754	22,437,754
Additional paid-in capital	38,247,903	24,887,624
Accumulated other comprehensive income (loss)	53,296	(5,552)
Accumulated deficit	(30,489,126)	(37,555,980)
<b>Total equity attributable to the shareholders of Aptorum Group Limited</b>	<u>41,834,151</u>	<u>16,361,208</u>
Non-controlling interests	(3,681,858)	(1,509,456)
<b>Total equity</b>	<u>38,152,293</u>	<u>14,851,752</u>
<b>Total Liabilities and Equity</b>	<u>\$ 44,231,316</u>	<u>\$ 23,954,218</u>

See accompanying notes to the consolidated financial statements.

**APTORUM GROUP LIMITED**  
**CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)**  
For Years Ended December 31, 2020, 2019 and 2018  
(Stated in U.S. Dollars)

	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
<b>Revenue</b>			
Healthcare services income	\$ 911,509	\$ 535,166	\$ 383,450
<b>Operating expenses</b>			
Cost of healthcare services	(1,015,023)	(794,545)	(318,011)
Research and development expenses	(11,586,923)	(6,939,051)	(3,101,432)
General and administrative fees	(4,853,488)	(7,373,425)	(4,919,626)
Legal and professional fees	(2,854,225)	(3,405,705)	(1,811,770)
Other operating expenses	(877,391)	(220,891)	(560,709)
Total operating expenses	<u>(21,187,050)</u>	<u>(18,733,617)</u>	<u>(10,711,548)</u>
<b>Other income (loss), net</b>			
Gain (loss) on investments in marketable securities, net	25,241,556	(81,839)	501,522
Gain on non-marketable investments	-	1,147,190	-
(Loss) gain on investments in derivatives, net	(199,031)	87,599	(974,444)
Gain on use of digital currencies	-	46,717	-
Gain on extinguishment of convertible debts	-	1,198,490	-
Changes in fair value of warrant liabilities	-	(866,300)	124,726
Interest expense, net	(243,628)	(3,699,672)	(4,458,191)
Rental income	30,894	16,868	-
Sundry income	365,917	232,460	-
Total other income (loss), net	<u>25,195,708</u>	<u>(1,918,487)</u>	<u>(4,806,387)</u>
<b>Net income (loss)</b>	4,920,167	(20,116,938)	(15,134,485)
Net loss attributable to non-controlling interests	2,146,687	1,430,176	302,762
Deemed dividend related to warrants down round provision	(755,514)	-	-
<b>Net income (loss) attributable to Aptorum Group Limited</b>	<u>\$ 6,311,340</u>	<u>\$ (18,686,762)</u>	<u>\$ (14,831,723)</u>
Net income (loss) per share attributable to Aptorum Group Limited			
- Basic	\$ 0.20	\$ (0.64)	\$ (0.53)
- Diluted	<u>\$ 0.20</u>	<u>\$ (0.64)</u>	<u>\$ (0.53)</u>
Weighted-average shares outstanding			
- Basic	31,135,882	29,008,445	27,909,788
- Diluted	<u>31,534,473</u>	<u>29,008,445</u>	<u>27,909,788</u>
<b>Net income (loss)</b>	\$ 4,920,167	\$ (20,116,938)	\$ (15,134,485)
<b>Other comprehensive income (loss)</b>			
Unrealized loss on investments in available-for-sale securities	-	-	(1,122,251)
Exchange differences on translation of foreign operations	58,848	(10,897)	5,345
Other comprehensive income (loss)	<u>58,848</u>	<u>(10,897)</u>	<u>(1,116,906)</u>
<b>Comprehensive income (loss)</b>	4,979,015	(20,127,835)	(16,251,391)
Comprehensive loss attributable to non-controlling interests	2,146,687	1,430,176	302,762
Deemed dividend related to warrants down round provision	(755,514)	-	-
<b>Comprehensive income (loss) attributable to the shareholders of Aptorum Group Limited</b>	<u>6,370,188</u>	<u>(18,697,659)</u>	<u>(15,948,629)</u>

See accompanying notes to the consolidated financial statements.

**APTORUM GROUP LIMITED**  
**CONSOLIDATED STATEMENTS OF EQUITY**  
For Years Ended December 31, 2020, 2019 and 2018  
(Stated in U.S. Dollars)

	Class A Ordinary Shares		Class B Ordinary Shares		Additional Paid-in Capital Amount	Accumulated deficit Amount	Accumulated other comprehensive income (loss) Amount	Non- controlling interests Amount	Total Amount
	Shares	Amount	Shares	Amount					
<b>Balance, January 1, 2018</b>	<b>5,426,381</b>	<b>\$ 5,426,381</b>	<b>22,437,754</b>	<b>\$ 22,437,754</b>	<b>\$ 5,294,402</b>	<b>\$ (2,547,462)</b>	<b>\$ (367,782)</b>	<b>\$ (14,045)</b>	<b>\$ 30,229,248</b>
Issuance of initial public offering of ordinary shares on December 17, 2018 at \$15.8 per share, net of underwriting discount and offering expenses	761,419	761,419	-	-	9,536,631	-	-	-	10,298,050
Proceeds from non-controlling interest	-	-	-	-	51,727	-	-	(51,726)	1
Converted from convertible debts	349,469	349,469	-	-	2,683,839	-	-	-	3,033,308
Unrealized loss on investments in available-for-sale securities	-	-	-	-	-	-	(1,122,251)	-	(1,122,251)
Exchange difference on translation of foreign operation	-	-	-	-	-	-	5,345	-	5,345
Beneficial conversion feature	-	-	-	-	5,436,686	-	-	-	5,436,686
Net loss	-	-	-	-	-	(14,831,723)	-	(302,762)	(15,134,485)
<b>Balance, December 31, 2018</b>	<b>6,537,269</b>	<b>\$ 6,537,269</b>	<b>22,437,754</b>	<b>\$ 22,437,754</b>	<b>\$ 23,003,285</b>	<b>\$ (17,379,185)</b>	<b>\$ (1,484,688)</b>	<b>\$ (368,533)</b>	<b>\$ 32,745,902</b>
Adjustment to opening balance of equity	-	-	-	-	-	(1,490,033)	1,490,033	-	-
<b>Balance, January 1, 2019</b>	<b>6,537,269</b>	<b>\$ 6,537,269</b>	<b>22,437,754</b>	<b>\$ 22,437,754</b>	<b>\$ 23,003,285</b>	<b>\$ (18,869,218)</b>	<b>\$ 5,345</b>	<b>\$ (368,533)</b>	<b>\$ 32,745,902</b>
Issuance of shares to non-controlling interest	-	-	-	-	10,672	-	-	(10,672)	-
Issuance of tokens	-	-	-	-	-	-	-	300,000	300,000
Reacquisition of convertible bonds	-	-	-	-	(1,298,490)	-	-	-	(1,298,490)
Disposal of a subsidiary	-	-	-	-	-	-	-	(75)	(75)
Share-based compensation	-	-	-	-	1,612,832	-	-	-	1,612,832
Exercise of warrants	60,093	60,093	-	-	1,559,325	-	-	-	1,619,418
Exchange difference on translation of foreign operation	-	-	-	-	-	-	(10,897)	-	(10,897)
Net loss	-	-	-	-	-	(18,686,762)	-	(1,430,176)	(20,116,938)
<b>Balance, December 31, 2019</b>	<b>6,597,362</b>	<b>\$ 6,597,362</b>	<b>22,437,754</b>	<b>\$ 22,437,754</b>	<b>\$ 24,887,624</b>	<b>\$ (37,555,980)</b>	<b>\$ (5,552)</b>	<b>\$ (1,509,456)</b>	<b>\$ 14,851,752</b>
Issuance of Class A Ordinary Shares and warrants, net of issuance cost	4,120,581	4,120,581	-	-	12,661,754	-	-	-	16,782,335
Issuance of shares to non-controlling interest	-	-	-	-	25,715	-	-	(25,715)	-
Warrant Exchange	540,540	540,540	-	-	(540,540)	-	-	-	-
Share-based compensation	-	-	-	-	1,478,565	-	-	-	1,478,565
Exercise of warrants	313,513	313,513	-	-	(313,513)	-	-	-	-
Exercise of options	12,328	12,328	-	-	48,298	-	-	-	60,626
Exchange difference on translation of foreign operation	-	-	-	-	-	-	58,848	-	58,848
Net income (loss)	-	-	-	-	-	7,066,854	-	(2,146,687)	4,920,167
<b>Balance, December 31, 2020</b>	<b>11,584,324</b>	<b>\$ 11,584,324</b>	<b>22,437,754</b>	<b>\$ 22,437,754</b>	<b>\$ 38,247,903</b>	<b>\$ (30,489,126)</b>	<b>\$ 53,296</b>	<b>\$ (3,681,858)</b>	<b>\$ 38,152,293</b>

See accompanying notes to the consolidated financial statements.

**APTORUM GROUP LIMITED**  
**CONSOLIDATED STATEMENTS OF CASH FLOWS**  
For Years Ended December 31, 2020, 2019 and 2018  
(Stated in U.S. Dollars)

	Year Ended December 31, 2020	Year Ended December 31, 2019	Year Ended December 31, 2018
<b>Cash flows from operating activities</b>			
<b>Net income (loss)</b>	\$ 4,920,167	\$ (20,116,938)	\$ (15,134,485)
Adjustments to reconcile net income (loss) to net cash used in operating activities			
Amortization and depreciation	1,334,661	1,299,618	682,292
Share-based compensation	1,478,565	1,612,832	-
(Gain) loss on investments in marketable securities, net	(25,241,556)	81,839	(501,522)
Gain on non-marketable investments	-	(1,147,190)	-
Loss (gain) on investments in derivatives, net	199,031	(87,599)	974,444
Changes in fair value of warrant liabilities	-	866,300	(124,726)
Gain on use of digital currencies	-	(46,717)	-
Settlement of service fee by tokens and digital currencies	24,000	437,178	-
Operating lease cost	483,398	-	-
Loss on disposal of property, plant and equipment	50,197	-	-
Impairment loss of property, plant and equipment	330,445	-	-
Impairment loss of intangible assets	200,000	-	-
Gain on extinguishment of convertible debts	-	(1,198,490)	-
Interest income	(825)	(79,558)	(108,512)
Interest expense and accretion of convertible debts	237,163	3,769,263	4,559,714
Accretion of finance lease obligation	7,290	9,967	6,989
<b>Changes in operating assets and liabilities</b>			
Accounts receivable	(21,678)	(37,716)	(2,827)
Inventories	(4,948)	(3,543)	(30,642)
Other receivables and prepayments	(358,365)	(427,541)	(45,911)
Other non-current assets	-	-	(179,500)
Long-term deposits	20	55,429	(111,951)
Due from brokers	156,668	501,963	751
Amounts due from related parties	50,962	168,089	(79,204)
Amounts due to related parties	(120,560)	(26,060)	1,004
Accounts payable and accrued expenses	800,960	986,241	58,555
Operating lease liabilities	(457,508)	-	-
<b>Net cash used in operating activities</b>	<b>(15,931,913)</b>	<b>(13,382,633)</b>	<b>(10,035,531)</b>
<b>Cash flows from investing activities</b>			
Purchase of digital currencies	-	(200,000)	-
Purchases of intangible assets	-	(70,109)	(417,794)
Purchases of property, plant and equipment	(161,314)	(837,062)	(5,646,505)
Proceeds from disposal of property, plant and equipment	1,051,282	-	-
Proceeds from sales of investment securities	952,196	999,110	2,312
Disbursement of a loan to a third party	-	(1,400,000)	(3,000,000)
Repayment of a loan from a third party	-	1,400,000	3,000,000
<b>Net cash provided by (used in) investing activities</b>	<b>1,842,164</b>	<b>(108,061)</b>	<b>(6,061,987)</b>
<b>Cash flows from financing activities</b>			
Loan from related parties	1,000,000	6,330,472	-
Repayment of loan from related parties	(5,306,558)	-	-
Payment for settlement of convertible debts	-	(13,600,000)	-
Proceeds from issuance of convertible debts	-	-	16,120,400
Proceeds from issuance of Class A Ordinary Shares and warrants	17,497,426	-	11,054,319
Payments of offering costs	(715,091)	-	(538,122)
Payments for debt issuance costs	-	-	(1,099,316)
Payment of finance lease obligations	(53,845)	(53,843)	(58,332)
<b>Net cash provided by (used in) financing activities</b>	<b>12,421,932</b>	<b>(7,323,371)</b>	<b>25,478,949</b>
Net (decrease) increase in cash and restricted cash	(1,667,817)	(20,814,065)	9,381,431
Cash and restricted cash – Beginning of year	5,293,173	26,107,238	16,725,807
Cash and restricted cash – End of year	<b>3,625,356</b>	<b>\$ 5,293,173</b>	<b>26,107,238</b>
<b>Supplemental disclosures of cash flow information</b>			
Interest paid	\$ 131,554	\$ 557,333	\$ 606,989
Income taxes paid	\$ -	\$ -	\$ -
Proceeds in broker accounts	\$ 952,196	\$ 999,110	\$ 640,227
<b>Non-cash operating, investing and financing activities</b>			
Right-of-use assets obtained in exchange for new operating lease liabilities	\$ 1,107,206	\$ -	\$ -
Issuance of token in exchange of services	\$ -	\$ 300,000	\$ -
Net settlement of related party balances	\$ -	\$ -	\$ 164,973
Equipment acquired through finance lease	\$ -	\$ -	\$ 239,093
Conversion of convertible debts	\$ -	\$ -	\$ 3,033,308
Settlement of service fee by tokens and digital currencies	\$ 24,000	\$ 437,178	\$ -
Deemed dividend related to warrants down round provision	\$ 755,514	\$ -	\$ -
<b>Reconciliation of cash and restricted cash</b>			
Cash	\$ 3,495,231	\$ 5,189,003	\$ 12,006,624
Restricted cash	130,125	104,170	14,100,614
Total cash and restricted cash shown in the consolidated statements of cash flows	<b>\$ 3,625,356</b>	<b>\$ 5,293,173</b>	<b>\$ 26,107,238</b>



**APTORUM GROUP LIMITED**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**  
(Stated in U.S. Dollars)

**1. ORGANIZATION**

The consolidated financial statements include the financial statements of Aptorum Group Limited (the “Company”) and its subsidiaries. The Company and its subsidiaries are hereinafter collectively referred to as the “Group”.

The Company, formerly known as APTUS Holdings Limited and STRIKER ASIA OPPORTUNITIES FUND CORPORATION, is a company incorporated on September 13, 2010 under the laws of the Cayman Islands with limited liability.

On March 1, 2017, the Company changed from an investment fund with management shares and non-voting participating redeemable preference shares to a holding company with operating subsidiaries. After that, the Company has become a biopharmaceutical company. The Company researches and develops life science and biopharmaceutical products within its wholly-owned subsidiary, Aptorum Therapeutics Limited, formerly known as APTUS Therapeutics Limited (“Aptorum Therapeutics”) and its indirect subsidiary companies (collectively, “Aptorum Therapeutics Group”).

Below summarizes the list of the major subsidiaries consolidated as of December 31, 2020:

<b>Name</b>	<b>Incorporation date</b>	<b>Ownership</b>	<b>Place of incorporation</b>	<b>Principle activities</b>
Aptorum Therapeutics Limited	June 30, 2016	100%	Cayman Islands	Research and development of life science and biopharmaceutical products
APTUS MANAGEMENT LIMITED	May 16, 2017	100%	Hong Kong	Provision of management services to its holding company and fellow subsidiaries
Aptorum Medical Limited	August 28, 2017	93%	Cayman Islands	Provision of medical clinic services
Aptorum Innovations Holding Limited	April 15, 2019	100%	Cayman Islands	Investment holding company
Aptorum Innovations Holding Pte. Limited	June 5, 2019	75%	Singapore	Research and development of life science and biopharmaceutical products
Acticule Life Sciences Limited	June 30, 2017	80%	Cayman Islands	Research and development of life science and biopharmaceutical products
Claves Life Sciences Limited	August 2, 2017	100%	Cayman Islands	Research and development of life science and biopharmaceutical products
Nativus Life Sciences Limited	July 7, 2017	100%	Cayman Islands	Research and development of life science and biopharmaceutical products
Videns Incorporation Limited	March 2, 2017	100%	Cayman Islands	Research and development of life science and biopharmaceutical products
mTOR (Hong Kong) Limited	November 4, 2016	90%	Hong Kong	Research and development of life science and biopharmaceutical products
Scipio Life Sciences Limited	July 19, 2017	100%	Cayman Islands	Research and development of life science and biopharmaceutical products
Signate Life Sciences Limited	August 28, 2017	100%	Cayman Islands	Research and development of life science and biopharmaceutical products

**APTORUM GROUP LIMITED**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**  
**(Stated in U.S. Dollars)**

**2. LIQUIDITY**

The Group reported a net operating loss of \$20,275,541 and net operating cash outflow of \$15,931,913 for the year ended December 31, 2020. In addition, the Group had an accumulated deficit of \$30,489,126 as of December 31, 2020. The Group's operating results for future periods are subject to numerous uncertainties and it is uncertain if the Group will be able to reduce or eliminate its net losses for the foreseeable future. If management is not able to generate significant revenues from its product candidates currently in development, the Group may not be able to achieve profitability.

The Group's principal sources of liquidity have been cash, marketable securities and line of credit facility from related parties. As of the date of issuance of the consolidated financial statements, the Group has approximately \$2.4 million of restricted and unrestricted cash and approximately \$10.7 million of undrawn line of credit facility from related parties. Based upon the current market price of the Group's marketable securities, it anticipates it can liquidate such marketable securities, if necessary. In addition, the Group will need to maintain its operating costs at a level through strictly cost control and budget to ensure operating costs will not exceed such aforementioned sources of funds in order to continue as a going concern for a period within one year after the issuance of its consolidated financial statements.

The Group believes that available cash, together with the efforts from aforementioned management plan and actions, should enable the Group to meet current anticipated cash needs for at least the next 12 months after the date that the consolidated financial statements are issued and the Group has prepared the consolidated financial statements on a going concern basis.

**3. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

Principles of presentation and consolidation

The consolidated financial statements of the Group are presented on the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") and include the accounts of the Company, its direct and indirect wholly and majority owned subsidiaries. All material intercompany balances and transactions have been eliminated in preparation of the consolidated financial statements.

Non-controlling interests

Non-controlling interests represent the equity interests that are not attributable to the Group.

Use of estimates

The preparation of the consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements as well as income and expenses during the reporting period. Significant accounting estimates reflected in the Group's consolidated financial statements include valuation of equity securities, fair value of investments in securities, convertible debts, finance lease, warrants and share options, the useful lives of intangible assets and property, plant and equipment, impairment of long-lived assets, valuation allowance for deferred tax assets, and collectability of receivables. Actual results could differ from those estimates.

**APTORUM GROUP LIMITED**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**  
**(Stated in U.S. Dollars)**

Foreign currency translation and transaction

USD is the reporting currency. The functional currency of subsidiaries in the Cayman Islands, Seychelles, Samoa and the United States are USD, the functional currency of subsidiaries in Hong Kong is Hong Kong Dollars (“HKD”), the functional currency of a subsidiary in Singapore is Singapore Dollars (“SGD”), the functional currency of a subsidiary in the United Kingdom is Great British Pound (“GBP”), the functional currency of subsidiaries in Canada is Canadian Dollars (“CAD”), and the functional currency of subsidiaries in Ireland is Euro (“EUR”). An entity’s functional currency is the currency of the primary economic environment in which it operates, normally that is the currency of the environment in which it primarily generates and expends cash. The management considered various indicators, such as cash flows, market expenses, financing and inter-company transactions and arrangements in determining the Group’s functional currency.

In the consolidated financial statements, the financial information of the Company and its subsidiaries, which use HKD, SGD, GBP, CAD and EUR as their functional currency, has been translated into USD. Assets and liabilities are translated from each subsidiary’s functional currency at the exchange rates on the balance sheet dates, equity amounts are translated at historical exchange rates, and revenues, expenses, gains, and losses are translated using the average exchange rates for the year. Translation adjustments are reported as cumulative translation adjustments and are shown as a separate component of other comprehensive income or loss in the consolidated statements of operations and comprehensive income or loss.

Cash

Cash consists of cash on hand and bank deposits, which is unrestricted as to withdraw and use.

Restricted cash

Restricted cash represented time deposits pledged for banking facilities.

Digital currencies

Digital currencies represented BitCoin, Ethereum, or other virtual currencies that the Group purchased and used to settle certain token related expenses.

Digital currencies are included in current assets in the consolidated balance sheets. Digital currencies purchased are recorded at cost.

Digital currencies held are accounted for as intangible assets with indefinite useful lives. An intangible asset with an indefinite useful life is not amortized but assessed for impairment annually, or more frequently, when events or changes in circumstances occur indicating that it is more likely than not that the indefinite-lived asset is impaired. Impairment exists when the carrying amount exceeds its fair value, which is measured using the quoted price of the digital currency at the time its fair value is being measured. In testing for impairment, the Group has the option to first perform a qualitative assessment to determine whether it is more likely than not that an impairment exists. If it is determined that it is not more likely than not that an impairment exists, a quantitative impairment test is not necessary. If the Group concludes otherwise, it is required to perform a quantitative impairment test. To the extent an impairment loss is recognized, the loss establishes the new cost basis of the asset. Subsequent reversal of impairment losses is not permitted.

Purchases of digital currencies by the Group are included within investing activities in the consolidated statements of cash flows. The utilization of digital currencies in exchange of services are included within operating activities in the consolidated statements of cash flows and any gains or losses from such use are included in other income (loss) in the consolidated statements of operations. The Company accounts for its gains or losses in accordance with the first in first out (FIFO) method.

Inventories

Inventories are stated at lower of cost and net realizable value. Cost is determined using the weighted average method.

Where there is evidence that the utility of inventories, in their disposal in the ordinary course of business, will be less than cost, whether due to physical deterioration, obsolescence, changes in price levels, or other causes, the inventories are written down to net realizable value.

Accounts receivable

Accounts receivable are stated at the original amount less an allowance for doubtful receivables, if any, based on a review of all outstanding amounts at period end. An allowance is also made when there is objective evidence that the Group will not be able to collect all amounts due according to the original terms of the receivables. The Group analyzes the aging of the customer accounts, historical and current economic trends and the age of the receivables when evaluating the adequacy of the allowance for doubtful accounts.

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**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**  
**(Stated in U.S. Dollars)**

Marketable securities

Marketable securities are publicly traded stocks measured at fair value and classified within Level 1 and 2 in the fair value hierarchy because the Group either uses quoted prices for identical assets in active markets, inputs that are based upon quoted prices for similar instruments in active markets, or quoted prices for identical assets in markets with insufficient volume or infrequent transaction (less active markets).

Investments in derivatives

Investments in derivatives are warrants measured at fair value, with gains or losses from changes in fair value recorded through earnings. The fair value of these warrants have been determined using the Black-Scholes pricing mode. The Black-Scholes pricing model provides for assumptions regarding volatility, call and put features and risk-free interest rates within the total period to maturity.

Non-marketable investments

Non-marketable investments are comprising of investments in non-redeemable preferred shares of privately-held companies that are not required to be consolidated under the variable interest or voting models. Non-marketable investments are classified as non-current assets on the consolidated balance sheets as those investments do not have stated contractual maturity dates.

The non-marketable equity securities not accounted for under the equity method are measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for identical or similar investments of the same issuer. Adjustments are determined primarily based on a market approach as of the transaction date.

Fair value measurement

Fair value is defined as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities required or permitted to be recorded at fair value, the Group considers the principal or most advantageous market in which it would transact its business, and it considers assumptions that market participants would use when pricing the asset or liability.

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As a basis for considering such assumptions, a three-tier fair value hierarchy prioritizes the inputs utilized in measuring fair value as follows:

- Level 1 applies to assets or liabilities for which there are quoted prices in active markets for identical assets or liabilities.
- Level 2 applies to assets or liabilities for which there are inputs other than quoted prices included within Level 1 that are observable for the asset or liability such as quoted prices for similar assets or liabilities in active markets; quoted prices for identical assets or liabilities in markets with insufficient volume or infrequent transactions (less active markets); or model-derived valuations in which significant inputs are observable or can be derived principally from, or corroborated by, observable market data.
- Level 3 applies to assets or liabilities for which there are unobservable inputs to the valuation methodology that are significant to the measurement of the fair value of the assets or liabilities.

The hierarchy requires the Group to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. A financial instrument's categorization within the fair value hierarchy is based upon the lowest level of input that is significant to the fair value measurement. The Group has estimated the fair value amounts of its financial instruments using the available market information and valuation methodologies considered to be appropriate and has determined that the carrying value of the Group's cash, restricted cash, accounts receivable, due from brokers, other receivables and prepayments, amounts due from/to related parties and accounts payable and accrued expenses as of December 31, 2020 and 2019 approximate fair value due to the short-term nature of these assets and liabilities.

Property, plant and equipment

Property, plant and equipment is stated at cost less accumulated depreciation and impairment losses. Cost represents the purchase price of the asset and other costs incurred to bring the asset into its existing use. Maintenance, repairs and betterments, including replacement of minor items, are charged to expense; major additions to physical properties are capitalized.

Assets under construction are stated at cost less impairment losses. Cost comprises of cost of laboratory equipment delivered but not ready to be used, together with interest expense capitalized during the period of construction or installation and testing. Capitalization of these costs ceases and the asset concerned is transferred to the appropriate fixed assets category when substantially all the activities necessary to prepare the asset for its intended use are completed.

Depreciation of property, plant and equipment is provided using the straight-line method over their estimated useful lives:

Building	29 years
Computer equipment	3 years
Furniture, fixture, and office and medical equipment	5 years
Leasehold improvements	Shorter of the remaining lease terms or 5 years
Laboratory equipment	5 years
Motor vehicle	5 years

Upon sale or disposal, the applicable amounts of asset cost and accumulated depreciation are removed from the accounts and the net amount less proceeds from disposal is charged or credited to income.

Other non-current assets

Other non-current assets represents laboratory supplies that can be used for more than one year. It is stated at cost less accumulated depreciation and impairment losses. Cost represents the purchase price of the supplies.

Amortization of other non-current assets is provided using the straight-line method over their estimated useful lives. The amortization expenses for the years ended December 31, 2020, 2019 and 2018 are \$59,833, \$59,834 and \$59,833, respectively.

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Intangible assets

Indefinite-lived intangible assets are tested for impairment at least annually and are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Indefinite-lived intangible assets are impaired if their estimated fair values are less than their carrying values.

Finite-lived intangible assets are carried at cost less accumulated amortization and impairment if any. The finite intangible assets are amortized over their estimated useful life, which is the period over which the assets are expected to contribute directly or indirectly to the future cash flows of the Group. These intangible assets are tested for impairment at the time of a triggering event, if one were to occur. Finite-lived intangible assets may be impaired when the estimated undiscounted future cash flows generated from the assets are less than their carrying amounts.

The Group may rely on a qualitative assessment when performing its intangible asset impairment test. Otherwise, the impairment evaluation is performed at the lowest level of identifiable cash flows independent of other assets.

The Group's intangible assets mainly consist of computer software, exclusive rights in prepaid patented and unpatented licenses. The prepaid patented licenses are for clinical purpose or further development into other products. Prepaid unpatented license is for further development, once the associated research and development efforts are completed, the prepaid unpatented license will be reclassified as a finite-lived asset and is amortized over its useful life. The estimated useful life of the exclusive rights in using patents is generally the remaining patent life from the acquisition date to expiration date under the law, which is 17 to 20 years, the Group will reassess the remaining patent life on annual basis, and the Group will assess the intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may no longer be recoverable.

Impairment of long-lived assets

The Group reviews its long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may no longer be recoverable. When these events occur, the Group measures impairment by comparing the carrying value of the long-lived assets to the estimated undiscounted future cash flows expected to result from the use of the assets and their eventual disposition. If the sum of the expected undiscounted cash flow is less than the carrying amount of the assets, the Group would recognize an impairment loss, which is the excess of carrying amount over the fair value of the assets, using the expected future discounted cash flows.

Convertible debts

The Group determines the appropriate accounting treatment of its convertible debts in accordance with the terms in relation to the conversion feature, call and put option, beneficial conversion feature ("BCF") and settlement feature. After considering the impact of such features, the Group concluded that, the convertible debts contained a contingent beneficial conversion feature, which shall not be recognized in earnings until the contingency is resolved, and therefore accounted for such instrument as a liability in its entirety.

Convertible debts were subsequently measured at amortized cost, using the effective interest rate method. Amortized cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the effective interest rate. The effective interest rate amortization is included in interest expense in the consolidated statements of operations.

Management concluded that the contingency was effectively resolved upon the completion of the IPO on December 17, 2018 so that part of the convertible debts were converted automatically accordingly. The BCF derecognized upon automatic conversion was recorded as interest expense with a corresponding increase to additional paid-in capital. The remaining BCF was recorded as debt discount, which was amortized through the maturity of the convertible debts, with a corresponding increase to additional paid-in capital.

On April 24, 2019, the Group repurchased its convertible debts at approximately \$13.6 million with carrying amount of approximately \$13.5 million and a gain on extinguishment on convertible debts of approximately \$1.2 million was recognized. The repurchasing of convertible debts is considered an extinguishment and the difference between the repurchasing price of debt, the net carrying amount of the extinguished debt and the intrinsic value of BCF is recognized in the consolidated statements of operations. The intrinsic value of BCF of approximately \$1.3 million at the extinguishment date was recorded as a reduction of additional paid-in capital.

**APTORUM GROUP LIMITED**  
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**  
**(Stated in U.S. Dollars)**

Deferred offering costs

Deferred offering costs consist principally of legal and registration costs in connection with the Group's public offering. Such costs are deferred until the closing of the offering, at which time the deferred costs are offset against the offering proceeds and charged to additional paid-in capital.

Operating leases

Prior to the adoption of Accounting Standards Update ("ASU") No. 2016-02, Leases (Topic 842) and subsequent amendments to the initial guidance including ASU No. 2017-13, ASU No. 2018-10, ASU No. 2018-11, ASU No. 2018-20, and ASU No. 2019-01 (collectively, "Topic 842"), operating leases were not recognized on the consolidated balance sheets, instead, rental expenses with fixed payments were recognized on a straight-line basis over the lease term.

Effective January 1, 2020, the Group adopted Topic 842 using a modified retrospective transition approach for leases that exist at, or are entered into after January 1, 2020, and has not recast the comparative periods presented in the consolidated financial statements. At the inception of a contract, the Group determines if the arrangement is, or contains, a lease. Operating lease liabilities are recognized at lease commencement based on the present value of lease payments over the lease term. Operating lease right-of-use assets are initially measured at cost, which comprises the initial amount of the lease liability adjusted for lease payments made at or before the lease commencement date, plus any initial direct costs incurred and less any lease incentives received. As the rate implicit in the lease cannot be readily determined, the Group uses incremental borrowing rate at the lease commencement date in determining the imputed interest and present value of lease payments. The incremental borrowing rate is determined based on the rate of interest that the Group would have to pay to borrow an amount equal to the lease payments on a collateralized basis over a similar term in a similar economic environment. The lease term for all of the Group's leases includes the non-cancellable period of the lease plus any additional periods covered by either a Group's option to extend (or not to terminate) the lease that the Group is reasonably certain to exercise, or an option to extend (or not to terminate) the lease controlled by the lessor. For operating leases, the Group recognizes a single lease cost on a straight-line basis over the remaining lease term.

The Group has elected not to recognize right-of-use assets or lease liabilities for leases with an initial term of 12 months or less and the Group recognizes lease expense for these leases on a straight-line basis over the lease terms.

Finance lease

Leases that transfer substantially all the rewards and risks of ownership of assets to the Group, other than legal title, are accounted for as finance leases. At the inception of a finance lease, the cost of the leased asset is capitalized at the present value of the minimum lease payments and recorded together with the obligation, excluding the interest element, to reflect the purchase and financing. Assets held under capitalized finance leases are included in property, plant and equipment, and depreciated over the shorter of the lease terms and the estimated useful lives of the assets. The interest expenses of such leases are charged to the consolidated statements of operations to provide a constant periodic rate of charge over the lease terms.

Warrants

In connection of the issuance of Class A Ordinary Shares, the Company may issue warrants to purchase Class A Ordinary Shares. Warrants classified as equity are initially recorded at fair value and subsequent changes in fair value are not recognized as long as the warrants continue to be classified as equity.

Revenue recognition

Revenue is recognized when (or as) the Group satisfies performance obligations by transferring a promised goods or services to a customer. Revenue is measured at the transaction price which is based on the amount of consideration that the Group expects to receive in exchange for transferring the promised goods or services to the customer. Revenue from healthcare services is measured upon the provision of the relevant services.

Cost of healthcare services

Cost of healthcare services rendered represents cost in relation to the medical services provided including the compensation of the physicians and cost of pharmaceutical supplies and medicine.

Research and development expenses

Research and development costs are expensed as incurred. Research and development expenses are comprised of costs incurred in performing research and development activities, including amortization of the patent license, depreciation of laboratory equipment, costs of engaging external consultants, advisors and contracted research organization to conduct preclinical development activities and trials, and sponsored research expenses to universities and research institutions.

**APTORUM GROUP LIMITED**  
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Income taxes

The Group accounts for income taxes under the asset and liability method. Under this method, deferred income taxes are determined based on differences between the financial carrying amounts of existing assets and liabilities and their tax bases. Income taxes are provided for in accordance with the laws of the relevant taxing authorities.

A valuation allowance is provided for deferred tax assets if it is more likely than not that these items will either expire before the Group is able to realize their benefits, or that future deductibility is uncertain. Valuation allowances are established, when necessary, to reduce deferred tax assets to the amount expected to be realized.

Uncertain tax positions

The Group accounts for uncertainty in income taxes using a two-step approach to recognizing and measuring uncertain tax positions. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount that is more than 50% likely of being realized upon settlement. Interest and penalties related to uncertain tax positions are recognized and recorded as necessary in the provision for income taxes. The Group recognizes interest on non-payment of income taxes and penalties associated with tax positions when a tax position does not meet more likely than not thresholds be sustained under examination. The tax returns of the Group's Hong Kong subsidiaries are subject to examination by the relevant tax authorities. According to the Hong Kong Inland Revenue Department, the statute of limitation is six years if any company chargeable with tax has not been assessed or has been assessed at less than the proper amount, the statute of limitation is extended to ten years if the underpayment of taxes is due to fraud or willful evasion. According to United Kingdom, Singapore, the United States and Samoa tax rule, trading losses are available to be carried forward indefinitely. According to the Seychelles tax rule, net operating losses are available to be carried forward for 5 years. The Group did not have any material interest or penalties associated with tax positions for the years ended December 31, 2020, 2019 and 2018, and did not have any significant unrecognized uncertain tax positions as of December 31, 2020 and 2019. The Group does not believe that its assessment regarding unrecognized tax benefits will materially change over the next twelve months.

Comprehensive income or loss

U.S. GAAP generally requires that recognized revenue, expenses, gains and losses be included in net income or loss. Although certain changes in assets and liabilities are reported as separate components of the equity section of the consolidated balance sheets, such items, along with net income or loss, are components of comprehensive income or loss. The components of other comprehensive income or loss consist of exchange differences on translation of foreign operations.

Net income or loss per share

Basic net income or loss per share is computed by dividing net income or loss attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding during the period. Diluted net income or loss per share reflects the potential dilution that could occur if securities or other contracts to issue ordinary shares were exercised or converted into ordinary shares. Potential dilutive securities are excluded from the calculation of diluted loss per share in loss periods as their effect would be anti-dilutive.

Risks and uncertainties

The Group is subject to a number of risks associated with companies at a similar stage, including dependence on key individuals, competition from similar services and larger companies, volatility of the industry, ability to obtain regulatory clearance, ability to obtain adequate financing to support growth, the ability to attract and retain additional qualified personnel to manage the anticipated growth of the Group and general economic conditions.

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Recently adopted accounting pronouncements

In February 2016, the Financial Accounting Standards Board (“FASB”) issued ASU 2016-02, Leases (“ASU 2016-02”), which requires a lessee to recognize a right-of-use asset and a lease liability for operating leases, initially measured at the present value of the future lease payments, in the balance sheet. ASU 2016-02 also requires a lessee to recognize a single lease cost, calculated so that the cost of the lease is allocated over the lease term, generally on a straight-line basis. Upon the adoption effective on January 1, 2020, the Group recognized operating lease right-of-use assets of \$959,641, and operating lease liabilities of \$982,288 in the consolidated financial statements.

In July 2017, the FASB issued ASU 2017-11, Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480), Derivatives and Hedging (Topic 815). ASU 2017-11 no longer requires the Group to consider down round features when determining whether its warrant and embedded conversion option is indexed to its own stock. The Group adopted this standard effective on January 1, 2020. The adoption does not have a material impact on the Group’s consolidated financial statements.

In August 2018, the FASB issued ASU 2018-13, Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement, which amends ASC 820, Fair Value Measurement. This ASU modifies the disclosure requirements for fair value measurements by removing, modifying, or adding certain disclosures. The Group adopted this standard effective on January 1, 2020. The removed and modified disclosures are adopted on a retrospective basis and the new disclosures are adopted on a prospective basis. The adoption does not have a material impact on the Group’s consolidated financial statements.

Recently issued accounting standards which have not yet been adopted

The Group is an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2010 (the “JOBS Act”). Under the JOBS Act, the emerging growth companies (“EGCs”) can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies.

In June 2016, the FASB issued ASU 2016-13, Financial Instruments—Credit Losses (“ASU 2016-13”). Subsequently, the FASB issued ASU 2019-05, Financial Instruments—Credit Losses (Topic 326): Targeted Transition Relief. The amendments in ASU 2016-13 update guidance on reporting credit losses for financial assets. These amendments affect loans, debt securities, accounts receivables, net investments in leases, off balance sheet credit exposures, reinsurance receivables, and any other financial assets not excluded from the scope that have the contractual right to receive cash. The amendments are effective for fiscal years beginning after December 15, 2020, and interim periods within those fiscal years. The Group is currently evaluating the impact on its financial statements of adopting this guidance.

In December 2019, the FASB issued Accounting Standards Update No. 2019-12, Income Taxes (Topic 740): “Simplifying the Accounting for Income Taxes” (“ASU 2019-12”), which simplifies the accounting for income taxes. This standard will be effective for fiscal years beginning after December 15, 2021, and interim periods within fiscal years beginning after December 15, 2022, on a prospective basis, and early adoption is permitted. The Group is currently evaluating the impact of the new standard on its consolidated financial statements.

The Group does not believe other recently issued but not yet effective accounting standards, if currently adopted, would have a material impact on the consolidated balance sheets, consolidated statements of operations and cash flows.

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**4. REVENUE**

The Group adopted ASC 606 using the modified retrospective method as applied to customer contracts that were not completed as of January 1, 2019. As a result, financial information for reporting periods beginning after January 1, 2019 are presented under ASC 606, while comparative financial information has not been adjusted and continues to be reported in accordance with the Group's historical accounting policy for revenue recognition prior to the adoption of ASC 606.

For the years ended December 31, 2020, 2019 and 2018, all revenue came from provision of healthcare services in Hong Kong.

**5. INVESTMENT AND FAIR VALUE MEASUREMENT**

**Assets Measured at Fair Value on a Recurring Basis**

The following table provides the assets and liabilities carried at fair value measured on a recurring basis as of December 31, 2020 and 2019:

<b>December 31, 2020</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Total</b>
Current Assets				
Marketable securities				
Common stocks	\$ 66,062	\$ 28,318,882	\$ -	\$ 28,384,944
Investments in derivatives				
Warrants	-	-	4,289	4,289
Total assets at fair value	<u>\$ 66,062</u>	<u>\$ 28,318,882</u>	<u>\$ 4,289</u>	<u>\$ 28,389,233</u>
<b>December 31, 2019</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Total</b>
Current Assets				
Marketable securities				
Common stocks	\$ 806,778	\$ 256,333	\$ -	\$ 1,063,111
Investments in derivatives				
Warrants	-	-	203,320	203,320
Total assets at fair value	<u>\$ 806,778</u>	<u>\$ 256,333</u>	<u>\$ 203,320</u>	<u>\$ 1,266,431</u>

The following is a reconciliation of Level 3 assets measured and recorded at fair value on a recurring basis during the years ended December 31, 2020 and 2019:

	<b>Warrants</b>
<b>Balance at January 1, 2020</b>	<u>\$ 203,320</u>
Change in unrealized depreciation	(199,031)
<b>Balance at December 31, 2020</b>	<u>\$ 4,289</u>
Net change in unrealized depreciation relating to investments still held at December 31, 2020	(198,549)
<b>Balance at January 1, 2019</b>	<u>\$ 115,721</u>
Change in unrealized appreciation	87,599
<b>Balance at December 31, 2019</b>	<u>\$ 203,320</u>
Net change in unrealized appreciation relating to investments still held at December 31, 2019	87,599

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The following table presents the quantitative information about the Group's Level 3 fair value measurements of investment as of December 31, 2020 and 2019, which utilized significant unobservable internally-developed inputs:

<b>December 31, 2020</b>	<b>Valuation technique</b>	<b>Unobservable input</b>	<b>Range (weighted average)</b>
Warrants	Black-Scholes Model	Estimated time to exit Historical Volatility	6 months 122%

<b>December 31, 2019</b>	<b>Valuation technique</b>	<b>Unobservable input</b>	<b>Range (weighted average)</b>
Warrants	Black-Scholes Model	Estimated time to exit Historical Volatility	12-18 months 73% - 301%

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**Non-marketable investments**

The Group's non-marketable investments are investments in privately held companies without readily determinable fair values. The carrying value of the non-marketable investments are adjusted based on price changes from observable transactions of identical or similar securities of the same issuer (referred to as the measurement alternative) or for impairment. Any changes in carrying value are recorded within other income (loss), net in the consolidated statements of operations.

The following is a summary of unrealized gains and losses recorded in other income (loss), net, and included as adjustments to the carrying value of non-marketable investments held as of December 31, 2020, 2019 and 2018 based on the observable price in an orderly transaction for the same or similar security of the same issuers:

	<b>Year ended December 31, 2020</b>	<b>Year ended December 31, 2019</b>	<b>Year ended December 31, 2018</b>
Upward adjustments	\$ -	\$ 1,017,468	\$ -
Total unrealized gain for non-marketable investments	<u>\$ -</u>	<u>\$ 1,017,468</u>	<u>\$ -</u>

The Group did not record any realized gains or losses for the non-marketable investments measured at fair value on a non-recurring basis during the years ended December 31, 2020, 2019 and 2018.

The following table summarizes the total carrying value of the non-marketable investments held as of December 31, 2020 and 2019 including cumulative unrealized upward and downward adjustments made to the initial cost basis of the investments:

	<b>December 31, 2020</b>	<b>December 31, 2019</b>
Initial cost basis	\$ 4,079,707	\$ 6,094,712
Upward adjustments	-	1,017,468
Total carrying value at the end of the year	<u>\$ 4,079,707</u>	<u>\$ 7,112,180</u>

For the year ended December 31, 2020, non-marketable investments with initial cost of \$2,015,005 and accumulated upward adjustments of \$1,017,468 were transferred into marketable securities, at fair value.

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**6. OTHER RECEIVABLES AND PREPAYMENTS**

Other receivables and prepayments as of December 31, 2020 and 2019 consisted of:

	<b>December 31, 2020</b>	<b>December 31, 2019</b>
Prepaid insurance	\$ 82,060	\$ 154,011
Prepaid service fee	174,114	296,565
Rental deposits	12,022	8,584
Prepaid rental expenses	14,251	37,169
Prepaid research and development expenses	978,044	453,634
Other receivables	74,176	109,714
Others	44,329	19,366
	<b>\$ 1,378,996</b>	<b>\$ 1,079,043</b>

**7. DIGITAL CURRENCIES**

The following table presents additional information about digital currencies:

	<b>December 31, 2020</b>	<b>December 31, 2019</b>
<b>Beginning balance</b>	\$ 1,539	\$ -
Purchase of digital currencies	-	200,000
Utilization of digital currencies to settle service fee	-	(245,178)
Gain on use of digital currencies	-	46,717
<b>Ending balance</b>	<b>\$ 1,539</b>	<b>\$ 1,539</b>

**8. PROPERTY, PLANT AND EQUIPMENT, NET**

Property, plant and equipment as of December 31, 2020 and 2019 consisted of:

	<b>December 31, 2020</b>	<b>December 31, 2019</b>
Building	\$ -	\$ 1,488,396
Computer equipment	77,611	76,365
Furniture, fixture, and office and medical equipment	262,664	271,009
Leasehold improvements	542,514	665,546
Laboratory equipment	4,058,538	4,029,640
Motor vehicle	239,093	239,093
Assets in construction	1,899,169	1,899,169
	7,079,589	8,669,218
Less: accumulated depreciation	2,393,266	1,576,183
Property, plant and equipment, net	<b>\$ 4,686,323</b>	<b>\$ 7,093,035</b>

Depreciation expenses for property, plant and equipment amounted to \$1,128,867, \$1,071,799 and \$497,908 for the years ended December 31, 2020, 2019 and 2018, respectively.

For the year ended December 31, 2020, the Group recorded \$330,445 of impairment loss of buildings in other operating expenses due to the management assessed that its carrying amount may not be recoverable. On July 20, 2020, the Group signed a sales and purchase agreement to sell its property in Fo Tan, Hong Kong, at approximately \$1.1 million to a third party buyer. The property was assigned to the buyer on September 1, 2020.

As a result of the relocation of office, the Group disposed certain leasehold improvement and furniture, fixture, and office equipment in the old office and incurred a disposal loss of \$50,197 in other operating expenses for the year ended December 31, 2020.

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**9. INTANGIBLE ASSETS, NET**

	<b>December 31, 2020</b>	<b>December 31, 2019</b>
Gross carrying amount		
Prepaid unpatented license	\$ -	\$ 200,000
Prepaid patented licenses	1,322,820	1,322,820
Computer software	26,985	97,462
	1,349,805	1,620,282
Less: accumulated amortization		
Prepaid patented licenses	360,212	257,619
Computer software	24,736	50,980
	384,948	308,599
Intangible assets, net		
Prepaid unpatented license	-	200,000
Prepaid patented licenses	962,608	1,065,201
Computer software	2,249	46,482
Intangible assets, net	\$ 964,857	\$ 1,311,683

As of December 31, 2020 and 2019, the Group has capitalized seven of the exclusive licenses which includes seven patented and one unpatented technologies in relation to the Group's therapeutics segment. Pursuant to the license agreements, the Group paid upfront payments and became the exclusive licensee to prosecute certain patents developed or licensed under the applicable agreements.

The Group recognized the prepaid unpatented license to reflect the fair value of the subsidiaries as of the date of the change in status from an investment company to an operating entity. The Group capitalizes the prepaid patented license for the exclusive rights with completed filing of patents in certain jurisdictions (e.g., the United States of America and Europe) and alternative future uses. An impairment loss of \$200,000 was recognized in research and development expenses for the year ended December 31, 2020 as the Group considered that the carrying amount of an intangible asset related to an unpatented license may not be recoverable. This license agreement was terminated on February 19, 2021.

Prepaid unpatented license is indefinite-lived intangible assets which are tested for impairment annually. Prepaid patented licenses and computer software are finite-lived intangible assets which are amortized over their estimated useful life. Amortization expenses for finite-lived intangible assets amounted to \$145,961, \$167,985 and \$124,551 for the years ended December 31, 2020, 2019 and 2018, respectively. The Group wrote off the cost and the related amortization of \$70,477, \$34,400 and \$2,320 after the expiration of the computer software for the years ended December 31, 2020, 2019 and 2018, respectively.

The Group expects amortization expense related to its finite-lived intangible assets for the next five years and thereafter to be as follows as of December 31, 2020:

<b>For the years ending December 31,</b>	<b>Amount</b>
2021	\$ 104,842
2022	102,593
2023	102,593
2024	97,099
2025	80,615
Thereafter	477,115
Total	\$ 964,857

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**10. LONG-TERM DEPOSITS**

Long-term deposits as of December 31, 2020 and 2019 consisted of:

	<u>December 31,</u> <u>2020</u>	<u>December 31,</u> <u>2019</u>
Rental deposits	\$ 149,175	\$ 132,043
Prepayments for equipment	147,050	162,563
	<u>\$ 296,225</u>	<u>\$ 294,606</u>

**11. ACCOUNTS PAYABLE AND ACCRUED EXPENSES**

Accounts payable and accrued expenses as of December 31, 2020 and 2019 consisted of:

	<u>December 31,</u> <u>2020</u>	<u>December 31,</u> <u>2019</u>
Deferred bonus and salaries payable	\$ 2,078,958	\$ 1,570,324
Research and development expenses payable	750,989	554,791
Professional fees payable	185,838	171,037
Cost of healthcare services payable	104,457	45,234
Insurance expenses payable	33,152	70,811
Deferred rent	-	55,484
Others	87,378	118,846
	<u>\$ 3,240,772</u>	<u>\$ 2,586,527</u>

**12. INCOME TAXES**

The Company and its subsidiaries file tax returns separately.

Income taxes

Cayman Islands: under the current laws of the Cayman Islands, the Company and its subsidiaries in the Cayman Islands are not subject to taxes on their income and capital gains.

Hong Kong: in accordance with the relevant tax laws and regulations of Hong Kong, a company registered in Hong Kong is subject to income taxes within Hong Kong at the applicable tax rate on taxable income. In March 2018, the Hong Kong Government introduced a two-tiered profit tax rate regime by enacting the Inland Revenue (Amendment) (No.3) Ordinance 2018 (the "Ordinance"). Under the two-tiered profits tax rate regime, the first \$2 million of assessable profits of qualifying corporations is taxed at 8.25% and the remaining assessable profits at 16.5%. The Ordinance is effective from the year of assessment 2018-2019. According to the policy, if no election has been made, the whole of the taxpaying entity's assessable profits will be chargeable to Profits Tax at the rate of 16.5% or 15%, as applicable. Because the preferential tax treatment is not elected by the Group, all the subsidiaries registered in Hong Kong are subject to income tax at a rate of 16.5%. The subsidiaries registered in Hong Kong did not have assessable profits that were derived Hong Kong during the years ended December 31, 2020, 2019 and 2018. Therefore, no Hong Kong profit tax has been provided for in the periods presented.

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United Kingdom: in accordance with the relevant tax laws and regulations of United Kingdom, a company registered in the United Kingdom is subject to income taxes within United Kingdom at the applicable tax rate on taxable income. All the United Kingdom subsidiaries that are not entitled to any tax holiday were subject to income tax at a rate of 19%. The subsidiary in United Kingdom did not have assessable profits that were derived from United Kingdom during the years ended December 31, 2020, 2019 and 2018. Therefore, no United Kingdom profit tax has been provided for in the periods presented.

Singapore: in accordance with the relevant tax laws and regulations of Singapore, a company registered in the Singapore is subject to income taxes within Singapore at the applicable tax rate on taxable income. All the Singapore subsidiaries that are not entitled to any tax holiday were subject to income tax at a rate of 17%. The subsidiary in Singapore did not have assessable profits that were derived from Singapore during the years ended December 31, 2020, 2019 and 2018. Therefore, no Singapore profit tax has been provided for in the periods presented.

Seychelles: in accordance with the relevant tax laws and regulations of Seychelles, a company registered in the Seychelles is subject to income taxes within Seychelles at the applicable tax rate on taxable income. All the Seychelles subsidiaries that are not entitled to any tax holiday were subject to income tax at a rate of 25%. The subsidiary in Seychelles did not have assessable profits that were derived from Seychelles during the years ended December 31, 2020, 2019 and 2018. Therefore, no Seychelles profit tax has been provided for in the periods presented.

Samoa: in accordance with the relevant tax laws and regulations of Samoa, a company registered in the Samoa is subject to income taxes within Samoa at the applicable tax rate on taxable income. All the Samoa subsidiaries that are not entitled to any tax holiday were subject to income tax at a rate of 27%. The subsidiary in Samoa did not have assessable profits that were derived from Samoa during the years ended December 31, 2020, 2019 and 2018. Therefore, no Samoa profit tax has been provided for in the periods presented.

United States (Nevada): in accordance with the relevant tax laws and regulations of the United States, a company registered in the United States is subject to income taxes within the United States at the applicable tax rate on taxable income. All the United States subsidiaries in Nevada that are not entitled to any tax holiday were subject to income tax at a rate of 21%. The subsidiary in the United States did not have assessable profits that were derived from the United States during the years ended December 31, 2020, 2019 and 2018. Therefore, no United States profit tax has been provided for in the periods presented.

Canada: in accordance with the relevant tax laws and regulations of Canada, a company registered in Canada is subject to income taxes within Canada at the applicable tax rate on taxable income. All the Canada subsidiaries that are not entitled to any tax holiday were subject to income tax at a rate of 15%. The subsidiary in Canada did not have assessable profits that were derived from Canada during the years ended December 31, 2020, 2019 and 2018. Therefore, no Canada profit tax has been provided for in the periods presented.

Ireland: in accordance with the relevant tax laws and regulations of Ireland, a company registered in Ireland is subject to income taxes within Ireland at the applicable tax rate on taxable income. All the Ireland subsidiaries that are not entitled to any tax holiday were subject to income tax at a rate of 12.5%. The subsidiary in Ireland did not have assessable profits that were derived from Ireland during the years ended December 31, 2020, 2019 and 2018. Therefore, no Ireland profit tax has been provided for in the periods presented.

The components of the provision for income taxes expenses are:

	<b>Year ended December 31, 2020</b>	<b>Year ended December 31, 2019</b>	<b>Year ended December 31, 2018</b>
Current	\$ -	\$ -	\$ -
Deferred	-	-	-
<b>Total income taxes expense</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

The reconciliation of income taxes expenses computed at the Hong Kong statutory tax rate applicable to income tax expense is as follows:

	<b>Year ended December 31, 2020</b>	<b>Year ended December 31, 2019</b>	<b>Year ended December 31, 2018</b>
Net income (loss) before tax	\$ 4,920,167	\$ (20,116,938)	\$ (15,134,485)
Provision for income taxes at Hong Kong statutory income tax rate (16.5%)	811,828	(3,319,294)	(2,497,190)
Impact of different tax rates in other jurisdictions	(18,869)	(91,623)	(3,066)
Non-taxable income	(4,281,521)	(389,714)	(95,018)
Non-deductible expenses	79,200	702,433	540,893
Change in valuation allowance	3,409,362	3,098,198	2,054,381
<b>Effective income tax expense</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

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Deferred tax asset, net

Deferred tax assets and deferred tax liabilities reflect the tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purpose and the tax bases used for income tax purpose. The following represents the tax effect of each major type of temporary difference.

	<u>December 31,</u> <u>2020</u>	<u>December 31,</u> <u>2019</u>
Deferred tax asset:		
Tax loss carry forward	\$ 9,461,421	\$ 6,699,345
Share-based payment expenses	497,808	-
	<u>9,959,229</u>	<u>6,699,345</u>
Deferred tax liability:		
Depreciation and amortization	(397,669)	(547,147)
Net deferred tax assets before valuation allowance	9,561,560	6,152,198
Valuation allowance	(9,561,560)	(6,152,198)
Deferred tax asset, net	<u>\$ -</u>	<u>\$ -</u>

As of December 31, 2020 and 2019, the Group had net operating loss carry-forwards of \$57,065,283 and \$40,329,428, respectively, including its Hong Kong, Singapore, Seychelles, Samoa, the United States, the United Kingdom, Canada and Ireland operations, which are available to reduce future taxable income. Net operating loss carry forward from Seychelles amounting to \$492,715 and \$439,345 as of December 31, 2020 and 2019, respectively, are available to be carried forward for 5 years, while all of the other losses can be carried forward indefinitely.

Valuation allowance was provided against deferred tax assets in entities where it was determined, it was more likely than not that the benefits of the deferred tax assets will not be realized. The Group had deferred tax assets which consisted of tax loss carry forward, which can be carried forward to offset future taxable income. The Group maintains a full valuation allowance on its net deferred tax assets. The management determines it is more likely than not that all of its deferred tax assets will not be utilized. The valuation allowance increased by \$3,409,362, \$3,098,198 and \$2,054,381, respectively, for the years ended December 31, 2020, 2019 and 2018.

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**13. RELATED PARTY BALANCES AND TRANSACTIONS**

The following is a list of a director and related parties to which the Group has transactions with:

- (a) Ian Huen, the Chief Executive Officer and an Executive Director of the Group;
- (b) Darren Lui, the President and an Executive Director of the Group
- (c) Clark Cheng, an Executive Director of the Group;
- (d) AENEAS CAPITAL LIMITED, an entity controlled by Ian Huen;
- (e) Aeneas Limited, an entity controlled by Ian Huen;
- (f) Aeneas Group Limited, an entity controlled by Ian Huen;
- (g) Aeneas Management Limited, an entity controlled by Ian Huen;
- (h) Aenco Solutions Limited, an entity controlled by Ian Huen; In 2020, it is no longer the Group's related party as it is disposed to a third party;
- (i) Aenco Limited, an entity controlled by Ian Huen;
- (j) Aeneas Technology (Hong Kong) Limited, an entity controlled by Ian Huen;
- (k) Jurchen Investment Corporation, the holding company and an entity controlled by Ian Huen;
- (l) CGY Investment Limited, an entity jointly controlled by Darren Lui;
- (m) ACC Medical Limited, an entity controlled by Clark Cheng;
- (n) Sabrina Khan, the Chief Financial Officer of the Group.

Amounts due from related parties

Amounts due from related parties consisted of the following as of December 31, 2020 and 2019:

	<u>December 31,</u> <u>2020</u>	<u>December 31,</u> <u>2019</u>
<b>Current</b>		
Aeneas Management Limited	\$ -	\$ 962
<b>Non-current</b>		
Jurchen Investment Corporation (Note c)	\$ -	\$ 50,000

Amounts due to related parties

Amounts due to related parties consisted of the following as of December 31, 2020 and 2019:

	<u>December 31,</u> <u>2020</u>	<u>December 31,</u> <u>2019</u>
<b>Current</b>		
Aeneas Group Limited	\$ 123,922	\$ 14,247
Jurchen Investment Corporation	19,454	20,055
Ian Huen	2,110	127
Clark Cheng	401	1,114
Sabrina Khan	39	268
Aenco Solutions Limited	-	5,782
<b>Total</b>	<u>\$ 145,926</u>	<u>\$ 41,593</u>
<b>Non-current</b>		
Aeneas Group Limited (Note a)	\$ 1,507,285	\$ 3,330,472
Jurchen Investment Corporation (Note a)	500,000	3,000,000
	<u>\$ 2,007,285</u>	<u>\$ 6,330,472</u>

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Related party transactions

Related party transactions consisted of the following for the years ended December 31, 2020, 2019 and 2018:

	<u>Year ended December 31, 2020</u>	<u>Year ended December 31, 2019</u>	<u>Year ended December 31, 2018</u>
Loan from related parties (Note a)			
- Aeneas Group Limited	\$ 500,000	\$ 3,330,472	\$ -
- Jurchen Investment Corporation	\$ 500,000	\$ 3,000,000	\$ -
Interest expenses (Note a)			
- Aeneas Group Limited	\$ 155,633	\$ 14,247	\$ -
- Jurchen Investment Corporation	\$ 81,530	\$ 20,055	\$ -
Loan repayment and interest paid to related parties (Note a)			
- Aeneas Group Limited	\$ 2,356,080	\$ -	\$ -
- Jurchen Investment Corporation	\$ 3,082,131	\$ -	\$ -
Consultant, secondment, management and administrative services fees (Note b)			
- Aenco Limited	\$ 746,153	\$ 830,769	\$ -
- Aeneas Technology (Hong Kong) Limited	\$ 617,794	\$ -	\$ -
- Aeneas Management Limited	\$ 231,795	\$ 698,152	\$ -
- CGY Investments Limited	\$ 169,462	\$ -	\$ -
- ACC Medical Limited	\$ 13,018	\$ -	\$ -
- AENEAS CAPITAL LIMITED	\$ -	\$ -	\$ 448,718
Rental expense(Note c)			
- Jurchen Investment Corporation	\$ 96,300	\$ 227,729	\$ 207,841
Issuance of tokens for tokens creation, offering and consultancy services (Note d)			
- Aenco Solutions Limited	\$ -	\$ 300,000	\$ -
Tokens creation, offering and consultancy services expense (Note d)			
- Aenco Solutions Limited	\$ -	\$ 192,000	\$ -
Prepayment of tokens consultancy services (Note d)			
- Aenco Solutions Limited	\$ -	\$ 108,000	\$ -
Healthcare services income			
- Aeneas Management Limited	\$ 321	\$ 1,923	\$ -

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Note a: On August 13, 2019, the Group entered into financing arrangements with Aeneas Group Limited, a related party, and Jurchen Investment Corporation, the ultimate parent of the Group, allowing the Group to access up to a total \$15.0 million in line of credit debt financing. The line of credit will mature on August 12, 2022 and the interest on the outstanding principal indebtedness will be at the rate of 8% per annum. The Group may early repay, in whole or in part, the principal indebtedness and all interest accrued at any time prior to the maturity date without the prior written consent of the lender and without payment of any premium or penalty.

Note b: Aenco Limited provided certain information technology services to the Group. For the year ended December 31, 2019, Aenco Limited was entitled to receive a fixed amount of services fees of HKD 540,000 (approximately \$69,231) per calendar month with the expiry date on December 31, 2019. The agreement was originally renewed under the same terms with the expiry date on December 31, 2020. The agreement was replaced by another agreement on April 1, 2020. Pursuant to the replaced agreement, Aenco Limited is entitled to receive a fixed amount of services fee of HKD 700,000 (approximately \$89,744) per calendar month. On September 30, 2020, the replaced agreement was terminated as mutually agreed.

Aeneas Technology (Hong Kong) Limited provided research to the Group to assist the Group in computerized drug screening process of Smart-ACT™ platform. Aeneas Technology (Hong Kong) Limited is entitled to receive a fixed amount of research fees of HKD 963,760 (approximately \$123,559) per calendar month with the expiry date on October 30, 2021. On September 30, 2020, the agreement was terminated as mutually agreed.

Aeneas Management Limited provided certain documentation and administrative services to the Group. For the year ended December 31, 2019, Aeneas Management Limited was entitled to receive a fixed amount of services fees of HKD 452,000 (approximately \$57,949) per calendar month with the expiry date on December 31, 2019. The agreement was originally renewed under the same terms with the expiry date on December 31, 2020. On April 30, 2020, the agreement was terminated as mutually agreed.

CGY Investment Limited provided certain consultancy, advisory and management services to the Group on potential investment projects related to healthcare or R&D platforms. CGY Investment Limited is entitled to receive HK \$104,000 (approximately \$13,333) per calendar month. The agreement will be remained in effect until 1 month's notice in writing is given by either party.

ACC Medical Limited provided certain consultancy, advisory, and management services to the Group on clinic operations and other related projects for clinics' business development. ACC Medical Limited is entitled to receive HK \$101,542 (approximately \$13,018) per calendar month. The agreement will be remained in effect until 1 month's notice in writing is given by either party.

AENEAS CAPITAL LIMITED provides certain management and administrative services to the Group. For the year ended December 31, 2018, AENEAS CAPITAL LIMITED was entitled to receive a fixed amount of administrative fees of HKD 500,000 (approximately \$64,103) per calendar month. On July 31, 2018, the agreement was terminated as mutually agreed.

Note c: Jurchen Investment Corporation entered into a sub-tenancy agreement with a subsidiary of the Group for the rental arrangement of an office in Hong Kong. For the period February 1, 2018 through January 31, 2021, Jurchen Investment Corporation was entitled to receive a fixed amount of rental fee of HK \$130,000 (approximately USD 16,667) per calendar month. In May 2020, Jurchen Investment Corporation and the Group mutually agreed to early terminate the rental agreement and returned the office on May 31, 2020.

Note d: In July 2019, Smart Pharmaceutical Limited Partnership ("SPLP"), a wholly owned subsidiary of the Group, transferred 100,000,000 SMPT token to Aenco Solutions Limited, a related party, in exchange of the services related to token creation and offering and consulting services for five years for an amount of \$300,000. On March 5, 2021, all agreements regarding the SMPT tokens, including the agreement between SPLP and Aenco Solutions Limited in exchange of the service to deal with the token creation, have been terminated.

Note e: On April 3, 2018, Aptorum Medical Limited issued 526 shares to Clark Cheng, decreasing the equity interest of the Company from 100% to 95%. On March 29, 2019, Aptorum Medical Limited issued 112 shares to Clark Cheng in according to the appointment agreement, decreasing the equity interest of the Company from 95% to 94%. On January 2, 2020, Aptorum Medical Limited further issued 115 shares to Clark Cheng in according to the appointment agreement, decreasing the equity interest of the Company from 94% to 93%.

Note f: In April 2018, the Group, AENEAS CAPITAL LIMITED, Aeneas Management Limited and Aeneas Group Limited entered into a net settlement agreement to offset the amounts due from related parties against the amounts due to related parties. Thereby, the Group is released from obligation for a total amount of \$164,973, netting off receivables of total amount of \$197,878 and collected remaining balance of \$32,905.

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**14. LEASE**

As of December 31, 2020, the Group has three non-short-term operating leases for office, laboratories and clinic with remaining terms expiring from 2022 through 2023 and a weighted average remaining lease term of 1.5 years. Weighted average discount rates used in the calculation of the operating lease liability is 8%. The discount rates reflect the estimated incremental borrowing rate, which includes an assessment of the credit rating to determine the rate that the Group would have to pay to borrow, on a collateralized basis for a similar term, an amount equal to the lease payments in a similar economic environment.

	<u>For the year ended December 31, 2020</u>
Lease cost	
Finance lease cost:	
Depreciation	\$ 47,819
Interest on lease liabilities	7,290
Operating lease cost	483,398
Short-term lease cost	68,472
Variable lease cost	-
Sublease income	-
<b>Total lease cost</b>	<b><u>\$ 606,979</u></b>
Other information	
Cash paid for amounts included in the measurement of lease liabilities	
Operating cash flows from operating leases	\$ 457,508
Financing cash flows from finance leases	53,845
Right-of-use assets obtained in exchange for new operating lease liabilities	1,107,206
Weighted-average remaining lease term – finance leases	1.9 years
Weighted-average remaining lease term – operating leases	1.5 years
Weighted-average discount rate – finance leases	2.5%
Weighted-average discount rate – operating leases	8.0%

The maturity analysis of operating leases liabilities as of December 31, 2020 is as follows:

	<u>December 31, 2020</u>
Remaining periods ending December 31,	
2021	\$ 458,078
2022	149,539
2023	17,143
Total future undiscounted cash flow	624,760
Less: Discount on operating lease liabilities	(37,039)
Present value of operating lease liabilities	587,721
Less: Current portion of operating lease liabilities	(432,600)
Non-current portion of operating lease liabilities	<b><u>\$ 155,121</u></b>

On May 14, 2018, the Group leased a vehicle for its operation with a lease term of 54 months, and the lease was classified as a finance lease. The following lists the components of the net present value of finance leases liabilities:

	<u>December 31, 2020</u>
Remaining periods ending December 31,	
2021	\$ 53,845
2022	49,358
Total future undiscounted cash flow	103,203
Less: Discount on finance lease liabilities	(5,884)
Present value of finance lease liabilities	97,319
Less: Current portion of finance lease liabilities	(49,396)
Non-current portion of finance lease liabilities	<b><u>\$ 47,923</u></b>

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**15. ORDINARY SHARES**

On June 19, 2019, the Group issued 60,093 Class A Ordinary Shares to warrant holders on a cashless basis. Following the exercise of warrants, there were an aggregate of 6,597,362 Class A Ordinary Shares issued and outstanding as of December 31, 2019.

On February 28, 2020, the Group entered into securities purchase agreement (the “Purchase Agreement”) with certain non-affiliated institutional investors and Jurchen Investment Corporation, the ultimate parent of the Group, pursuant to which the Company agreed to sell a total of 1,351,350 Class A Ordinary Shares and warrants to purchase 1,351,350 of the Class A Ordinary Shares, for gross proceeds of approximately \$10 million. At the completion of the offering, approximately \$1.0 million offering costs was charged to additional paid-in capital. Each warrant entitled their holders to purchase 1 Class A Ordinary Shares and is exercisable immediately as of the date of issuance at an exercise price of \$7.40 per Class A Ordinary Share and expire seven years from the date of issuance. Additionally, the Group issued 43,243 warrants to placement agent on terms substantially the same as the warrants issued to investors, except that the exercise price of the warrants issued to the placement agent is \$8.88.

On August 27, 2020, the Group entered into warrant exchange agreements (the “Purchaser Exchange Agreements”) with two non-affiliated purchasers to exchange their warrant of the Company by Class A Ordinary Shares of the Company (the “Purchaser Warrant Exchange”). Pursuant to the Purchaser Exchange Agreements, the Company and the Non-affiliated Purchasers have agreed that in consideration for exchanging in full all of the warrants held by the Non-affiliated Purchasers, the Company will exchange one (1) Class A Ordinary Share for each one (1) Purchaser Exchange Warrant. Total 540,540 Class A Ordinary Shares are issued to two non-affiliated purchasers in exchange for 540,540 warrants. For other warrant holders did not participate in the Purchaser Warrant Exchange, the exercise prices of their respective warrants will be reduced to a nominal amount pursuant to the anti-dilution provisions in such warrants (a “Down Round”). As a result of this Down Round being triggered, the Group recorded a deemed dividend of \$755,514 as an decrease to net income attributable to Aptorum Group Limited in computing basic net income per share on the consolidated statements of operations.

On October 2, 2020, the Group completed a public offering, issuing 2,769,231 Class A Ordinary Shares and warrants to purchase an aggregate of 2,769,231 Class A Ordinary Shares, for gross proceeds of approximately \$9 million. At the completion of the offering, approximately \$1.2 million offering costs was charged to additional paid-in capital. The warrants have an exercise price of \$3.25 per Class A Ordinary Share, are exercisable upon issuance and will expire five years from the date of issuance. Additionally, the Group issued 147,538 warrants to placement agent on terms substantially the same as the warrants issued to investors, except that the exercise price of the warrants issued to the placement agent is \$4.0625. Following the public offering completed on October 2, 2020, the placement agent of the offering on February 28, 2020 was further received 65,406 warrants as a tail fee, with an exercise price of \$3.9 and expire seven years from the date of issuance.

All the above issued warrants are classified as equity in accordance with ASC 815, Derivatives and Hedging. This ASC provides a scope exception from classifying and measuring as a financial liability a contract that would otherwise meet the definition of a derivative if the contract is both (i) indexed to the entity’s own stock and (ii) meets the equity classifications conditions. The Group concluded all above issued warrants should be equity-classified since they contain no provisions which would require the Group to account for the warrants as a derivative liability and therefore were initially measured at fair value in permanent equity with subsequent changes in fair value not measured.

For the year ended December 31, 2020, the Group issued 313,513 and 12,328 Class A Ordinary Shares to warrant holders and share option holders respectively.

Holder of Class A Ordinary Shares and Class B Ordinary Shares have the same rights except for the following: (i) each Class A Ordinary Share is entitled to one vote while each Class B Ordinary Share is entitled to ten votes; and (ii) each Class B Ordinary Share is convertible into one Class A Ordinary Share at any time while Class A Ordinary Shares are not convertible under any circumstances.

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**16. SHARE BASED COMPENSATION**

Share option plan

A total of 5,500,000 Class A Ordinary Shares (subject to subsequent adjustments described more fully below) may be issued pursuant to awards under the 2017 Omnibus Incentive Plan (the “2017 Share Option Plan”). Subsequent adjustments include that on each January 1, starting with January 1, 2020, an additional number of shares equal to the lesser of (i) 2% of the outstanding number of Class A Ordinary Shares (on a fully diluted basis) on the immediate preceding December 31, and (ii) such lower number of Class A Ordinary Shares as may be determined by the board of directors, subject in all cases to adjustments as provided in Section 10 of the 2017 Share Option Plan. Awards will be made pursuant to agreements and may be subject to vesting and other restrictions as determined by the board of directors.

On March 15, 2019, the Group granted 218,222 share options to directors, employees, external consultants and advisors of the Group with an exercise price of \$12.91. On March 16, 2020, the Group granted 536,777 share options to directors, employees, external consultants and advisors of the Group with an exercise price of \$2.99. On June 1, 2020, the Group granted 148,792 share options to directors and employees of the Group with an exercise price of \$3.11. On August 10, 2020, 27,473 options were granted to a consultant with an exercise price is \$3.64 per share.

A summary of the option activity as of December 31, 2020 and 2019 and changes during the period is presented below:

	<u>Number of share options</u>	<u>Weighted average exercise price \$</u>	<u>Remaining contractual term in years</u>	<u>Aggregate Intrinsic value</u>
Outstanding, January 1, 2020	218,222	12.91	11.51	
Granted	713,042	3.04	11.99	
Exercised	(12,328)	4.92		-
Forfeited	(52,427)	5.80		
Cancelled	(148,792)	12.91		
Outstanding, December 31, 2020	<u>717,717</u>	<u>3.76</u>	<u>11.22</u>	-
Exercisable, December 31, 2020	<u>84,671</u>	<u>6.12</u>	<u>9.95</u>	-
	<u>Number of share options</u>	<u>Weighted average exercise price \$</u>	<u>Remaining contractual term in years</u>	<u>Aggregate Intrinsic value</u>
Granted, March 15, 2019	218,222	12.91	12.31	
Outstanding, December 31, 2019	<u>218,222</u>	<u>12.91</u>	<u>11.51</u>	641,573
Exercisable, December 31, 2019	<u>-</u>	<u>-</u>	<u>-</u>	-

The weighted-average grant date fair value of share option grants during the years ended December 31, 2020 and 2019 was \$1.76 and \$10.31, respectively. The maximum contractual term for share option was 12.8 years.

The fair value of each stock option award is estimated on the date of grant using the Black-Scholes option pricing model under the following assumptions.

	<u>Granted in 2020</u>	<u>Granted in 2019</u>
Expected volatility	88.44%-96.55%	95.02%-95.15%
Risk-free interest rate	0.59%-0.69%	2.46%-2.49%
Expected term from grant date (in years)	5.25-7.29	6.29-7.29
Dividend rate	-	-
Dilution factor	0.9909-1	0.9962
Fair value	\$1.55-\$2.66	\$10.1-\$10.52

In connection with the grant of share options to employees and non-employees, the Group recorded share-based compensation charges of \$1,191,957 and \$286,608, respectively, for the year ended December 31, 2020, and \$1,180,477 and \$432,355, respectively, for the year ended December 31, 2019.

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**17. NON-CONTROLLING INTEREST**

On March 29, 2019, AML, a majority-owned subsidiary of the Group, issued 112 shares to a director of the Group, which resulted an increase of his equity interest of AML from 5% to 6%. A deficit of \$10,672 was reclassified from additional paid-in capital to non-controlling interests within the Group's consolidated financial statements. On January 2, 2020, AML further issued 115 shares to a director of the Group, which resulted an increase of his equity interest of AML from 6% to 7%. A deficit of \$22,325 was reclassified from additional paid-in capital to non-controlling interests within the Group's consolidated financial statements.

On April 24, 2019, the Smart Pharma Tokens ("SMPT tokens") was announced to be launched. The SMPT tokens are secured by way of a floating charge against the Project intellectual property ("IP") to guarantee the distribution of accrued sales-based royalties, sublicensing income or additional cash flow generated by drug candidates developed by the Smart-ACT™ platform. SMPT token holders will only be eligible to receive a token distribution if any sales-based royalties, sublicensing income or additional cash flow is generated by drug candidates developed by the Smart-ACT™ platform, as and when SPLP declares the distribution. Because the token distribution is secured by a security interest in such intellectual property rights, if and when SPLP defaults in its distribution obligations to the SMPT token holders, or in the event of liquidation, dissolution or winding up of SPLP, the floating charge may crystallize into a fixed charge over the charged assets (i.e., the Project IP owned by SPLP).

Total 1 billion SMPT tokens are offered by Smart Pharmaceutical Limited Partnership ("SPLP"), a wholly owned subsidiary of the Group. In July 2019, SPLP transferred 100,000,000 SMPT tokens to Aenco Solutions Limited, a related party of the Group, in exchange for the services related to the tokens creation, offering and 5-year consultancy service. Amount of \$300,000 were classified as a component of non-controlling interests within the Group's consolidated financial statements. The remaining 900,000,000 SMPT tokens are remained and kept by SPLP.

On September 25, 2020, Aptorum Innovation Holding Limited ("AIHL"), a wholly-owned subsidiary of the Group, signed a share subscription and shareholders agreement with certain new individuals and institutions to subscribe ordinary shares of Aptorum Innovation Holding Pte. Limited, a wholly-owned subsidiary of AIHL before the share subscription agreement. As a result, AIHL's equity interest in Aptorum Innovation Holding Pte. Limited was decreased from 100% to 75%. A deficit of \$3,090 was reclassified from additional paid-in capital to non-controlling interests within the Group's consolidated financial statements.

As of December 31, 2020, non-controlling interest related to 25% equity interest in Aptorum Innovations Holding Pte. Limited, 10% equity interest in mTOR (Hong Kong) Limited, 7% equity interest in Aptorum Medical Limited, 20% equity interest in Acticule Life Sciences Limited, 20% equity interest in the Lanither Life Sciences Limited and the token issued by SPLP in the consolidated balance sheets was deficit of \$3,681,858 in total. As of December 31, 2019, non-controlling interest related to 10% equity interest in mTOR (Hong Kong) Limited, 6% equity interest in Aptorum Medical Limited, 20% equity interest in Acticule, 20% equity interest in the Lanither Life Sciences Limited and the token issued by SPLP in the consolidated balance sheets was deficit of \$1,509,456 in total.

For the years ended December 31, 2020, 2019 and 2018, non-controlling interest in the consolidated statements of operations were loss of \$2,146,687, \$1,430,176 and \$302,762, respectively.

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**18. NET INCOME (LOSS) PER SHARE**

The following table sets forth the computation of basic and diluted income (loss) per share:

	<u>Year ended December 31, 2020</u>	<u>Year ended December 31, 2019</u>	<u>Year ended December 31, 2018</u>
Numerator:			
Net income (loss) attributable to Aptorum Group Limited	\$ 6,311,340	\$ (18,686,762)	\$ (14,831,723)
Denominator:			
Weighted average shares outstanding			
– Basic	31,135,882	29,008,445	27,909,788
– Diluted	31,534,473	29,008,445	27,909,788
Net income (loss) per share attributable to Aptorum Group Limited			
– Basic	\$ 0.20	\$ (0.64)	\$ (0.53)
– Diluted	\$ 0.20	\$ (0.64)	\$ (0.53)

Basic net income (loss) per share is computed by dividing net income (loss) attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding during the period. Diluted net income (loss) per share reflects the potential dilution that could occur if securities or other contracts to issue ordinary shares were exercised or converted into ordinary shares. Potential dilutive securities are excluded from the calculation of diluted loss per share in loss periods as their effect would be anti-dilutive.

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**19. COMMITMENTS AND CONTINGENCIES**

Contingent Payment Obligations

The Group has entered into agreements with independent third parties for purchasing office and laboratory equipment. As of December 31, 2020, the Group had non-cancellable purchase commitments of \$49,166.

The Group has additional contingency payment obligations under each of the license agreements, such as milestone payments, royalties, research and development funding, if certain condition or milestone is met.

Milestone payments are to be made upon achievements of certain conditions, such as Investigational New Drugs (“IND”) filing or U.S. Food and Drug Administration (“FDA”) approval, first commercial sale of the licensed products, or other achievements. The aggregate amount of the milestone payments that the Group are required to pay up to different achievements of conditions and milestones for all the license agreements signed as of December 31, 2020 are below:

	<b>Amount</b>
<b>Drug molecules: up to the conditions and milestones of</b>	
Preclinical to IND filing	\$ 282,564
From entering phase 1 to before first commercial sale	22,276,410
First commercial sale	14,956,410
Net sales amount more than certain threshold in a year	70,769,231
Subtotal	\$ 108,284,615
<b>Diagnostics technology: up to the conditions and milestones of</b>	
Before FDA approval	\$ 1,423,360
	\$ 109,707,975

For the years ended December 31, 2020, 2019 and 2018, the Group incurred \$129,203, \$nil and \$30,000 milestone payments, respectively. For the years ended December 31, 2020, 2019 and 2018, the Group did not incur any royalties or research and development funding, respectively.

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**20. SEGMENT REPORTING**

The Group's chief operating decision maker, the Chief Executive Officer, reviews the consolidated results when making decisions about allocating resources and accessing performance of the Group as a whole and hence, the Group has only one reportable segment. The Group does not distinguish between markets or segments for the purpose of internal reporting. The Group's long-lived assets are substantially located in Hong Kong and substantially of the Group's expense is derived from within Hong Kong. Therefore, no geographical segments are presented.

**21. SUBSEQUENT EVENTS**

The Group has evaluated subsequent events through the date of issuance of the consolidated financial statements, and except for the following events with material financial impact on the Group's consolidated financial statements, no other subsequent event is identified that would have required adjustment or disclosure in the consolidated financial statements.

On March 11, 2021, the Company granted total 752,185 share options to employees, directors, external consultants and advisors of the Group in accordance to the 2017 Share Option Plan with an exercise price of \$2.76.

On March 26, 2021, the Company entered into a Sales Agreement (the "Sales Agreement") with H.C. Wainwright & Co., LLC ("Wainwright" or the "Sales Agent"), acting as the Company's sales agent, pursuant to which the Company may offer and sell, from time to time, through the Sales Agent Class A Ordinary Shares, par value \$1.00 per share for an aggregate offering price of up to \$15,000,000.

Description of Securities registered under  
Section 12 of the Exchange Act of 1934, as amended

As of December 31, 2020, Aptorum had the following series of securities registered pursuant to Section 12 of the Securities Exchange Act of 1934, as amended:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Class A Ordinary shares, par value \$1.00	APM	NASDAQ Global Market

Capitalized terms used but not defined herein have the meanings given to them in Aptorum's annual report on Form 20-F for the year ended December 31, 2020.

### CLASS A ORDINARY SHARES

The following is a description of our Class A Ordinary Shares and the material terms of our articles and memorandum of association, as amended. The following description may not contain all of the information that is important to you and we therefore refer you to our articles and memorandum of association, as amended, copies of which are filed as exhibits to our annual report on Form 20-F for the year ended December 31, 2020.

We are a Cayman Islands exempted company with limited liability and our affairs are governed by our Memorandum and Articles, the Companies Law, the common law of the Cayman Islands, our corporate governance documents and rules and regulations of the stock exchange on which are shares are traded.

As of the date hereof, the authorized share capital of the Company is \$100,000,000, consisting of 60,000,000 Class A Ordinary Shares, par value \$1.00 each and 40,000,000 Class B Ordinary Shares, par value \$1.00 each. As of the date hereof, 11,755,242 Class A Ordinary Shares and 22,437,754 Class B Ordinary Shares are issued and outstanding. All of our issued and outstanding Class A Ordinary Shares and Class B Ordinary Shares are fully paid.

#### **Shares**

The following are summaries of material provisions of our Memorandum and Articles, corporate governance policies and the Companies Law insofar as they relate to the material terms of our Class A Ordinary Shares and Class B Ordinary Shares (our class B Ordinary Shares are not registered pursuant to Section 12(b), 12(g) or Section 15(d) of the Act, but we are voluntarily including information with respect to same in this exhibit).

#### **Objects of Our Company**

Under our Memorandum and Articles, the objects of our Company are unrestricted and we have the full power and authority to carry out any object not prohibited by the law of the Cayman Islands.

#### **Share Capital**

Our authorized share capital is divided into Class A Ordinary Shares and Class B Ordinary Shares. Holders of our Class A Ordinary Shares and Class B Ordinary Shares will have the same rights except for voting rights and conversion rights.

The holders of Class A Ordinary Shares are entitled to one vote for each such share held and shall be entitled to notice of any shareholders' meeting, and, subject to the terms of Memorandum and Articles, to vote thereat. The Class A Ordinary Shares are not redeemable at the option of the holder and are not convertible into shares of any other class.

The holders of Class B Ordinary Shares shall have the right to ten votes for each such share held, and shall be entitled to notice of any shareholders' meeting and, subject to the terms of the Memorandum and Articles, to vote thereat. The Class B Ordinary Shares are not redeemable at the option of the holder but are convertible into Class A Ordinary Shares at any time after issue at the option of the holder on a one to one basis.

### ***Dividends***

The holders of our Class A Ordinary Shares and Class B Ordinary Shares are entitled to such dividends as may be declared by our Board of Directors subject to the Companies Law and to our Memorandum and Articles.

### ***Voting Rights***

In respect of all matters subject to a shareholders' vote, each Class B Ordinary Share is entitled to ten votes, and each Class A Ordinary Share is entitled to one vote, voting together as one class. Voting at any shareholders' meeting is by show of hands unless a poll is demanded by the chairman or persons holding certain amounts of shares as set forth in the Memorandum and Articles. Actions that may be taken at a general meeting also may be taken by a unanimous resolution of the shareholders in writing.

No business shall be transacted at any general meeting unless a quorum of members is present at the time when the meeting proceeds to business; two members present in person or by proxy, one of whom shall be the holder of the majority of the shares in the Company, shall be a quorum provided always that if the Company has one member of record the quorum shall be that one member present in person or by proxy. An ordinary resolution to be passed at a general meeting requires the affirmative vote of a simple majority of the votes cast, while a special resolution requires the affirmative vote of at least two-thirds of votes cast at a general meeting. A special resolution will be required for important matters.

A special resolution of members is required to change the name of the Company, approve a merger, wind up the Company, amend the Memorandum and Articles and reduce the share capital.

### ***Conversion***

Class A Ordinary Shares are not convertible. Each Class B Ordinary Share shall be convertible, at the option of the holder thereof, into such number of fully paid and non-assessable Class A Ordinary Shares on the basis that one Class B Ordinary Share shall be converted into one Class A Ordinary Share (being a 1:1 ratio and hereafter referred to as the "**Conversion Rate**"), subject to adjustment.

### ***Transfer of Shares***

Subject to the restrictions set out below, any of our shareholders may transfer all or any of his, its or her Class A Ordinary Shares or Class B Ordinary Shares by an instrument of transfer in the usual or common form or any other form approved by our Board of Directors or in a form prescribed by the stock exchange on which our shares are then listed.

Our Board of Directors may, in its sole discretion, decline to register any transfer of any Class A Ordinary Shares or Class B Ordinary Shares whether or not it is fully paid up to the total consideration paid for such shares. Our directors may also decline to register any transfer of any Class A Ordinary Shares or Class B Ordinary Shares if (a) the instrument of transfer is not accompanied by the certificate covering the shares to which it relates or any other evidence as our Board of Directors may reasonably require to prove the title of the transferor to, or his/her right to transfer the shares; or (b) the instrument of transfer is in respect of more than one class of shares.

If our directors refuse to register a transfer, they shall, within two months after the date on which the instrument of transfer was lodged, send to the transferee notice of such refusal.

The registration of transfers may be suspended and the register closed at such times and for such periods as our Board of Directors may from time to time determine, provided, however, that the registration of transfers shall not be suspended nor the register closed for more than 30 days in any year.

### ***Winding-Up/Liquidation***

On a return of capital on winding up or otherwise (other than on conversion, redemption or purchase of shares), a liquidator may be appointed to determine how to distribute the assets among the holders of the Class A Ordinary Shares and Class B Ordinary Shares. If our assets available for distribution are insufficient to repay all of the paid-up capital, the assets will be distributed so that the losses are borne by our shareholders proportionately; a similar basis will be employed if the assets are more than sufficient to repay the whole of the capital at the commencement of the winding up.

### ***Calls on Shares and Forfeiture of Shares***

Our Board of Directors may from time to time make calls upon shareholders for any amounts unpaid on their Class A Ordinary Shares or Class B Ordinary Shares in a notice served to such shareholders at least 14 days prior to the specified time and place of payment. The shares that have been called upon and remain unpaid on the specified time are subject to forfeiture.

### ***Redemption of Shares***

We may issue shares on terms that are subject to redemption, at our option or at the option of the holders, on such terms and in such manner as may be determined by our Board of Directors.

### ***Variations of Rights of Shares***

All or any of the special rights attached to any class of shares may, be varied with the resolution of at least two thirds of the issued shares of that class or a resolution passed at a general meeting of the holders of the shares of that class present in person or by proxy or with the consent in writing of the holders of at least two-thirds of the issued shares of that class.

### ***Inspection of Books and Records***

Directors shall from time to time determine whether and to what extent and at what times and places and under what conditions or regulations the accounts and books of the Company or any of them shall be open to the inspection of members not being Directors and no member (not being a Director) shall have any right of inspecting any account or book or document of the Company except as conferred by Companies Law or authorized by the Directors or by the Company in a general meeting. However, the Directors shall from time to time cause to be prepared and to be laid before the Company in a general meeting, profit and loss accounts, balance sheets, group accounts (if any) and such other reports and accounts as may be required by Companies Law.

### ***Issuance of Additional Shares***

Our Memorandum and Articles authorize our Board of Directors to issue additional Class A Ordinary Shares or Class B Ordinary Shares from time to time as our Board of Directors shall determine, to the extent there are available authorized but unissued shares.

Our Memorandum and Articles also authorizes our Board of Directors to establish from time to time one or more series of preferred shares and to determine, subject to compliance with the variation of rights of shares provision in the Memorandum and Articles, with respect to any series of preferred shares, the terms and rights of that series, including:

- the designation of the series;
- the number of shares of the series;
- the dividend rights, dividend rates, conversion rights, voting rights; and
- the rights and terms of redemption and liquidation preferences.

Our Board of Directors may, issue preferred shares without action by our shareholders to the extent there are authorized but unissued shares available. Issuance of additional shares may dilute the voting power of holders of Class A Ordinary Shares and Class B Ordinary Shares. However, our Memorandum of Association provides for authorized share capital comprising Class A Ordinary Shares and Class B Ordinary Shares and to the extent the rights attached to any class may be varied, the Company must comply with the provisions in the Memorandum and Articles relating to variations to rights of shares.

#### ***Anti-Takeover Provisions***

Some provisions of our Memorandum and Articles may discourage, delay or prevent a change of control of our Company or management that shareholders may consider favorable, including provisions that:

- authorize our Board of Directors to issue preferred shares in one or more series and to designate the price, rights, preferences, privileges and restrictions of such preferred shares without any further vote or action by our shareholders (subject to variation of rights of shares provisions in our Memorandum and Articles); and
- limit the ability of shareholders to requisition and convene general meetings of shareholders. Our Memorandum and Articles allow our shareholders holding shares representing in aggregate not less than ten percent of our paid up share capital (as to the total consideration paid for such shares) in issue to requisition an extraordinary general meeting of our shareholders, in which case our directors are obliged to call such meeting and to put the resolutions so requisitioned to a vote at such meeting.

However, under Cayman Islands law, our directors may only exercise the rights and powers granted to them under our Memorandum and Articles for a proper purpose and for what they believe in good faith to be in the best interests of our Company.

#### ***General Meetings of Shareholders and Shareholder Proposals***

Our shareholders' general meetings may be held in such place within or outside the Cayman Islands as our Board of Directors considers appropriate.

As a Cayman Islands exempted company, we are not obliged by the Companies Law to call shareholders' annual general meetings. However, our Memorandum and Articles provide that we shall hold a general meeting in each year as our annual general meeting other than the year in which the Memorandum and Articles were adopted at such time and place as determined by the directors. The directors may, whenever they think fit, convene an extraordinary general meeting.

Shareholders' annual general meetings and any other general meetings of our shareholders may be convened by a majority of our Board of Directors. Our Board of Directors shall give not less than seven days' written notice of a shareholders' meeting to those persons whose names appear as members in our register of members on the date the notice is given (or on any other date determined by our directors to be the record date for such meeting) and who are entitled to vote at the meeting.

Cayman Islands law provides shareholders with only limited rights to requisition a general meeting, and does not provide shareholders with any right to put any proposal before a general meeting. However, these rights may be provided in a company's articles of association. Our Memorandum and Articles allow our shareholders holding shares representing in aggregate not less than ten percent of our paid up share capital (as to the total consideration paid for such shares) in issue to requisition an extraordinary general meeting of our shareholders, in which case our directors are obliged to call such meeting and to put the resolutions so requisitioned to a vote at such meeting; otherwise, our Memorandum and Articles do not provide our shareholders with any right to put any proposals before annual general meetings or extraordinary general meetings not called by such shareholders.

#### ***Exempted Company***

We are an exempted company with limited liability under the Companies Law. The Companies Law distinguishes between ordinary resident companies and exempted companies. A Cayman Islands exempted company:

- is a company that conducts its business mainly outside of the Cayman Islands;

- is exempted from certain requirements of the Companies Law, including the filing an annual return of its shareholders with the Registrar of Companies or the Immigration Board;
- does not have to make its register of members open for inspection;
- does not have to hold an annual general meeting;
- may issue negotiable or bearer shares or shares with no par value (subject to the provisions of the Companies Law);
- may obtain an undertaking against the imposition of any future taxation (such undertakings are usually given for 20 years in the first instance); and
- may register by way of continuation in another jurisdiction and be deregistered in the Cayman Islands.

“Limited liability” means that the liability of each shareholder is limited to the amount unpaid by the shareholder on the shares of the company (except in exceptional circumstances, such as involving fraud, the establishment of an agency relationship or an illegal or improper purpose or other circumstances in which a court may be prepared to pierce or lift the corporate veil).

#### ***Register of Members***

Under Cayman Islands law, we must keep a register of members and there should be entered therein:

- the names and addresses of the members, a statement of the shares held by each member, and of the amount paid or agreed to be considered as paid, on the shares of each member;
- the date on which the name of any person was entered on the register as a member; and
- the date on which any person ceased to be a member.

Under Cayman Islands law, the register of members of our Company is prima facie evidence of the matters set out therein (i.e. the register of members will raise a presumption of fact on the matters referred to above unless rebutted) and a member registered in the register of members is deemed as a matter of Cayman Islands law to have legal title to the shares as set against its name in the register of members. Once our register of members has been updated, the shareholders recorded in the register of members are deemed to have legal title to the shares set against their name.

If the name of any person is incorrectly entered in, or omitted from, our register of members, or if there is any default or unnecessary delay in entering on the register the fact of any person having ceased to be a member of our Company, the person or member aggrieved (or any member of our Company or our Company itself) may apply to the Cayman Islands Grand Court for an order that the register be rectified, and the Court may either refuse such application or it may, if satisfied of the justice of the case, make an order for the rectification of the register.

#### ***Indemnification of Directors and Executive Officers and Limitation of Liability***

Cayman Islands law does not limit the extent to which a company’s memorandum and articles of association may provide for indemnification of officers and directors, except to the extent any such provision may be held by the Cayman Islands courts to be contrary to public policy, such as to provide indemnification against civil fraud or the consequences of committing a crime. Our Memorandum and Articles require us to indemnify our officers and directors for actions, proceedings, claims, losses, damages, costs, liabilities and expenses (“Indemnified Losses”) incurred in their capacities as such unless such Indemnified Losses arise from dishonesty of such directors or officers. This standard of conduct is generally the same as permitted under the Delaware General Corporation Law for a Delaware corporation.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers or persons controlling us under the foregoing provisions, we have been informed that in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

## Differences in Corporate Law

The Companies Law is modeled after that of English law but does not follow many recent English law statutory enactments. In addition, the Companies Law differs from laws applicable to United States corporations and their shareholders. Set forth below is a summary of some of the significant differences between the provisions of the Companies Law applicable to us and the laws applicable to companies incorporated in the State of Delaware.

**Mergers and Similar Arrangements.** The Companies Law permits mergers and consolidations between Cayman Islands companies and between Cayman Islands companies and non-Cayman Islands companies. For these purposes, a “merger” means the merging of two or more constituent companies and the vesting of their undertaking, property and liabilities in one of such companies as the surviving company, and a “consolidation” means the combination of two or more constituent companies into a consolidated company and the vesting of the undertaking, property and liabilities of such companies to the consolidated company.

In order to effect a merger or consolidation, the directors of each constituent company must approve a written plan of merger or consolidation, which must then be authorized by a special resolution of the shareholders of each constituent company, and such other authorization, if any, as may be specified in such constituent company’s articles of association.

The plan of merger or consolidation must be filed with the Registrar of Companies of the Cayman Islands together with a declaration as to: the solvency of the consolidated or surviving company, the merger or consolidation being bona fide and not intended to defraud creditors, no petition or other proceeding, order or resolution to wind up the Company, no receiver, administrator or similar having been appointed over assets or property and no scheme or other arrangement having been entered into with creditors; a list of the assets and liabilities of each constituent company and an undertaking that a copy of the certificate of merger or consolidation will be given to the members and creditors of each constituent company; and that notification of the merger and consolidation will be published in the Cayman Islands Gazette. The non-surviving constituent company must have resigned from any fiduciary office held or will do so and each constituent company having complied with any applicable regulatory laws. Dissenting shareholders have the right to be paid the fair value of their shares if they follow the required procedures under the Companies Law subject to certain exceptions. The fair value of the shares will be determined by the Cayman Islands court if it cannot be agreed among the parties. Court approval is not required for a merger or consolidation effected in compliance with these statutory procedures.

In addition, there are statutory provisions that facilitate the reconstruction and amalgamation of companies, provided that the arrangement is approved by a majority in number of each class of shareholders and creditors with whom the arrangement is to be made, and who must in addition represent three-fourths in value of each such class of shareholders or creditors, as the case may be, that are present and voting either in person or by proxy at a meeting, or meetings, convened for that purpose. The convening of the meetings and subsequently the arrangement must be sanctioned by the Grand Court of the Cayman Islands.

While a dissenting shareholder has the right to express to the court the view that the transaction ought not to be approved, the court can be expected to approve the arrangement if it determines that:

- the statutory provisions as to the required majority vote have been met;
- the shareholders have been fairly represented at the meeting in question;
- the arrangement is such that an intelligent and honest man of that class acting in respect of his interest would reasonably approve; and
- the arrangement is not one that would more properly be sanctioned under some other provision of the Companies Law or that would amount to a “fraud on the minority.”

When a take-over offer is made and accepted by holders of not less than 90% of the shares within four months, the offer, or may, within a two-month period commencing on the expiration of such four months period, require the holders of the remaining shares to transfer such shares on the terms of the offer. An objection can be made to the Grand Court of the Cayman Islands but this is unlikely to succeed unless there is evidence of fraud, bad faith or collusion.

If the arrangement and reconstruction is thus approved, the dissenting shareholder would have no rights comparable to appraisal rights, which would otherwise ordinarily be available to dissenting shareholders of United States corporations, providing rights to receive payment in cash for the judicially determined value of the shares.

**Shareholders' Suits.** In principle, we will normally be the proper plaintiff to sue for a wrong done to us as a company and as a general rule a derivative action may not be brought by a minority shareholder. However, based on English authorities, which would in all likelihood be of persuasive authority in the Cayman Islands, there are exceptions to the foregoing principle, including when:

- a company acts or proposes to act illegally or ultra vires and is therefore incapable of ratification by the shareholders;
- the act complained of, although not ultra vires, could only be duly effected if authorized by more than a simple majority vote that has not been obtained; and
- those who control the company are perpetrating a "fraud on the minority."

**Indemnification of Directors and Executive Officers and Limitation of Liability.** The Companies Law does not limit the extent to which a company's memorandum and articles of association may provide for indemnification of officers and directors, except to the extent any such provision may be held by the Cayman Islands courts to be contrary to public policy, such as to provide indemnification against civil fraud or the consequences of committing a crime. As stated above, our Memorandum and Articles permit indemnification of officers and directors for actions, proceedings, claims, losses, damages, costs, liabilities and expenses ("Indemnified Losses") incurred in their capacities as such unless such losses or damages arise from dishonesty of such directors or officers. This standard of conduct is generally the same as permitted under the Delaware General Corporation Law for a Delaware corporation. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers or persons controlling us under the foregoing provisions, we have been informed that in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

**Directors' Fiduciary Duties.** Under Delaware corporate law, a director of a Delaware corporation has a fiduciary duty to the corporation and its shareholders. This duty has two components: the duty of care and the duty of loyalty. The duty of care requires that a director act in good faith, with the care that an ordinarily prudent person would exercise under similar circumstances. Under this duty, a director must inform himself of, and disclose to shareholders, all material information reasonably available regarding a significant transaction. The duty of loyalty requires that a director acts in a manner he reasonably believes to be in the best interests of the corporation. He must not use his corporate position for personal gain or advantage. This duty prohibits self-dealing by a director and mandates that the best interest of the corporation and its shareholders take precedence over any interest possessed by a director, officer or controlling shareholder and not shared by the shareholders generally. In general, actions of a director are presumed to have been made on an informed basis, in good faith and in the honest belief that the action taken was in the best interests of the corporation. However, this presumption may be rebutted by evidence of a breach of one of the fiduciary duties. Should such evidence be presented concerning a transaction by a director, the director must prove the procedural fairness of the transaction, and that the transaction was of fair value to the corporation. As a matter of Cayman Islands law, a director of a Cayman Islands company is in the position of a fiduciary with respect to the company and therefore it is considered that he or she owes the following duties to the company: a duty to act bona fide in the best interests of the company, a duty not to make a profit based on his or her position as director (unless the company permits him or her to do so) and a duty not to put himself or herself in a position where the interests of the company conflict with his or her personal interest or his or her duty to a third-party. Our Memorandum and Articles do not disqualify a director from acting or from contacting with the Company as a vendor, purchaser or otherwise provided that it does not adversely affect his or her performance of duties or responsibilities and the nature of the interest is disclosed at the meeting at which the contract or arrangement is considered (if not previously disclosed), and having disclosed such interest the director is not counted in the quorum and must refrain from voting on the contract or arrangement. A director of a Cayman Islands company also owes to the company a duty to exercise the powers for the purpose for which they were given and the duty to act with skill and care. It was previously considered that a director need not exhibit in the performance of his or her duties a greater degree of skill than may reasonably be expected from a person of his or her knowledge and experience. However, courts are moving towards an objective standard with regard to the required skill and care and these authorities are likely to be followed in the Cayman Islands.

**Shareholder Action by Written Consent.** Under the Delaware General Corporation Law, a corporation may eliminate the right of shareholders to act by written consent by amendment to its certificate of incorporation. Cayman Islands law and our Memorandum and Articles provide that shareholders may approve corporate matters by way of a unanimous written resolution signed by or on behalf of each shareholder who would have been entitled to vote on such matter at a general meeting without a meeting being held.

**Shareholder Proposals.** Under the Delaware General Corporation Law, a shareholder has the right to put any proposal before the annual meeting of shareholders, provided it complies with the notice provisions in the governing documents. A special meeting may be called by the board of directors or any other person authorized to do so in the governing documents, but shareholders may be precluded from calling special meetings. The Companies Law provides shareholders with only limited rights to requisition a general meeting and does not provide shareholders with any right to put any proposal before a general meeting. However, these rights may be provided in articles of association. Our Memorandum and Articles allow our shareholders holding not less than 1/10 of all voting power of our (paid up) share capital in issue to requisition a shareholder's meeting. Other than this right to requisition a shareholders' meeting, our Memorandum and Articles do not provide our shareholders other rights to put proposal before a meeting. As an exempted Cayman Islands company, we are not obliged by law to call shareholders' annual general meetings although our Memorandum and Articles provide for same.

**Cumulative Voting.** Under the Delaware General Corporation Law, cumulative voting for elections of directors is not permitted unless the corporation's certificate of incorporation specifically provides for it. Cumulative voting potentially facilitates the representation of minority shareholders on a board of directors since it permits the minority shareholder to cast all the votes to which the shareholder is entitled on a single director, which increases the shareholder's voting power with respect to electing such director. There are no prohibitions in relation to cumulative voting under the Companies Law but our Memorandum and Articles do not provide for cumulative voting.

**Removal of Directors.** Under the Delaware General Corporation Law, a director of a corporation with a may be removed with the approval of a majority of the outstanding shares entitled to vote, unless the certificate of incorporation provides otherwise. Under our Memorandum and Articles, directors may be removed with or without cause, by the directors or by an ordinary resolution of our shareholders.

**Transactions with Interested Shareholders.** The Delaware General Corporation Law contains a business combination statute applicable to Delaware corporations whereby, unless the corporation has specifically elected not to be governed by such statute by amendment to its certificate of incorporation, it is prohibited from engaging in certain business combinations with an "interested shareholder" for three years following the date that such person becomes an interested shareholder. An interested shareholder generally is a person or a group who or which owns or owned 15% or more of the target's outstanding voting share within the past three years. This has the effect of limiting the ability of a potential acquirer to make a two-tiered bid for the target in which all shareholders would not be treated equally. The statute does not apply if, among other things, prior to the date on which such shareholder becomes an interested shareholder, the board of directors approves either the business combination or the transaction which resulted in the person becoming an interested shareholder. This encourages any potential acquirer of a Delaware corporation to negotiate the terms of any acquisition transaction with the target's board of directors. The Cayman Islands has no comparable statute. As a result, we cannot avail ourselves of the types of protections afforded by the Delaware business combination statute. However, although Cayman Islands law does not regulate transactions between a company and its significant shareholders, it does provide that such transactions must be entered into bona fide in the best interests of the company and for a proper corporate purpose and not with the effect of constituting a fraud on the minority shareholders. Our Memorandum and Articles, as well as our Code of Business Conduct and Ethics that applies to our officers, directors and employees outlines how to handle these types of transactions and other potential conflicts of interest.

**Dissolution; Winding up.** Under the Delaware General Corporation Law, unless the board of directors approves the proposal to dissolve, dissolution must be approved by shareholders holding 100% of the total voting power of the corporation. Only if the dissolution is initiated by the board of directors may it be approved by a simple majority of the corporation's outstanding shares. Delaware law allows a Delaware corporation to include in its certificate of incorporation a supermajority voting requirement in connection with dissolutions initiated by the board. Under the Companies Law, a company may be wound up by either an order of the courts of the Cayman Islands or by a special resolution of its members or, if the company is unable to pay its debts as they fall due, by an ordinary resolution of its members. The court has authority to order winding up in a number of specified circumstances including where it is, in the opinion of the court, just and equitable to do so. Under the Companies Law a company may be dissolved, liquidated or wound up by a special resolution of our shareholders; however, under our Memorandum and Articles, only our Directors have power to present a winding up petition in the name of the Company and/or to apply for the appointment of provisional liquidators in respect of the Company.

**Variation of Rights of Shares.** Under the Delaware General Corporation Law, a corporation may vary the rights of a class of shares with the approval of a majority of the outstanding shares of such class, unless the certificate of incorporation provides otherwise. Under the Companies Law and our Memorandum and Articles, if our share capital is divided into more than one class of shares, we may vary the rights attached to any class with the written consent of the holders of two-thirds of the issued shares of that class or with the sanction of a special resolution passed at a separate general meeting of the holders of the shares of that class.

**Amendment of Governing Documents.** Under the Delaware General Corporation Law, a corporation's governing documents may be amended with the approval of a majority of the outstanding shares entitled to vote, unless the certificate of incorporation provides otherwise. As permitted by the Companies Law, each of our Memorandum of Association and Articles of Association may only be amended with a special resolution of our shareholders.

**Rights of Non-resident or Foreign Shareholders.** There are no limitations imposed by our Memorandum and Articles on the rights of non-resident or foreign shareholders to hold or exercise voting rights on our shares. In addition, there are no provisions in our Memorandum and Articles governing the ownership threshold above which shareholder ownership must be disclosed.

#### **Rule 144**

##### **Shares Held for Six Months**

In general, under Rule 144 as currently in effect, and subject to the terms of any lock-up agreement, commencing 90 days after the closing of the IPO, a person (or persons whose shares are aggregated), including an affiliate, who has beneficially owned our Class A Ordinary Shares for six months or more, including the holding period of any prior owner other than one of our affiliates (i.e., commencing when the shares were acquired from our Company or from an affiliate of our Company as restricted securities), is entitled to sell our shares, subject to the availability of current public information about us. In the case of an affiliate shareholder, the right to sell is also subject to the fulfillment of certain additional conditions, including manner of sale provisions and notice requirements, and to a volume limitation that limits the number of shares to be sold thereby, within any three-month period, to the greater of:

- 1% of the number of Class A Ordinary Shares then outstanding; or
- the average weekly trading volume of our Class A Ordinary Shares on the NASDAQ Global Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

The six-month holding period of Rule 144 does not apply to sales of unrestricted securities. Accordingly, persons who hold unrestricted securities may sell them under the requirements of Rule 144 described above without regard to the six-month holding period, even if they were considered our affiliates at the time of the sale or at any time during the 90 days preceding such date.

### ***Shares Held by Non-Affiliates for One Year***

Under Rule 144 as currently in effect, a person (or persons whose shares are aggregated) who is not considered to have been one of our affiliates at any time during the 90 days preceding a sale and who has beneficially owned the shares proposed to be sold for at least one year, including the holding period of any prior owner other than one of our affiliates, is entitled to sell his, her or its shares under Rule 144 without complying with the provisions relating to the availability of current public information or with any other conditions under Rule 144. Therefore, unless subject to a lock-up agreement or otherwise restricted, such shares may be sold immediately upon the closing of the IPO.

### ***Registration Rights***

Pursuant to the terms of the Bond, we agreed to register the Class A Ordinary Shares underlying the Bond in the Registration Statement. We also agreed to register the Class A Ordinary Shares underlying the Bond PA Warrants in the Registration Statement.

### ***Piggyback Registration Rights***

Pursuant to the terms of our certain private offering of Series A convertible notes (the "Series A Notes") that closed on May 15, 2018 (the "Series A Note Offering"), the Series A Note investors received piggyback registration rights with respect to the Class A Ordinary Shares underlying the Series A Notes (the "Conversion Shares") that entitle the Series A Note investors to request their securities be included in a future Securities Act registration statement that is filed after the IPO. If so requested, the Company will include in such future registration statement, all Conversion Shares on a pro rata basis based upon the total number of Conversion Shares with respect to which the Company has received written requests for inclusion within fifteen (15) business days after the applicable holder's receipt of the Company's notice that it is filing such a registration statement. The piggyback registration rights described herein, also apply to the Class A Ordinary Shares underlying the warrants issued to the placement agent in the Series A Note Offering. However, we decided to include the Class A Ordinary Shares underlying the Series A Notes and the Series A Note placement agent's warrants in the registration statement for our IPO..

Private & Confidential

**Certain identified information, marked by [\*\*\*\*\*], has been excluded from this exhibit because it is both not material and is the type that the registrant treats as private or confidential.**

### EXCLUSIVE LICENCE AGREEMENT

This Exclusive License Agreement (this “**Agreement**”) is made the 25<sup>th</sup> day of September 2020 between

**ACCELERATE TECHNOLOGIES PTE LTD** (Co. Reg. No. 199503187D), a company incorporated in Singapore and having its place of business at 1 Fusionopolis Way, #19-10 Connexis North, Singapore 138632 (hereinafter referred to as “**A\*CCCELERATE**”);

and

**LICENSEE**, full details of which are set out in Schedule 1.

A\*CCCELERATE and LICENSEE shall be individually referred to as a “**Party**” and collectively as “**Parties.**”

#### RECITAL

A. A\*CCCELERATE has the right to license the Technology and is entitled to grant the rights under this Agreement.

B. LICENSEE wishes to acquire rights to license, and further develop and commercialize the Licensed Technology in the Field and in the Territory and subject to the terms and conditions herein.

NOW THEREFORE, in consideration of the mutual covenants and conditions set forth herein, A\*CCCELERATE and LICENSEE hereby agree as follows:-

#### 1. DEFINITIONS

“**Affiliates**” means (i) an organisation, which directly or indirectly controls a Party; or (ii) an organisation which is directly or indirectly controlled by a Party; or (iii) an organisation, which is controlled, directly or indirectly, by the ultimate parent company of a Party. The term “control” as used herein means the possession of the power to direct or cause the direction of the management and the policies of an entity, whether through the ownership of a majority of the outstanding voting security or by contract or otherwise.

“**Completion of Phase 1**” has the meaning given to it in Schedule 1 of this Agreement.

“**Completion of Phase 2**” has the meaning given to it in Schedule 1 of this Agreement.

“**Completion of Phase 3**” has the meaning given to it in Schedule 1 of this Agreement.

“**Company-A\*STAR RI Funding Agreement**” means the “Company-A\*STAR RI Funding Agreement for Partial Research Sponsorship” entered into on or around the date of this Agreement by and among the LICENSEE, IBN and IMCB.

“**Confidential Information**” means all information of A\*CCCELERATE’s Affiliates, including prototypes and samples, which may be disclosed to LICENSEE at any time and from time to time during the Term of this Agreement, which may be identified or designated by A\*CCCELERATE as proprietary, confidential or secret and includes information which by its nature should be proprietary, confidential or secret. The specific terms and conditions of this Agreement shall be deemed to be Confidential Information. Confidential Information shall not include any information or material that is: (i) already in the possession of LICENSEE without prior restriction; (ii) independently developed by LICENSEE; (iii) publicly disclosed by A\*CCCELERATE; (iv) rightfully received by LICENSEE from a third party; (v) approved for release by written agreement with A\*CCCELERATE or (vi) made available by A\*CCCELERATE to others without restriction.

“**Documentation**” means any user guides, instruction manuals and other documents whether in written or machine-readable form relating to the Licensed Technology.

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“**Effective Date**” has the meaning given to it in Schedule 1 of this Agreement.

“**Enhancements**” means all new versions of, modifications, additions, improvements, upgrades and development to the Licensed Technology developed by LICENSEE or its Affiliates.

“**Field**” has the meaning given to it in Schedule 1 of this Agreement.

“**First Closing Date**” has the meaning given to it in the Share Subscription & Shareholders Agreement.

“**Intellectual Property**” means know-how and intellectual property rights (including without limitation patents, copyrights, designs, trade secrets, and rights in Confidential Information) worldwide arising under statutory or common law, and whether or not perfected, and any applications of the foregoing.

“**Licensed Know-how**” has the meaning given to it in Schedule 1 of this Agreement.

“**Licensed Patents**” has the meaning given to it in Schedule 1 of this Agreement.

“**Licensed Products**” has the meaning given to it in Schedule 1 of this Agreement.

“**Licensed Technology**” has the meaning given to it in Schedule 1 of this Agreement.

“**New A\*STAR RI IP**” means new Intellectual Property created, discovered, developed, conceived or reduced to practice individually by [\*\*\*]

“**Project Results**” has the meaning given to it in the Company-A\*STAR RI Funding Agreement.

“**Sales Report**” means the sales report as set out in Schedule 2 to be submitted by LICENSEE to A\*CCELERATE pursuant to this Agreement.

“**Share Subscription & Shareholders Agreement**” means the “Share Subscription & Shareholders Agreement” entered into on or around the date of this Agreement by and among Accelerate Technologies Pte Ltd, Aptorum Innovations Holding Limited, LICENSEE and certain A\*STAR RI scientists.

“**Term**” has the meaning given to it in Schedule 1 of this Agreement.

“**Territory**” has the meaning given to it in Schedule 1 of this Agreement.

## 2. GRANT

2.1 A\*CCELERATE hereby grant to LICENSEE an exclusive sublicensable (only in accordance with this Clause 2), non-transferable, royalty-free, irrevocable (except when this Agreement is terminated pursuant to Clause 9) licence to use the Licensed Technology within the Field for the Term and in the Territory to develop Enhancements and use, make, manufacture, have made, distribute, market and sell Licensed Products.

2.2 It is agreed that A\*CCELERATE shall retain the right to use, and to allow their Affiliates to use the Licensed Technology for the purposes of internal, non-commercial use, and for research and development. All further developments made by A\*CCELERATE or its Affiliates through such use shall belong to them (or their nominee). For the avoidance of doubt, all Enhancements shall belong solely to LICENSEE.

2.3 A\*CCELERATE shall not be obliged to render any technical assistance, maintenance or support services to LICENSEE in respect of the Licensed Technology or otherwise under this Agreement.

2.4 In order to maintain the licence granted hereunder in force, LICENSEE shall use its best efforts and diligence to implement the Licensed Technology into commercially viable Licensed Products. Specifically, LICENSEE shall comply with the Commercial Obligations as listed in Schedule 1.

2.5 LICENSEE shall be entitled to grant sub-licences of the rights granted under this Agreement to third-party entities contracted directly by LICENSEE provided that:

2.5.1 the sub-licence granted by LICENSEE shall be expressed to terminate automatically upon the termination of the Agreement for any reason, and shall not permit further sub-licensing;

2.5.2 LICENSEE shall procure that the sub- licensee shall enter into a confidentiality undertaking with LICENSEE with respect to any Confidential Information of A\*CCELERATE disclosed pursuant to this Agreement on terms no less stringent than those contained in this Agreement;

2.5.3 LICENSEE shall at all times indemnify and keep A\*CCELERATE indemnified against all or any costs, claims, damages or expenses incurred by A\*CCELERATE or A\*CCELERATE's Affiliates or for which A\*CCELERATE or A\*CCELERATE's Affiliates may become liable as a result of the sub- licensee's breach of the terms of the sub-licence or any other default;

2.5.4 The LICENSEE shall pay A\*CCELERATE [\*\*\*]

2.5.5 A copy of the executed sub-licence shall be provided to A\*CCELERATE within thirty (30) days of such execution.

2.6 In addition, for the avoidance of doubt, this Clause 2.5 shall not apply to assignments under Clause 11.1, end-user licence agreements or agreements authorising third parties (such as LICENSEE's agents and distributors) to exercise the rights to the Licensed Technology on the LICENSEE's behalf.

### 3. FINANCIAL TERMS

3.1 In consideration of the rights granted pursuant to Clause 2 above, LICENSEE shall provide to A\*CCELERATE the Consideration stated in Schedule 1.

3.2 Time of payment shall be of the essence. If LICENSEE fails to make any payment due to A\*CCELERATE under this Agreement and in accordance with the payment terms set forth in Schedule 1, A\*CCELERATE shall have the right to:

3.2.1 forthwith suspend or terminate the Licence hereby granted to LICENSEE; and

3.2.2 charge LICENSEE, in respect of any and all overdue payments, interest at the rate of three percent (3%) per annum above the annual prime lending rate of the Development Bank of Singapore from such date until said amount is paid in full to A\*CCELERATE.

### 4. ACCOUNTS

4.1 LICENSEE shall keep true and accurate accounts and records in sufficient detail to enable the amount of all sums payable under this Agreement to be determined. A\*CCELERATE has the right to request for LICENSEE to submit details of its accounts and records to support the information provided in the Sales Report.

4.2 A\*CCELERATE may, annually and at its own cost, appoint an independent auditor to examine LICENSEE's books and records to verify LICENSEE's fulfilment of its obligations under this Agreement. Notwithstanding the foregoing, the cost of such audit conducted shall be borne in full by LICENSEE if any discrepancy exceeding five percent (5%) is found.

4.3 The provisions of this Clause 4 shall remain in full force and effect after the termination of this Agreement for any reasons until the settlement of all subsisting claims of A\*CCELERATE under this Agreement.

## 5. RIGHTS IN INTELLECTUAL PROPERTY; IMPROVEMENTS TO THE LICENSED TECHNOLOGY

- 5.1 LICENSEE acknowledges that the Licensed Technology may contain Confidential Information of A\*CCELERATE or A\*CCELERATE's Affiliates and LICENSEE shall treat in confidence any such Confidential Information relating to the Licensed Technology, save for information that is in the public domain through no fault of its obligations herein.
- 5.2 LICENSEE shall take all reasonable steps, including, but not limited to, those steps taken to protect its own information, data or other tangible or intangible property that it regards as proprietary or confidential, to ensure that the Confidential Information is not disclosed or duplicated for the use of any third party, and shall take all reasonable steps to prevent its officers and employees, or any other persons having access to the Confidential Information, from disclosing or making unauthorised use of any Confidential Information, or from committing any acts of omissions that may result in a violation of this Agreement.
- 5.3 LICENSEE shall not do anything which might bring into question A\*CCELERATE or A\*CCELERATE's Affiliates' ownership of the Licensed Technology licensed by A\*CCELERATE to LICENSEE under this Agreement or the validity of such Licensed Technology.
- 5.4 LICENSEE shall notify A\*CCELERATE in writing as soon as practicable after it becomes aware of-
- 5.4.1 any actual, threatened or suspected infringement of any Intellectual Property of A\*CCELERATE in respect of the Licensed Technology or any breach of confidence relating to any of the foregoing; or
  - 5.4.2 any claim brought against LICENSEE or any other person alleging that its use of the Licensed Technology infringes any Intellectual Property or other rights belonging to or alleged to belong to the claimant.
- 5.5 Patent expenses shall be paid for in accordance with the arrangements set out in Schedule 1.
- 5.6 A\*CCELERATE or their Affiliates shall have the right but not the obligation, at its option and expense, to prosecute and defend any and all infringements of the Licensed Technology provided that all damages, costs or other benefits obtained as a result belongs to A\*CCELERATE. Where A\*CCELERATE and/or their Affiliates elect to prosecute and/or defend any infringements, LICENSEE shall give A\*CCELERATE all necessary assistance for the defence or prosecution of the patents. A\*CCELERATE may enter into settlements, stipulated judgements, or any other arrangements respecting such prosecution and/or infringement at their own expense, and LICENSEE agrees to provide any assistance which A\*CCELERATE may require in any litigation, including the execution of any legal documents.
- 5.7 As per Clause 2.2, LICENSEE shall own the Intellectual Property right in any Enhancements, and shall disclose to A\*CCELERATE any and all Enhancements. A\*CCELERATE shall provide all necessary assistance and take such acts as are reasonably requested by LICENSEE, at LICENSEE's expense, to enable LICENSEE to obtain patents for or respecting Enhancements, to protect such patent right.
- 5.8 A\*CCELERATE shall disclose to LICENSEE any and all improvements made by the researchers at A\*STAR RI ("A\*STAR RI Improvements") that is a new version of, modification, addition, improvement, upgrade and development to the Licensed Technology during the Term of this Agreement in a timely manner. For clarity, A\*STAR RI Improvements shall include any and all Project Results under the Company-A\*STAR RI Funding Agreement.
- 5.9 All A\*STAR RI Improvements shall become subject to the license granted in Section 2 above and form part of the Licensed Technology upon such disclosure to LICENSEE. The Parties shall update Schedule 1 of this Agreement to incorporate such A\*STAR RI Improvements.
- 5.10 LICENSEE shall provide any assistance and take such acts as are reasonably requested by A\*CCELERATE, to enable A\*CCELERATE to obtain a patent for or respecting any A\*STAR RI Improvement, to protect such patent right.

## 6. WARRANTIES

6.1 LICENSEE warrants that it has full right to enter into this Agreement; that the Licensed Technology and Documentation shall be used solely by LICENSEE and no other third party and only for the purposes contemplated by Clause 2 of this Agreement; and that it shall observe all applicable laws and regulations and obtain all necessary licences, consents and permissions required in respect of the use of the Licensed Technology and the manufacture, importation, storage, marketing and sale of the Licensed Products (including the sub-licensing of the Licensed Products) in the Territory. Save that A\*CCELERATE warrant that they have full right and power to enter into this agreement, A\*CCELERATE makes no other warranties concerning the Licensed Technology, including without limitation, any express or implied warranty of merchantability or satisfactory quality, fitness for a particular purpose or as to reliability, accuracy, validity or otherwise of the Licensed Technology. The Licensed Technology is provided "as is" and A\*CCELERATE makes no warranty or representation as to the validity or scope of the Licensed Technology and that the Licensed Technology will be free from infringement of patents or other intellectual property rights of third parties, or that no third parties are in any way infringing the Licensed Technology covered by this agreement.

6.2 For the avoidance of doubt, A\*CCELERATE makes no representation or warranty that any patent application in respect of the Licensed Technology will be granted, or that it will file applications in all or any part of the Territory in respect of the Licensed Technology, or if granted, will be valid.

## 7. LIABILITY, INDEMNITY

LICENSEE shall indemnify A\*CCELERATE and A\*CCELERATE's Affiliates for any and all liability, losses, damages, costs and expenses arising out of (i) any claims relating to the LICENSEE's use of the Licensed Technology, Documentation and/or Enhancements; or (ii) breach, negligent performance and/or failure of performance by LICENSEE of the terms of this Agreement, except to the extent when caused by the gross negligence or willful misconduct of A\*CCELERATE. For avoidance of doubt, in no event shall A\*CCELERATE be liable for any incidental, consequential or special damages arising out of or related to this Agreement, including, but not limited to, loss of business opportunity, lost profits or pure economic loss. Notwithstanding anything to the contrary, A\*CCELERATE's total and cumulative liability under this Agreement, however arising, shall not exceed the total amount paid to A\*CCELERATE by LICENSEE under this Agreement.

## 8. USE OF NAME

8.1 LICENSEE shall not use the name, trademark or logo of A\*CCELERATE or A\*CCELERATE's Affiliates in any publicity, promotion, news release or disclosure relating to this Agreement, its subject matter or the sale of the Licensed Products, without the prior written permission of A\*CCELERATE. Notwithstanding the above, LICENSEE shall be allowed to disclose the name of the Parties and this Agreement as required by the applicable securities laws and relevant regulatory authorities.

8.2 LICENSEE shall use its best efforts to acknowledge the participation and contributions of A\*CCELERATE and A\*CCELERATE's Affiliates in all news releases, promotional, advertising and marketing material, a copy of which shall be provided to A\*CCELERATE for prior written approval, which shall not be unreasonably withheld.

## 9. TERMINATION

9.1 After [\*\*\*] from the Effective Date, LICENSEE may request to terminate this Agreement [\*\*\*]

9.2 A\*CCELERATE shall be entitled to terminate this Agreement forthwith by giving written notice to LICENSEE if:-

9.2.1 LICENSEE commits any breach of this Agreement and if the breach is capable of remedy, fails to remedy it within thirty (30) days after being given a written notice containing full particulars of the breach and requiring the remedy of the breach; or

9.2.2 An encumbrances takes possession, or a receiver is appointed, of any of the property or assets of LICENSEE; or

- 9.2.3 LICENSEE makes any voluntary arrangement with its creditors; or
- 9.2.4 LICENSEE goes into liquidation (except for the purpose of amalgamation or reconstruction and so that the resulting LICENSEE effectively agrees to be bound by or assume the obligations imposed on the LICENSEE under this Agreement); or
- 9.2.5 LICENSEE ceases, or threatens to cease, to carry on business; or
- 9.2.6 LICENSEE breaches any of the Commercialisation Obligations as listed in Schedule 1.
- 9.3 Termination of this Agreement howsoever caused shall be without prejudice to any other right or remedy a Party may be entitled to hereunder or at law and shall not affect any accrued rights or liabilities of the Parties.
- 9.4 Upon the termination of this Agreement:
- 9.4.1 LICENSEE shall forthwith cease to market or use, either directly or indirectly, the Licensed Products or the Licensed Technology or to use any of the Intellectual Property;
- 9.4.2 LICENSEE shall destroy or return to A\*CCELERATE all copies of the Documentation in its possession or control; and
- 9.4.3 LICENSEE shall promptly pay all amounts due under this Agreement to A\*CCELERATE immediately upon its receipt of the same and shall submit to A\*CCELERATE written confirmation signed by a duly authorised officer that it has complied with such payment obligations, along with a copy of all materials reasonably necessary to support such statement.
- 9.5 Clause 5.1, 5.2, 6-8, 9.3, 9.4, 10 and 11 shall survive the termination of this Agreement.

## 10. ARBITRATION AND GOVERNING LAW

- 10.1 Any dispute among the parties arising out of or in connection with this Agreement or in the performance thereof shall in the first instance be referred to the authorised representatives of the parties for resolution. If such efforts fail, then the dispute shall be referred to binding arbitration in Singapore in accordance with the Arbitration Rules of the Singapore International Arbitration Center in force at such time which rules shall be deemed to be incorporated by reference into this Agreement. The Tribunal shall consist of one (1) arbitrator chosen by the Singapore International Arbitration Center under its rules if the parties cannot otherwise agree upon an arbitrator.
- 10.2 This Agreement shall be governed by the laws of the Republic of Singapore and each Party agrees to submit to the non-exclusive jurisdiction of the Singapore courts.
- 10.3 Notwithstanding the above, any dispute to the extent relating to the validity, scope, enforceability, inventorship, or ownership of intellectual property rights (each, a “**Non-arbitrable Dispute**”), shall not be subject to resolution by binding arbitration under Clause 10.1 and instead shall be resolved in a court or governmental agency of competent jurisdiction.

## 11. MISCELLANEOUS

- 11.1 Assignment. This Agreement may not be assigned by the LICENSEE to any person without the prior written consent of A\*CCELERATE.
- 11.2 Entire Agreement. This Agreement sets forth the entire agreement and understanding between the parties as to the subject matter herein. There shall be no amendments or modifications to this Agreement, except by a written document signed by both parties.
- 11.3 Waiver. Any delay in enforcing a party’s rights under this Agreement or any waiver as to a particular default or other matter shall not constitute a waiver of that party’s rights to the future enforcement of its rights under this Agreement, unless there is an express written and signed waiver for a particular matter for a particular period of time.

11.4 **Severance.** If any provision of this Agreement is held by any court or other competent authority to be invalid or unenforceable, in whole or in part, the other provisions of this Agreement and the remainder of the affected provision shall continue to be valid.

11.5 **Injunctive relief.** LICENSEE acknowledges that any breach of this Agreement may cause irreparable damage to A\*CCELERATE or A\*CCELERATE's Affiliates and LICENSEE agrees that A\*CCELERATE or A\*CCELERATE's Affiliates shall be entitled to injunctive relief in addition to any award by the court in favour of A\*CCELERATE or A\*CCELERATE's Affiliates.

11.6 **Notices.** Any notices required by this Agreement shall be in writing, shall specifically refer to this Agreement and shall be sent by registered or certified mail and shall be forwarded to the respective addresses set forth below unless subsequently changed by written notice to the other party.

To A\*CCELERATE:

To LICENSEE: Refer to Schedule 1

11.7 **Contracts (Rights of Third Parties) Act.** Save to give effect to the rights accruing to A\*CCELERATE's Affiliates under this Agreement, a person who is not a party to this Agreement has no right under the Contracts (Rights of Third Parties) Act of Singapore (Cap. 53B) or otherwise to enforce any terms and conditions of this Agreement.

11.8 **Novation.** If at any time after the Effective Date the functions and operations of A\*CCELERATE are assigned, merged, transferred into or otherwise forms part of another organisation of A\*STAR ("**the New Entity**") such that the New Entity takes over the whole or substantially the whole of A\*CCELERATE's operations, then it is agreed that this Agreement may, at the option of A\*CCELERATE, be novated to the New Entity which will then assume all of A\*CCELERATE's rights and obligations hereunder. The Parties shall enter into a separate novation agreement or other agreement to effectuate the novation.

11.9 **Force Majeure.** Neither Party shall be responsible to the other for delay or failure in performance of any of the obligations imposed by this Agreement, provided such delay or failure shall be occasioned by a cause beyond the control of and without the fault or negligence of such Party, including fire, flood, explosion, lightning, windstorm, earthquake, subsidence of soil, failure of machinery or equipment or supply of materials, discontinuity in the supply of power, court order or governmental interference, civil commotion, epidemic, riot, war, terrorism or terrorist threats, strikes, labor disturbances, transportation difficulties or labor shortage ("**Force Majeure Event**"). If the delay or failure in performance persists for more than three (3) months, the other Party may have the additional right to terminate this Agreement immediately by notice in writing.

## 12. USE OF LICENSED TECHNOLOGY

The Licensed Technology shall be used for commercial and/or civilian purposes only. LICENSEE shall ensure that it complies with all applicable laws, rules and regulations governing the use, export and disposal of the Licensed Technology and the Licensed Products.

## 13. PUBLICATIONS

13.1 A\*CCELERATE shall comply with this Clause 13 with respect to publication of any journal, thesis, or dissertation, or present at any national, international or professional meeting, the findings, methods and results pertaining to the Licensed Technology (each a "**Publication**").

13.2 A\*CCELERATE shall procure that where its Affiliates intend to publish or present (the "**Publishing Party**") a Publication, such Affiliate shall furnish a copy of such Publication to LICENSEE at least 60 days before such publication or presentation and then LICENSEE, within 30 days of receipt of the Publication, forward its written objections to the Publishing Party if it determines that its Confidential Information or patentable subject matter may be disclosed. If no written objection is made within the stipulated time, the Publishing Party shall be free to proceed with the Publication.

13.3 Confidential Information identified by LICENSEE shall be deleted from the Publication. In the event that the LICENSEE objects to any such publication or presentation on the basis that the same would disclose patentable subject matter, A\*CCELERATE shall procure that the Publishing Party withhold such publication or presentation for a reasonable period in order for the relevant patent applications to be filed with respect to such patentable subject matter.

**14. OPTION TO NEW INTELLECTUAL PROPERTY**

[\*\*\*]

*Signature page to follow*

**IN WITNESS HEREOF**, the parties have executed this Agreement by their duly authorised representatives as of the date set forth above.

SIGNED by )  
Senior Vice President )  
for and on behalf of )  
**ACCELERATE TECHNOLOGIES PTE LTD** )  
In the presence of )

---

Name of Witness:  
Designation of Witness:

SIGNED by Clark Cheng )  
Director )  
for and on behalf of )  
**APTORUM INNOVATIONS HOLDING PTE LTD** )  
In the presence of )

---

Name of Witness:  
Designation of Witness:

**SCHEDULE 1**

Exhibit A of Schedule 1  
Licensed Patents

Exhibit B of Schedule 1  
Licensed Know-How

**Certain identified information, marked by [\*\*\*\*\*], has been excluded from this exhibit because it is both not material and is the type that the registrant treats as private or confidential.**

DATED THE 25TH DAY OF SEPTEMBER 2020

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AMONG

ACCELERATE TECHNOLOGIES PTE LTD

AND

APTORUM INNOVATIONS HOLDING LIMITED

AND

THE PERSONS WHOSE NAMES ARE SET OUT IN SCHEDULE 1

AND

APTORUM INNOVATIONS HOLDING PTE. LIMITED

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**SHARE SUBSCRIPTION  
& SHAREHOLDERS AGREEMENT**

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This **SHARE SUBSCRIPTION & SHAREHOLDERS AGREEMENT** (this “**Agreement**”) dated the 25th day of September 2020 is made by and between the following parties (collectively, the “**Parties**” and each, a “**Party**”):

- (1) **ACCELERATE TECHNOLOGIES PTE LTD** (UEN: 199503187D), a private company limited by shares incorporated under the laws of Singapore and having its registered address at 1 Fusionopolis Way, #19-10 Connexis North, Singapore 138632 (“**A\*ccelerate**”)
- (2) **APTORUM INNOVATIONS HOLDING LIMITED**, a private company limited by shares incorporated under the laws of the Cayman Islands and having its registered address at Floor 4, Willow House, Cricket Square, Grand Cayman KY 1-9010, Cayman Islands (“**AIHL**”);
- (3) **THE PERSONS WHOSE NAMES ARE SET OUT IN SCHEDULE 1** (collectively, the “**Founding Scientists**”, and each, a “**Founding Scientist**”; and
- (4) **APTORUM INNOVATIONS HOLDING PTE. LIMITED** (UEN: 201918058R), a private company limited by shares incorporated under the laws of Singapore and having its registered address at 10 Anson Road, #11-20 International Plaza, Singapore 079903 (the “**Company**”).

**WHEREAS:**

- (A) As at the date of this Agreement, the Company has a paid-up and issued share capital of S\$1,000 comprising 1,000 Ordinary Shares (as defined below), all of which are owned legally and beneficially by AIHL, and has a sole Director (as defined below), namely, Dr. Clark Cheng, as appointed by AIHL.
- (B) AIHL, A\*ccelerate and the Founding Scientists (i.e., the Subscribers and each, a Subscriber (as defined below)) wish to subscribe for the Subscription Shares (as defined below), and the Company agrees to allot and issue the Subscription Shares to each of the Subscribers, on the terms and subject to the conditions herein specified.
- (C) This Agreement shall further set out the terms and conditions which shall govern the relationship amongst the Subscribers as shareholders of the Company, and their management of the business of the Company.

**NOW, THEREFORE**, in consideration of the mutual promises, representations, warranties, covenants and conditions set forth in this Agreement, the Parties agree as follows:

**1. DEFINITIONS AND INTERPRETATION**

1.1 Unless the context otherwise requires in this Agreement, the following words and expressions shall have the following meanings:

“**A\*ccelerate First Tranche Shares**” means 215,000 fully paid-up Ordinary Shares to be allotted and issued to A\*ccelerate pursuant to the terms of this Agreement as at the First Closing Date.

“**A\*ccelerate First Tranche Subscription Amount**” means S\$215,000 to be contributed by A\*ccelerate or AVCPL at the First Closing in the form of immediately available funds or equipment, consumables and materials of equivalent value to A\*STAR RI.

“**A\*ccelerate Second Tranche Shares**” means 185,000 fully paid-up Ordinary Shares to be allotted and issued to A\*ccelerate pursuant to the terms of this Agreement as at the Second Closing Date.

**“A\*ccelerate Second Tranche Subscription Amount”** means S\$185,000 to be contributed by A\*ccelerate or AVCPL at the Second Closing in the form of immediately available funds or equipment, consumables and materials of equivalent value to A\*STAR RI.

**“A\*ccelerate Total Subscription Amounts”** means the aggregate of the A\*ccelerate First Tranche Subscription Amount and the A\*ccelerate Second Tranche Subscription Amount.

**“A\*STAR”** means the Agency for Science, Technology and Research.

**“A\*STAR RI”** means the Institute of Bioengineering and Nanotechnology, A\*STAR Research Entities (“**IBN**”) or the Institute of Molecular and Cell Biology, A\*STAR Research Entities (“**IMCB**”), as agreed by the Parties and as the context may require.

**“ACRA”** means the Accounting and Corporate Regulatory Authority of Singapore.

**“Affiliate”** means:

- (a) in relation to a natural person, the spouse, parent, sibling or child (including a step child) of such person;
- (b) in relation to any entity, any person which Controls, is Controlled by, or is under common Control with, such entity; and
- (c) in relation to an investment fund or private fund, it includes any other investment fund or private fund under common Control with such fund or managed by the manager of such investment fund or private fund or such entity (as the case may be) provided that, for the avoidance of doubt, an entity in which such investment fund or private fund has merely made an investment shall not be an Affiliate of such investment fund or private fund.

The term “Affiliate” with regard to A\*ccelerate shall include A\*STAR, AVCPL and all other research institutes and centres funded and managed by A\*STAR.

**“AIHL First Tranche Shares”** means 1,074,000 fully paid-up Ordinary Shares to be allotted and issued to AIHL pursuant to the terms of this Agreement as at the First Closing Date.

**“AIHL First Tranche Subscription Amount”** means S\$1,075,000 to be contributed to the share capital of the Company in immediately available funds by AIHL at the First Closing.

**“AIHL Second Tranche Shares”** means 925,000 fully paid-up Ordinary Shares to be allotted and issued to AIHL pursuant to the terms of this Agreement as at the Second Closing Date.

**“AIHL Second Tranche Subscription Amount”** means S\$925,000 to be contributed to the share capital of the Company in immediately available funds by AIHL at the Second Closing.

**“AIHL Total Subscription Amounts”** means the aggregate of the AIHL First Tranche Subscription Amount and the AIHL Second Tranche Subscription Amount.

**“Applicable Law”** means any decree, law, regulation, ministerial resolution or order, implementing regulations, statute, act, ordinance, directive (to the extent having the force of law), order, treaty, code or rule, as enacted, issued or promulgated, or any interpretation thereof, by any governmental entity having jurisdiction over the matter in question.

**“AVCPL”** means Accelerate Venture Creation Pte. Ltd..

**“Board”** shall mean the board of directors of the Company, as constituted from time to time in accordance with the terms of this Agreement.

“**Business Day**” means a day (other than gazetted public holidays, Saturdays and Sundays) on which banks are open for business in Singapore and Hong Kong.

“**Company-A\*STAR RI Funding Agreement**” means the “Company-A\*STAR RI Funding Agreement for Partial Research Sponsorship” entered into on or around the date of this Agreement by and among the Company, IBN and IMCB.

“**Contributing Subscribers**” means both of AIHL and A\*ccelerate, and “**Contributing Subscriber**” means either one of them.

“**Constitution**” means the constitution of the Company, as amended from time to time in accordance with this Agreement and Applicable Law.

“**Control**” (including, with its correlative meanings, the terms “**Controlled by**” or “**under common Control with**”) means (a) the possession, directly or indirectly, of the power to direct, or cause the direction of, management and policies of a Person whether through the ownership of voting securities, by agreement or otherwise, or the power to elect more than half of the Directors, partners or other individuals exercising similar authority with respect to a Person; or (b) the possession, directly or indirectly, of a voting interest in excess of fifty per cent (50%) in a Person.

“**Deed of Ratification and Accession**” means a deed in such form as the Directors may require a new Shareholder to execute in respect of such new Shareholder’s consent to accept and ratify the terms and conditions of this Agreement.

“**Dilution Instruments**” means any and all classes of Shares, securities, rights, options, warrants, appreciation rights or instruments (including debt instruments which are convertible into or entitle the holder to acquire or receive any Shares or any options to purchase rights to subscribe for securities by their terms convertible into or exchangeable for Shares with voting rights or economic rights).

“**Directors**” means the directors for the time being of the Company, and a “**Director**” means any one of them.

“**Exclusive Licence Agreement**” means the “Exclusive Licence Agreement” entered into on or around the date of this Agreement by and among the Company and A\*ccelerate.

“**Fair Value**” means in relation to any Shares, the fair market value thereof certified by the Independent Valuer (acting as expert and not an arbitrator) on the following assumptions and basis: (a) the Shares are the subject of an arm’s length sale between a willing seller under no compulsion to sell and a willing buyer under no compulsion to buy, each with full knowledge of all relevant facts; and (b) the Company shall at the time of such certification be carrying on its business as a going concern and shall continue to do so. If any difficulty shall arise in applying any of the foregoing assumptions or basis, then such difficulty shall be resolved by the Independent Valuer in such manner as it may in its absolute discretion deem fit. Unless otherwise specified in this Agreement, the cost of such determination shall be borne by the selling Party.

“**First Closing**” means closing for the allotment and issue of the First Tranche Subscription Shares in the manner described in Clause 4 of this Agreement.

“**First Closing Date**” means the date defined in Clause 3.4 on which the First Closing shall take place.

“**First Tranche Shares**” means the aggregate of (a) the A\*ccelerate First Tranche Shares; (b) AIHL First Tranche Shares; and (c) the Founding Scientists First Tranche Shares, to the extent subscribed.

“**Founding Scientists First Tranche Shares**” means an aggregate of 144,333 Ordinary Shares to be allotted and issued to the Founding Scientists in equal numbers pursuant to the terms of this Agreement as at the First Closing Date.

“**Founding Scientists Second Tranche Shares**” means 123,333 Ordinary Shares to be allotted and issued to the Founding Scientists pursuant to the terms of this Agreement as at the Second Closing Date.

“**Independent Valuer**” means a third party independent valuer from any of Deloitte Touche Tohmatsu, Ernst & Young, KPMG, and PricewaterhouseCooper or other accounting firms to be appointed by the Shareholders by mutual agreement in writing.

“**Licensed Product**” shall have the meaning given to it in the Exclusive Licence Agreement.

“**Licensed Technology**” shall have the meaning given to it in the Exclusive Licence Agreement.

“**New A\*STAR RI IP**” shall have the meaning given to it in the Exclusive Licence Agreement.

“**Ordinary Shares**” means the ordinary shares in the capital of the Company.

“**Person**” means any individual, corporation, joint stock company, limited liability company, partnership, joint venture, association, trust, unincorporated organization, governmental authority, or other entity.

“**Project Delivery Agreement**” means an internal agreement entered into between A\*ccelerate (or AVCPL) and A\*STAR RI dated 1 April 2020.

“**Research**” means sponsored researches to be undertaken by A\*STAR RI pursuant to the Project Delivery Agreement and pursuant to the Company-A\*STAR RI Funding Agreement.

“**S\$**” or “**Singapore Dollars**” means the lawful currency of Singapore.

“**Second Closing**” means closing for the allotment and issue of the Second Tranche Subscription Shares in the manner described in Clause 6 of this Agreement.

“**Second Closing Date**” means the date defined in Clause 5.4 on which the Second Closing shall take place.

“**Second Tranche Shares**” means the aggregate of (a) the A\*ccelerate Second Tranche Shares; (b) AIHL Second Tranche Shares; and (c) the Founding Scientists Second Tranche Shares, to the extent subscribed.

“**Shares**” means all the issued shares in the capital of the Company.

“**Shareholder**” means a holder of Shares whose name is registered for the time being in the electronic register of members of the Company as the legal owner of such Shares.

“**Subscribers**” means collectively, A\*ccelerate, AIHL and the Founding Scientists, and “**Subscriber**” means any one of them.

“**Subscription Amounts**” means the aggregate of the A\*ccelerate Total Subscription Amounts and the AIHL Total Subscription Amounts.

“**Subscription Shares**” means the aggregate of the First Tranche Shares and the Second Tranche Shares.

“**Transaction Agreements**” refers collectively to (a) this Agreement, (b) the Exclusive Licence Agreement, and (c) the Company-A\*STAR RI Funding Agreement.

“**Transfer**” (including the terms “**Transferred**” and “**Transferability**”) as used herein means to sell, assign, transfer, entrust, mortgage or encumber any Shares, including any assignment for the benefit of creditors or the appointment of receiver or liquidator of assets but shall exclude any transfer by way of testamentary or intestate succession.

1.2 In this Agreement, except where the context otherwise requires:

- (a) words in the singular include the plural and vice versa, and references to one gender include other genders;
- (b) a reference to an enactment or regulation includes a reference to any subordinate law, decree, resolution, order or the like made under the relevant enactment or regulation and is a reference to that enactment, regulation or subordinate law, decree, resolution, order or the like as from time to time amended, consolidated, modified, re-enacted or replaced;
- (c) a reference to (i) years, quarters, months, days and the passage of time is to be construed in accordance with the Gregorian calendar; (ii) writing includes any modes of reproducing words in any legible form and emails to the extent confirmed by return email from the recipient thereof; (iii) “includes” or “including” means “includes without limitation” or “including without limitation” as applicable;
- (d) a reference to any agreement or contract, including this Agreement, is to be interpreted to mean such agreement or contract, as amended, modified or supplemented in accordance with its terms from time to time;
- (e) if a period of time is specified as from a given day, or from the day of an act or event, it is to be calculated inclusive of that day; and
- (f) the headings of all sections of this Agreement have been inserted for reference only and are not to be deemed to be a part of this Agreement.

## 2. AGREEMENT TO SUBSCRIBE

2.1 The Subscribers shall, on the terms and subject to the conditions set forth in this Agreement, subscribe for the Subscription Shares in the following manner:

- 2.1.1 The First Closing shall take place on the First Closing Date on which the Subscribers shall subscribe for, and the Company shall allot and issue to the Subscribers, the First Tranche Shares in the manner described below:
  - (a) The A\*ccelerate First Tranche Shares to A\*ccelerate in consideration of the A\*ccelerate First Tranche Subscription Amount.
  - (b) The AIHL First Tranche Shares to AIHL in consideration of the AIHL First Tranche Subscription Amount.
  - (c) The Founding Scientists First Tranche Shares to the Founding Scientists based on the allocation set out in Schedule 1 as fully paid-up Ordinary Shares in consideration of the Founding Scientists’ continued support on the Licensed Products and Licensed Technology and undertaking to provide necessary support to meet the milestones prior to the completion or termination of the Project under the Company-A\*STAR RI Funding Agreement.

2.1.2 The Second Closing shall take place on the Second Closing Date on which, the Subscribers shall subscribe, and the Company shall allot and issue to the Subscribers, the Second Tranche Shares in the manner described below:

- (a) The A\*ccelerate Second Tranche Shares to A\*ccelerate in consideration of the A\*ccelerate Second Tranche Subscription Amount.
- (b) The AIHL Second Tranche Shares to AIHL in consideration of the AIHL Second Tranche Subscription Amount.
- (c) The Founding Scientists Second Tranche Shares to the Founding Scientists based on the allocation set out in Schedule 1 as fully paid-up Ordinary Shares in consideration of the Founding Scientists' continued support on the Licensed Products and Licensed Technology.

2.2 The Subscribers shall execute such further instruments and to take all such further action as may reasonably be necessary to carry out the intent of this Agreement.

### 3. CONDITIONS PRECEDENT TO FIRST CLOSING

3.1 The obligation of the Subscribers to effect the First Closing is conditional upon each of the following conditions (the "**Conditions Precedent to First Closing**") having been fulfilled to the reasonable satisfaction of the Contributing Subscribers, unless jointly waived in writing by Contributing Subscribers in whole or in part (to the extent permissible under Applicable Law), on or before three (3) months from the date of this Agreement (the "**First Closing Long Stop Date**"):

3.1.1 Contributing Subscribers shall have mutually approved the terms and conditions of each of the Exclusive Licence Agreement and the Company-A\*STAR RI Funding Agreement, all of which shall be executed by the relevant Persons on the First Closing Date;

3.1.2 The Company shall have duly passed all necessary written resolutions of the Board in accordance with the Constitution to approve the execution of the Transaction Agreements and authorising specified individuals to take steps to consummate the transactions contemplated in the Transaction Agreements, including but not limited to the following:

- (a) Issue and allotment of the First Tranche Subscription Shares to the Subscribers, including issuance of the original share certificates therefor;
- (b) Appointment of three individuals nominated by AIHL as Directors, subject to Applicable Laws (the "**NEW AIHL Directors**"); and
- (c) Authorising the necessary entries in the Company's statutory registers and filing of relevant forms with the relevant governmental authorities in respect of Clauses 3.1.2(a) and 3.1.2(b) above;

3.1.3 AIHL shall have, as the existing sole Shareholder, passed all necessary resolutions in accordance with the Constitution and Applicable Law to authorise the Board to issue and allot the First Tranche Subscription Shares in the manner contemplated under this Agreement;

3.1.4 A\*ccelerate shall have obtained all necessary approvals in respect of the execution of this Agreement and the consummation of the transactions contemplated hereunder; and

3.1.5 AIHL shall have obtained all necessary approvals in respect of the execution of this Agreement and any other Transaction Agreements, and authorising specified individuals to take steps to consummate the transactions contemplated thereunder.

- 3.2 If any Contributing Subscriber at any time becomes aware of any circumstance that shall or is likely to give rise to the non-fulfilment or delay in the fulfilment of any of the Conditions Precedent to First Closing, then such Contributing Subscriber shall immediately notify the other Contributing Subscriber in writing of such circumstances and the expected delay in fulfilment of relevant Conditions Precedent to First Closing.
- 3.3 If any of the Conditions Precedent to First Closing is not fulfilled to the reasonable satisfaction of Contributing Subscribers unless waived in writing by the Contributing Subscribers in whole or in part (to the extent permissible under Applicable Law), by the First Closing Long Stop Date (or such other later date as may be mutually extended by the Contributing Subscribers in writing), the Contributing Subscribers may by mutual consent terminate this Agreement without incurring any liability to all Parties.
- 3.4 If the Conditions Precedent to First Closing are fulfilled to the reasonable satisfaction of Contributing Subscribers by the First Closing Long Stop Date, the Contributing Subscribers shall proceed to fix the date of the First Closing being a Business Day no later than ten (10) days from the date the Contributing Subscribers agree that the Conditions Precedent to First Closing have been fulfilled to their reasonable satisfaction (the "**First Closing Date**").

#### 4. FIRST CLOSING

- 4.1 Closing for the allotment and issue of the First Tranche Subscription Shares shall (or shall be deemed to) take place on the First Closing Date at the registered office of the Company (or such other venue as the Parties may agree in writing) whereupon:
- 4.1.1 A\*ccelerate shall provide written confirmation of the contribution of the A\*ccelerate First Tranche Subscription Amount and AIHL shall provide documentary evidence that it had contributed the AIHL First Tranche Subscription Amount in such manner to be agreed between them; and
- 4.1.2 against compliance by A\*ccelerate and AIHL of their respective obligations under Clause 4.1.1, the Company shall cause the following actions to be undertaken:
- (a) file with ACRA a notice of allotment in respect of the allotment and issue of the First Tranche Subscription Shares, and enter in the Company's register of allotment respectively reflecting the Subscribers as the registered holders of the First Tranche Subscription Shares respectively;
  - (b) file with ACRA a notice of appointment as directors in respect of the appointment of the NEW AIHL Directors, and enter in the Company's register of directors reflecting the NEW AIHL Directors as Directors with effect as of the First Closing Date; and
  - (c) deliver, within ten (10) Business Days from the First Closing Date, to the Subscribers the original share certificates in respect of the First Tranche Subscription Shares issued in the name of the Subscribers respectively together with a certified copy of the Company's electronic register of members reflecting the Subscribers as holders of the First Tranche Subscription Shares.
- 4.2 The Parties shall do all such acts and things and execute all such documents, as they are reasonably required to do, to give effect to the issuance and allotment of the First Tranche Shares as contemplated under this Agreement.
- 4.3 The obligations of each of the Contributing Subscribers in Clause 4.1 are interdependent and shall be deemed to have occurred simultaneously. The First Closing shall not occur unless all of the obligations contained in Clause 4.1 are complied with and are fully effective.

- 4.4 If the First Closing does not occur in the manner and timeline envisaged in this Agreement for reasons not caused by the Company, either Contributing Subscriber may terminate this Agreement and in the event of such termination and where any Contributing Subscriber has remitted any monies to the Company, the Company shall forthwith refund such monies within ten (10) Business Days from the date the Company receives a written notice of termination of this Agreement from the Contributing Subscriber, without incurring any liability to any other Party.
5. **CONDITIONS PRECEDENT TO SECOND CLOSING**
- 5.1 The obligation of the Subscribers to effect the Second Closing is conditional upon each of the following conditions (the “**Conditions Precedent to Second Closing**”) having been fulfilled to the reasonable satisfaction of the Contributing Subscribers, unless jointly waived in writing by the Contributing Subscribers in whole or in part (to the extent permissible under Applicable Law), on five (5) months from the First Closing Date or any other date agreed between the Contributing Subscribers (the “**Second Closing Long Stop Date**”):
- 5.1.1 The First Closing shall have successfully taken place in the manner contemplated under Clause 4;
- 5.1.2 The Company shall have duly passed all necessary written resolutions of the Board in accordance with the Constitution to approve the issue and allotment of the Second Tranche Subscription Shares to the Subscribers, including issuance of the original share certificates therefor, and authorising the necessary entries in the Company’s statutory registers and filing of relevant forms with the relevant governmental authorities in connection with the allotment and issue of the Second Tranche Subscription Shares;
- 5.1.3 The Shareholders shall have passed all necessary written resolutions in accordance with the Constitution and Applicable Law to authorise the Board to issue and allot the Second Tranche Subscription Shares in the manner contemplated under this Agreement; and
- 5.1.4 The A\*STAR RI shall have achieved Milestone 1 of Schedule B of the Company-A\*STAR RI Funding Agreement.
- 5.2 If any Contributing Subscriber at any time becomes aware of any circumstance that shall or is likely to give rise to the non-fulfilment or delay in the fulfilment of any of the Conditions Precedent to Second Closing, then such Contributing Subscriber shall immediately notify the other Contributing Subscriber in writing of such circumstances and the expected delay in fulfilment of relevant Conditions Precedent to Second Closing.
- 5.3 If any of the Conditions Precedent to Second Closing are not fulfilled to the reasonable satisfaction of Contributing Subscribers unless waived in writing by the Contributing Subscribers in whole or in part (to the extent permissible under Applicable Law), by the Second Closing Long Stop Date (or such other later date as may be mutually extended by the Contributing Subscribers in writing), the Contributing Subscribers may by mutual consent terminate this Agreement with respect to the Contributing Subscribers’ obligation to proceed with the Second Closing without incurring any liability to any other Party, provided however that if Clause 5.1.4 is the only Condition Precedent to Second Closing not met before the Second Closing Long Stop Date, AIHL shall be entitled at its sole discretion to unilaterally extend the Second Closing Long Stop to a later date when the condition stated under Clause 5.1.4 can and has been met pursuant to the manner set forth in Clause 5.1.4.
- 5.4 If the Conditions Precedent to Second Closing are fulfilled to the reasonable satisfaction of the Contributing Subscribers by the Second Closing Long Stop Date, the Contributing Subscribers shall proceed to fix the second closing date being a Business Day no later than ten (10) days from the date the Contributing Subscribers agree that the Conditions Precedent to Second Closing have been fulfilled to their reasonable satisfaction (“**Second Closing Date**”).

## 6. SECOND CLOSING

- 6.1 Closing for the allotment and issue of the Second Tranche Subscription Shares shall (or shall be deemed to) take place on the Second Closing Date at the registered office of the Company (or such other venue as the Contributing Subscribers may agree in writing) whereupon:
- 6.1.1 A\*ccelerate shall provide written confirmation of the contribution of the A\*ccelerate Second Tranche Subscription Amount and AIHL shall provide documentary evidence that it had contributed the AIHL Second Tranche Subscription Amount respectively in such manner to be agreed between them; and
- 6.1.2 against compliance by the Contributing Subscribers of their respective obligations under Clause 6.1.1, the Company shall cause the following actions to be undertaken:
- (a) file with ACRA a notice of allotment in respect of the allotment and issue of the Second Tranche Subscription Shares, and enter in the Company's register of allotment respectively reflecting the Subscribers as the registered holders of the Second Tranche Subscription Shares; and
  - (b) deliver, within ten (10) Business Days from the Second Closing Date, to the Subscribers the original share certificates in respect of the Second Tranche Subscription Shares issued in the name of the Subscribers respectively together with a certified copy of the Company's electronic register of members reflecting the Subscribers as holders of the Second Tranche Subscription Shares.
- 6.2 The Parties shall do all such acts and things and execute all such documents, as they are reasonably required to do, to give effect to the issuance and allotment of the Second Tranche Shares as contemplated under this Agreement.
- 6.3 The obligations of each of the Contributing Subscribers in Clause 6.1 are interdependent and shall be deemed to have occurred simultaneously. The Second Closing shall not occur unless all of the obligations contained in Clause 6.1 are complied with and are fully effective.
- 6.4 Subject to Clause 5.3, if the Second Closing does not occur in the manner and timeline envisaged in this Agreement for reasons not caused by the Company, any Contributing Subscriber may terminate this Agreement with respect of the obligations in respect of the Second Closing and in the event of such termination and where any Contributing Subscriber has remitted any monies to the Company, the Company shall forthwith refund such monies within ten (10) Business Days from the date the Company receives a written notice of such termination from the Contributing Subscriber, without incurring any liability to any other Party.

## 7. USE OF SUBSCRIPTION AMOUNTS

- 7.1 The Parties agree that the Company shall use the Subscription Amounts (from the successful completion of the relevant First Closing and/or Second Closing) as follows:
- 7.1.1 Upon the execution of Transaction Documents and after the First Closing Date:
- (a) the Company shall apply [\*\*\*] from the AIHL Total Subscription Amounts to make the "First Payment" set forth in Schedule A of the Company-A\*STAR RI Funding Agreement in accordance with the Company-A\*STAR RI Funding Agreement; and
  - (b) A\*ccelerate shall procure the contribution of the A\*ccelerate First Tranche Subscription Amount in accordance with the Project Delivery Agreement, (collectively, the "**First Funding Round**").

7.1.2 Subject to the completion of the First Closing and the First Funding Round:

- (a) upon completion of the milestone corresponding to the “Second Payment” set forth under Schedule A of the Company-A\*STAR RI Funding Agreement, the Company shall apply [\*\*\*] from the AIHL Total Subscription Amounts to A\*STAR RI to make the “Second Payment” under the Company-A\*STAR RI Funding Agreement in accordance with the Company-A\*STAR RI Funding Agreement;
- (b) upon further completion of the first development milestone set out in paragraph 8(a) of Schedule 1 of the Exclusive Licence Agreement, the Company shall pay [\*\*\*] from the AIHL Total Subscription Amounts to A\*cceleerate in accordance with the Exclusive Licence Agreement; and
- (c) A\*cceleerate shall procure the contribution of the A\*cceleerate Second Tranche Subscription Amount in accordance with the Project Delivery Agreement,

(collectively, the “**Second Funding Round**”).

7.1.3 Subject to the completion of the Second Closing and the Second Funding Round:

- (a) upon completion of the milestone corresponding to the “Third Payment” set forth under Schedule A of the Company-A\*STAR RI Funding Agreement, the Company shall apply [\*\*\*] from the AIHL Total Subscription Amounts to make the “Third Payment” under the Company-A\*STAR RI Funding Agreement in accordance with the Company-A\*STAR RI Funding Agreement; and
- (b) upon completion of the second development milestone under the Exclusive Licence Agreement, the Company shall pay [\*\*\*] from the AIHL Total Subscription Amounts to A\*cceleerate in accordance with the Exclusive Licence Agreement,

(collectively, the “**Third Funding Round**”).

7.1.4 Subject to the completion of the Third Funding Round:

- (a) upon completion of the milestone corresponding to the “Fourth Payment” set forth under Schedule A of the Company-A\*Star RI Funding Agreement, the Company shall apply [\*\*\*] from the AIHL Total Subscription Amounts to make the “Fourth Payment” under the Company-A\*STAR RI Funding Agreement in accordance with the Company-A\*STAR RI Funding Agreement;
- (b) upon completion of the third development milestone set out in paragraph 8(a) of Schedule 1 of the Exclusive Licence Agreement, the Company shall pay [\*\*\*] from the AIHL Total Subscription Amounts to A\*cceleerate in accordance with the Exclusive Licence Agreement; and
- (c) upon completion of the fourth development milestone set out in paragraph 8(a) of Schedule 1 of the Exclusive Licence Agreement, the Company shall release [\*\*\*] from the AIHL Total Subscription Amounts to A\*cceleerate in accordance with the Exclusive Licence Agreement,

(collectively, the “**Fourth and Final Funding Round**”).

7.2 If any of the development milestones referred to in Clauses 7.1.2 (a), 7.1.2(b), 7.1.3 and 7.1.4 does not occur in the manner or within the timeline envisaged in this Agreement and is not fulfilled to the reasonable satisfaction of the Company, unless waived in writing by the Company in whole or in part (to the extent permissible under Applicable Law), the Contributing Subscribers may negotiate in good faith to amend the relevant milestones or waive such requirement.

7.3 In the event that the Contributing Subscribers have reached a deadlock (including but not limited to failure for the Contributing Subscribers to agree after good faith negotiation pursuant to Clause 7.2 to amend the relevant milestones or waive such requirement), based on the net asset value per Share, within ten (10) Business Days of obtaining the approval of the Company's Shareholders (excluding the requesting Contributing Shareholder), which shall not be unreasonably withheld. Alternatively, the Contributing Shareholders may mutually agree to enter into capital reduction exercise in which the other Contributing Shareholders will waive rights to any pro-rata return of an agreed sum of any unused working capital to a Contributing Shareholder, or such other method permitted under applicable laws as may be mutually agreed between the Contributing Shareholders.

## 8. CAPITAL STRUCTURE OF THE COMPANY

8.1 Upon the First Closing being given effect to, and unless otherwise varied by mutual consent of the Shareholders or as a result of transfer of Shares as permitted under this Agreement, the Contributing Subscribers and the Founding Scientists shall exercise their respective voting rights and powers available to them as Shareholders to ensure that:

8.1.1 the share capital of the Company shall at all times be held by them unless otherwise transferred pursuant to Clause 14;

8.1.2 each of the Subscribers shall not:

- (a) enter into or agree to be bound by any voting trust with respect to any Shares held by it;
- (b) create or permit to be created any pledge, lien or charge over, or grant any option or other rights over, or dispose of, any Shares held by it;
- (c) enter into any shareholder agreement or arrangement of any kind with any person with respect to any Shares held by it; or
- (d) take any other action, which in any such case is inconsistent with the spirit, intent and objectives of this Agreement; and

8.1.3 as between themselves, they shall procure the convening of all meetings, the giving of all waivers and consents, and the passing of all resolutions to give effect to the provisions of this Agreement.

## 9. BOARD OF DIRECTORS

9.1 Subject to this Agreement, the Constitution, and Applicable Law, the Board of Directors shall have the overall responsibility for determining the strategy, management, planning and policies of the Company.

9.2 Following the First Closing, the Board shall comprise of up to five (5) Directors, comprising up to one (1) Director nominated by A\*ccelerate and up to four (4) Directors nominated by AIHL ("**AIHL Directors**"). A\*ccelerate may nominate one (1) Director to the Board at any time upon written notice to the Company following the First Closing ("**A\*ccelerate Director**"), prior to which A\*ccelerate shall be entitled to appoint a representative to attend as an observer at all Board Meetings (the "**A\*ccelerate Observer**"). The A\*ccelerate Observer shall be entitled to receive all notices of Board Meetings, materials and access to the Company that a Director may receive from the Company, and speak at any Board Meetings (but shall not be entitled to vote). The appointment of the A\*ccelerate Observer shall automatically terminate upon the appointment of the A\*ccelerate Director.

- 9.3 After the Board is formed pursuant to Clause 9.2, the Board shall pass necessary resolutions in accordance with the Constitution to approve the appointment of the CEO and financial controller of the Company, and the A\*ccelerate Observer, pursuant to this Agreement.
- 9.4 Unless otherwise approved in writing by the Board, no Director is entitled to receive remuneration for holding office as a Director or exercising the functions of that office.
- 9.5 Board Meetings:
- 9.5.1 The Board shall meet as often as is deemed necessary or expedient for the due performance of the functions of the Directors in accordance with Applicable Law (“**Board Meetings**”). A Board Meeting may be called by any Director and fourteen (14) days’ prior written notice shall be given to each Director, Provided However That a Board Meeting may be convened by shorter notice with the written consent of all Directors.
- 9.5.2 The quorum for all Board Meetings shall be any two (2) Directors (if the A\*ccelerate Director has not been appointed) or three (3) Directors, comprising at least two (2) AIHL Directors, and the A\*ccelerate Director (if the A\*ccelerate Director has been appointed).
- 9.5.3 If the quorum is not present within half an hour of the scheduled time of the Board Meeting, the Board Meeting shall stand adjourned to the same day, location and time on the following week. If such day is not a Business Day, the Board Meeting shall be held on the next Business Day at the same location and time. The Directors present at such adjourned Board Meeting, at least two (2) of whom shall be AIHL Directors, shall constitute the quorum for such adjourned Board Meeting and all matters may be discussed and acted upon at such adjourned Board Meeting, provided due and proper notice and agenda of the second adjourned Board Meeting has been provided to all Directors.
- 9.5.4 Subject to Clause 10.6, all decisions of the Board at any Board Meeting shall be taken by simple majority vote of participating Directors. Each Director present in the Board Meeting shall be entitled to one (1) vote.
- 9.5.5 The Directors may participate in a Board Meeting by means of a telephone or video conference, or similar communications equipment, by which all Directors participating in the Board Meeting are able to hear and be heard by the other Directors without the need for a Director to be in the physical presence of another Directors and participation in the Board Meeting in this manner shall be deemed to constitute presence in person at such Board Meeting. The Directors participating in any such Board Meeting shall be counted in the quorum for such Board Meeting and subject to there being a requisite quorum at all times during such Board Meeting, all resolutions passed by the Directors at such Board Meeting shall be deemed to be as effective as a resolution passed at a Board Meeting duly convened and held. A Board Meeting conducted by means of telephone or video conference, or other similar communications equipment, as aforesaid is deemed to be held at the place agreed by the Directors attending the Board Meeting.
- 9.6 A resolution in writing of the Directors shall be as valid and effectual as if it has been passed at a Board Meeting duly convened and held, if the resolution is signed by a majority of the Directors for the time being entitled to receive notice of a Board Meeting. All such resolutions shall be circulated to the Directors at least fourteen (14) days prior to the date such resolution is to take effect. Any such resolution may consist of several documents in like form, each signed by one or more Directors. All such resolutions shall without delay, be forwarded or otherwise delivered to the company secretary of the Company to be recorded and filed in the Company’s minute book. The expressions “in writing” and “signed” include any writing or signature of any Director delivered by fax or any other form of electronic transmission.

## 10. GENERAL MEETINGS OF THE COMPANY

- 10.1 The Company shall hold all its general meetings (“**General Meetings**”) in accordance with Applicable Law. The Board may convene a General Meeting whenever it may deem fit. All General Meetings shall be held at the principal place of business of the Company or at such other place as the Board may determine from time to time.
- 10.2 In the event that a physical General Meeting is not practical or not able to be held, it shall be conducted by means of telephone and/or video conferencing call or similar communications equipment whereby all Shareholders participating in the General Meeting can hear each other and such participation shall be deemed to constitute in person at that General Meeting. Such General Meeting shall be deemed to take place where the largest group of Shareholders present for the purposes of that General Meeting is assembled, or if there is no such group, where the chairman of that General Meeting is present.
- 10.3 The chairman of the Board, if any, shall chair all General Meetings, or if he is not available or present at the General Meeting, then the Shareholders present at the General Meeting shall appoint any one of them to act as the chairman of that General Meeting. The chairman of General Meetings does not have a casting vote.
- 10.4 No business shall be transacted at any General Meeting unless a quorum is present. The quorum for all General Meetings shall be at least two (2) Shareholders, one (1) of whom shall be AIHL, and one (1) of whom shall be A\*ccelerate, present in person or by proxy. If the quorum is not present within half an hour of the scheduled time of the General Meeting, the General Meeting shall stand adjourned to the same day, location and time on the following week or to any other day and at any other time and location as the Board may determine (“**Adjourned General Meeting**”). At the Adjourned General Meeting, if the quorum is not present within half an hour of the scheduled time of the Adjourned General Meeting, then any Shareholder, one (1) of whom shall be AIHL present in person or by proxy, shall constitute the quorum for the Adjourned General Meeting and all matters may be discussed and acted upon at the Adjourned General Meeting, provided due and proper notice and agenda of the Adjourned General Meeting has been provided to each Shareholder.
- 10.5 Voting at General Meetings shall be done by way of poll voting. Except as provided in Clause 10.6 or otherwise required by Applicable Law, all resolutions shall be adopted by simple majority.
- 10.6 The following matters in relation to the affairs of the Company shall be subject to the affirmative votes of the Contributing Subscribers, except that the Contributing Subscribers shall not unreasonably withhold their respective approvals where the relevant matter is for the purposes of attracting further investors, or capital increase by the Company, or enhancing the business strategy of the Company (the “**Reserved Matters**”):
- 10.6.1 Any material change in the business strategy of the Company.
  - 10.6.2 Any material change in the nature of business of the Company, or commencing any new business by the Company which is not ancillary or incidental to the business, or in a new market which is materially adverse to the interest of any Contributing Subscriber.
  - 10.6.3 Any amendment to the Constitution which affects the rights attaching to the Shares.
  - 10.6.4 Cessation by the Company of the business activities substantially as now conducted.
  - 10.6.5 Any transfer, relocation or commencement of any aspect of operations outside of Singapore other than marketing or sales and distributorship.
  - 10.6.6 Acquisition or disposal of or dilution of or winding up or dissolution of any interest in any other business, company, partnership or sole proprietorship.

- 10.6.7 Commencement, settlement or compromise of any material legal proceedings (other than debt recovery proceedings in the ordinary course of business) instituted or threatened against the Company, or submission to arbitration or alternative dispute resolution any dispute involving the Company.
- 10.6.8 Creation of or revisions to any employee share plan or share option plan.
- 10.6.9 Provision by the Company of a guarantee or any security in favour of any party other than its subsidiaries.
- 10.6.10 Liquidation, dissolution, reorganisation, restructuring, merger or amalgamation of the Company, or the making or agreeing to make a composition or arrangement with creditors, move for insolvency, receivership or administration or do or permit or suffer to be done any act or thing whereby the Company may be wound up (whether voluntarily or compulsorily).
- 10.6.11 Creation or issuance by the Company of Shares, debentures or Dilution Instruments or the consolidation, sub-division or conversion of or the reduction in its share capital or the alteration of the rights attaching to them, save as otherwise permitted under this Agreement.
- 10.7 Notwithstanding Clause 10.6, in the event that each of Contributing Subscribers holds less than 3% of the share capital of the Company, its affirmative vote to the Shareholders' approval to any of the Reserved Matters is no longer required. In the event that New Investors are introduced and pursuant to the request by the New Investors, Contributing Subscribers shall use commercially reasonable efforts to negotiate and amend the Reserved Matters and/or their authorities with respect to the approval of the Reserved Matters.
- 10.8 A resolution in writing of the Shareholders shall be as valid and effectual as if it has been passed at a General Meeting duly convened and held if the resolution is signed by a majority of the Shareholders for the time being entitled to receive notice of a General Meeting (one of whom shall be AIHL), or in the case of Reserved Matters, signed by the Contributing Subscribers. All such resolutions shall be circulated to the Shareholders at least fourteen (14) days prior to the date such resolution is to take effect. Any such resolution may consist of several documents in like form, each signed by one or more Shareholder. The expressions "in writing" and "signed" include approval by fax or electronic mail transmission.
- 11. OPERATIONAL ASPECTS OF THE COMPANY**
- 11.1 Day-to-Day Management of the Company: The day-to-day administration and management of the Company shall be vested in a Chief Executive Officer ("CEO") whose appointment (including terms of his remuneration) and removal requires the mutual approval of the Contributing Subscribers. It is hereby agreed that the initial CEO of the Company shall be Dr. Clark Cheng.
- 11.2 Accounts and Records: The Company shall maintain accurate books of account, and financial and related records, in accordance with generally accepted accounting principles in Singapore or any other international accepted accounting principles. The Company shall, upon reasonable notice and during normal business hours, make available at its registered address for inspection by any Director (and its designated representatives) or as the case may be, the A\*ccelerate Observer, the books of account and records of the Company.
- 11.3 Information Rights:
- 11.3.1 Upon request, the Company shall provide to any Director or as the case may be, the A\*ccelerate Observer, a copy of the audited financial statements of the Company forthwith upon the same becoming available within one hundred eighty (180) days of close of the relevant financial year.

11.3.2 The Company shall provide the Contributing Subscribers with a copy of the Company’s half-yearly management accounts within thirty (30) days from the close of every half year. The Contributing Subscribers hereby agree and acknowledge that A\*cceleerate shall be permitted to disclose its copy of the Company’s half-yearly management accounts to A\*cceleerate for the duration of the Exclusive Licence Agreement.

11.3.3 The Company shall provide the Contributing Subscribers with a copy of the Company’s annual budget no later than ten (10) days prior to the close of the relevant financial year.

11.4 Operation of Banking Matters:

11.4.1 The Board shall ensure that the authorised signatories of all bank accounts and facilities of the Company (including but not limited to all bank accounts and loan facilities of the Company) and in the case of electronic operations and transactions of such accounts and facilities, the persons from whom approvals must be sought prior to the Company undertaking such electronic operations and transactions shall comprise the following personnel acting in accordance with the signing authority pursuant to this Clause 11.4.1:

Group A Authorised Person(s)	Group B Authorised Person(s)
[***]	[***]

(a) For any amount up to [\*\*\*]: To be jointly approved/signed by any two of the Group A Authorised Person(s) and Group B Authorised Person(s) (each, an “**Authorised Person**”).

(b) For any amount above [\*\*\*]: To be jointly approved/signed by one Group A Authorised Person and one Group B Authorised Person.

11.4.2 The above thresholds may be subject to changes depending on the Company’s requirements as part of its ordinary course of business subject to the consent of the Board.

11.4.3 The first financial controller of the Company shall be Miss Sabrina Khan (or such other Person nominated by the Company). The appointment and removal of the financial controller shall require the mutual approval of the Contributing Subscribers.

12. **CONFIDENTIALITY**

12.1 Each Shareholder (“**Recipient**”) agrees that all of the Confidential Information (as defined below) of the Company and any other Shareholder (each, a “**Disclosing Party**”) shall be held by the Recipient in confidence and shall only be disclosed to the employees, agents and representatives of the Recipient on a strict need-to-know basis only, provided that such employees, agents and representatives shall, if so required by any Disclosing Party, sign an undertaking to safeguard the Disclosing Party’s Confidential Information in such form as the Disclosing Party may require. Each A\*cceleerate Director and AIHL Director may share Confidential Information with A\*cceleerate and AIHL respectively.

12.2 It is agreed that A\*cceleerate may disclose all or any part of the Confidential Information to its Affiliates on the basis that A\*cceleerate shall procure that such Affiliates shall also agree to treat the information as confidential.

12.3 The Recipient shall take appropriate and adequate measures to prevent the improper or unauthorised disclosure of the Confidential Information of any Disclosing Party, and that it shall not utilise the Confidential Information of any Disclosing Party, directly or indirectly, except for the purposes contemplated under this Agreement, or required by law to be disclosed in response to a valid order of a court of competent jurisdiction or authorised government agency, subject to prompt prior notice by the Recipient to the Disclosing Party to enable the Disclosing Party to apply for a protective order prior to disclosure.

- 12.4 If a Recipient ceases to be a Shareholder, it shall, if required by written notice from any Disclosing Party, return the Confidential Information of the Disclosing Party, or destroy documents or records (and/or copies thereof) containing the Confidential Information of the Disclosing Party.
- 12.5 For purposes hereof, “**Confidential Information**” means this Agreement, and any information of a technical, scientific, or commercial nature which is proprietary to the Disclosing Party or its licensors, Affiliates, or vendors, or is in the possession of a party under an obligation of confidence and includes, among other things, product solutions and any and all components thereof, documents, electronic data, and media for the storage thereof, plans, photographs, apparatus and samples containing any such information, as well as any and all improvements, innovations and developments thereof and which had been marked “Confidential” or with words of similar import. Information communicated by a Disclosing Party orally or visually shall be summarized in writing, marked “Confidential” and delivered to the Recipient within fourteen (14) days of such communication failing which such information shall not constitute Confidential Information shall not include information that, as shall be proven by the Recipient, was lawfully and legitimately known to and/or in the possession of the Recipient free of any obligation of confidence to any Disclosing Party, as the case may be, or any third party at the time of disclosure, or generally available from public sources without fault on the part of the Recipient.
- 12.6 Notwithstanding this Clause 12, a Party may disclose the terms and conditions of this Agreement, with prior written notification to the other Parties should this type of disclosure be necessary: (i) in any governmental filing or to other authorities as required by the applicable laws and/or regulation or rules of NASDAQ, an Alternative Stock Exchange, the Financial Industry Regulatory Authority or the U.S. Securities and Exchange Commission and (ii) in connection with any action or claim to enforce its rights thereunder.
- 12.7 Furthermore, a Recipient may disclose Confidential Information to underwriters, investors, lenders, prospective collaboration partners and financial advisors under non-disclosure agreements with obligations no less onerous than those stated herein in performing due diligence in any other transaction otherwise permitted in this Agreement. The Party disclosing said information shall give the other Parties prior written notification should this type of disclosure be necessary.
- 12.8 This Clause 12 shall survive the expiry or termination of this Agreement.

### 13. RESTRICTIVE COVENANTS

- 13.1 Each Shareholder shall ensure that for as long as it holds Shares and for a period of twelve (12) months from the date it ceases to be a Shareholder (the “**Relevant Period**”), it shall not (and shall procure that none of its Affiliates shall):
- 13.1.1 either on its own account or in conjunction with or on behalf of any person, carry on or be engaged, concerned or interested directly or indirectly whether as shareholder, director, employee, partner, agent or otherwise in carrying on any third party business competing with the Company;
- 13.1.2 either on its own account or in conjunction with or on behalf of any other person, solicit or entice away or attempt to solicit or entice away from the Company the customers of any person who is or has at any time within one (1) year prior to the date of cessation as a Shareholder been a customer, client, identified prospective customer or client, agent or correspondent of the Company or in the habit of dealing with the Company; or
- 13.1.3 either on its own account or in conjunction with or on behalf of any other person, employ, solicit or entice away or attempt to employ, solicit or entice away from the Company any person who is or shall have been at the date of or within one (1) year prior to the date of cessation as a Shareholder an officer, manager, consultant or employee of the Company (or any subsidiary) whether or not such person would commit a breach of contract by reason of leaving such employment.

- 13.2 For as long as a Shareholder holds Shares and after it ceases to hold Shares, it shall not do or say anything which is detrimental to the reputation of the Company or which may lead any person to cease to deal with the Company on substantially equivalent terms to those previously offered or at all. For the avoidance of doubt, subject to compliance of Clause 12, this provision does not apply for any confidential discussion between A\*ccelerate and its Affiliates or with any ministry, statutory board or governmental authority of Singapore.
- 13.3 Each and every obligation under this Clause 13 shall be treated as a separate obligation and shall be severally enforceable as such, and in the event of any obligation or obligations being or becoming unenforceable in whole or in part, such part or parts as are unenforceable shall be deleted from this Clause 13, and any such deletion shall not affect the enforceability of all such parts of this Clause 13 as remain not so deleted. While the obligations contained in this Clause 13 are considered by the Parties to be reasonable in all the circumstances, they recognise that some of the restrictions may fail for technical reasons and accordingly, they agree that if any of such restrictions shall be adjudged to be void as going beyond what is reasonable in all the circumstances for the protection of the interest of the Parties but would be valid if part of the wording thereof were deleted or the periods thereof reduced or the range of activities or area dealt with thereby reduced in scope, the said restriction shall apply with such modifications as may be necessary to make it valid and effective.
- 13.4 The obligations set out in this Clause 13 shall survive the expiry or termination of this Agreement.

#### **14. TRANSFER OF SHARES**

##### 14.1 General Restriction:

- 14.1.1 Except with the prior written consent of each Shareholder or save as otherwise permitted under this Agreement, no Shareholder shall pledge, charge, mortgage (whether by way of fixed or floating charge) or otherwise encumber its legal and/or beneficial interest in any Shares held by him; or Transfer any legal and/or beneficial interest in any Shares held by him.
- 14.1.2 Any Transfer or purported Transfer of any Share made otherwise than in accordance with this Agreement (except for a Transfer authorized pursuant to this Clause 14) shall be void and of no effect and the Directors shall refuse to register that Transfer. No Share or any beneficial interest in it shall be Transferred otherwise than in accordance with this Agreement.

##### 14.2 Transfer to Affiliates:

- 14.2.1 Notwithstanding Clause 14.1, in case a Shareholder proposes to Transfer its Shares to an Affiliate, each of the other Shareholders shall not withhold its consent to such Transfer without any reasonable ground and shall not be entitled to participate in such Transfer and shall have (and be deemed to have) consented to and waived all rights of first refusal in connection with such Transfer, Provided However That:
- (a) the obligations of the Transferring Shareholder under this Agreement shall remain unaffected by such Transfer under this Clause 14.2 and after such Transfer, the Affiliate shall be equally bound to the said obligations;
  - (b) unless the transferee is already a Shareholder, the transferee shall execute a Deed of Ratification and Accession contemporaneously with such Transfer; and

(c) the relevant Shares shall be Transferred back to the Transferring Shareholder immediately upon the transferee ceasing to be an Affiliate.

14.2.2 For the avoidance of doubt, Clauses 14.1, 14.3 and 14.4 shall not apply in respect of the Transfer by a Shareholder to its Affiliate pursuant to this Clause 14.2, and the Shareholders shall exercise their respective powers to procure that the Board approves such a Transfer.

14.3 Right of First Refusal and Transfer Procedures:

14.3.1 Subject to Clauses 14.2 and 14.5:

(a) any Shareholder (“**Transferring Shareholder**”) who proposes to Transfer its Shares otherwise than in accordance with Clauses 14.2 or 14.5, whether to any Person (“**Prospective Purchaser**”) or otherwise, shall be required to give notice in writing (“**ROFR Offer Notice**”) to the Company of the proposed Transfer, clearly specifying the number of Shares it wishes to Transfer (“**ROFR Offer Shares**”), the name of the Prospective Purchaser (if any), the price, whether or not the ROFR Offer Notice is conditional upon all (and not part only) of the ROFR Offer Shares being sold pursuant to the offer made (and in the absence of such stipulation it shall be deemed not to be so conditional), and other material terms of the proposed Transfer; and

(b) the Transferring Shareholder shall not conclude the Transfer of the ROFR Offer Shares whether to the Prospective Purchaser or otherwise without first offering the ROFR Offer Shares to the other Shareholders (“**ROFR Holders**”) in accordance with this Clause 14.3 (“**Right of First Refusal**”).

14.3.2 No ROFR Offer Notice once given may be withdrawn without the consent of the Board. The ROFR Offer Notice shall constitute the Company as the agent of the Transferring Shareholder for the sale of the ROFR Offer Shares at the ROFR Offer Price (as defined in Clause 14.3.3).

14.3.3 For purposes of this Clause 14, “**ROFR Offer Price**” means the higher of:

(a) the price per ROFR Offer Share offered by the Prospective Purchaser, where the Prospective Purchaser is reasonably believed by the Transferring Shareholder where the Contributing Shareholders believe to be acting in good faith; or

(b) the price thereof agreed between the Transferring Shareholder and the Board within one (1) month from the date of the ROFR Offer Notice, or, in the absence of such agreement, the Fair Value of the ROFR Offer Shares at the date of the ROFR Offer Notice as determined and certified by an Independent Valuer.

The fees of the Independent Valuer shall be borne by the Transferring Shareholder, unless otherwise agreed by the Board.

14.3.4 The Company shall upon receipt of a ROFR Offer Notice or, where later, upon the determination of the ROFR Offer Price, give notice in writing to the ROFR Holders of the ROFR Offer Shares that are available for purchase (“**Company’s Notice**”). The Company Notice shall invite the ROFR Holders to notify the Company in writing within one month from the date of the Company’s Notice (“**ROFR Prescribed Period**”) whether they wish to purchase such maximum number of the ROFR Offer Shares (calculated with reference to the proportion that the ROFR Holders’ respective shareholdings in the Company bear to one another).

- 14.3.5 If the ROFR Holders shall within the ROFR Prescribed Period apply for all or any of the ROFR Offer Shares, the Company shall allocate the ROFR Offer Shares (or so many of them as shall be applied for as aforesaid) amongst the ROFR Holders, and in the case of competition, on a pro rata basis (as nearly as possible) in accordance with the proportion that the relevant ROFR Holders' respective shareholdings in the Company bear to one another, provided that no ROFR Holder shall be obliged to take more than the maximum number of the ROFR Offer Shares specified by it.
- 14.3.6 After the ROFR Prescribed Period, the Company shall forthwith give notice of such allocations made by it pursuant to Clause 14.3.5 ("**Allocation Notice**") to the Transferring Shareholder and the ROFR Holders to whom the ROFR Offer Shares have been allocated pursuant to Clause 14.3.5 ("**Purchasing ROFR Holders**"), and shall specify in such Allocation Notice the place and time (being not later than one (1) month after the date of the Allocation Notice) at which the Transfer of the ROFR Offer Shares so allocated shall be completed.
- 14.3.7 If it is a condition specified in the ROFR Offer Notice that all and not some only of the ROFR Offer Shares shall be purchased and if the ROFR Holders do not, on a collective basis, apply to purchase all the ROFR Offer Shares, the Company shall in the Allocation Notice further invite each of the Purchasing ROFR Holders to apply in writing to the Company within one (1) month from the date of the Allocation Notice for all or any of the ROFR Offer Shares not allocated under Clause 14.3.6 ("**Unallocated ROFR Offer Shares**") and in the case of competition, the Company shall allocate the Unallocated ROFR Offer Shares *pro rata* as nearly as possible in accordance with the proportion that the Purchasing ROFR Holders' respective shareholdings in the Company bear to one another. If, upon the expiry of the said period of one (1) month, the Purchasing ROFR Holders do not, on a collective basis, apply to purchase all the Unallocated ROFR Offer Shares, the Transferring Shareholder shall be entitled to sell all (and not some only) of any Unallocated ROFR Offer Shares to the Prospective Purchaser at a price not less than the ROFR Offer Price and on terms no more favourable than those offered to the ROFR Holders, provided that such sale takes place within the one (1) month referred to in Clause 14.3.9 and subject to Clause 14.4.
- 14.3.8 If the ROFR Offer Shares offered pursuant to this Clause 14.3 are taken up by any Purchasing ROFR Holders, the Transferring Shareholder shall be bound, upon payment of the ROFR Offer Price, to Transfer such Offer Shares to the Purchasing ROFR Holders. If, after becoming so bound, the Transferring Shareholder makes default in transferring any of the ROFR Offer Shares, the Company shall be entitled to receive the relevant ROFR Offer Price and the Transferring Shareholder shall be deemed to have appointed the Board as its agent and lawful attorney to execute, complete and deliver a transfer of the ROFR Offer Shares to each Purchasing ROFR Holder. Upon execution of such transfer, the Company shall hold the relevant ROFR Offer Price on trust for the Transferring Shareholder. The receipt by the Company of the relevant ROFR Offer Price shall be a good discharge to each Purchasing ROFR Holder, and after such Purchasing ROFR Holder's name has been registered as the holder of the relevant ROFR Offer Shares in the electronic register of members of the Company in exercise of the aforesaid power, the validity of the proceedings shall not be questioned by any Person.
- 14.3.9 If the ROFR Holders do not exercise their Right of First Refusal within the ROFR Prescribed Period and subject to Clause 14.4, the Transferring Shareholder shall be free to sell any ROFR Offer Shares to the Prospective Purchaser at a price not less than the ROFR Offer Price and on terms where the Board considers to be not substantially more favourable than those offered to the ROFR Holders within one (1) month from the expiry of the ROFR Prescribed Period, Provided However That the Board shall be entitled to reject the Transfer and refuse registration of the Prospective Purchaser if:
- (a) the Prospective Purchaser is, or is reasonably believed by the Board to be, a competitor of the Company or is a nominee for a person who is a competitor or connected with a competitor of the Company;

- (b) the Transferring Shareholder has breached any provision of this Agreement;
- (c) such Transfer constitutes a breach of or default under any agreement or loan to which the Company is a party or by which its property may be bound, and the Company has used commercially reasonable efforts to seek a waiver from the counterparty but has failed to obtain the same; and
- (d) the Prospective Purchaser has not executed, or has refused to execute, a Deed of Ratification and Accession contemporaneously with such Transfer.

14.4 Tag Along Right:

- 14.4.1 If the ROFR Offer Share under Clause 14.3 exceeds [\*\*\*] of the share capital of the Company, any ROFR Holder that has chosen not to exercise its Right of First Refusal in accordance with Clause 14.3 (each, a “**Tag Along Shareholder**”) shall have the right (but not the obligation) to participate in the sale of ROFR Offer Shares by the Transferring Shareholder to the Prospective Purchaser at a price not less than the ROFR Offer Price and on terms no more favourable than those offered to the ROFR Holders (“**Tag Along Right**”).
- 14.4.2 Each Tag Along Shareholder shall be required to notify the Company and the Transferring Shareholder of its decision to exercise the Tag Along Right on or before the expiry of the ROFR Prescribed Period (“**Tag Along Notice**”), and shall state in the Tag Along Notice the number of its Shares that it wishes to sell as part of the Transfer (“**Tag Along Shares**”), except that the number of the Tag Along Shares which the Prospective Purchaser is required to purchase shall be capped by the number of ROFR Offer Shares which the Prospective Purchaser is purchasing from the Transferring Shareholder.
- 14.4.3 For the avoidance of doubt, the Tag Along Shareholder shall not be required to provide the Prospective Purchaser any indemnification or otherwise assume any other post-closing liabilities except to give customary representations and warranties on its legal title to its Tag Along Shares, legal authority and capacity and non-contravention of other agreements.
- 14.4.4 In the event of a Tag Along Shareholder exercising its Tag Along Right pursuant to this Clause 14.4, the Transferring Shareholder and each of the other ROFR Holders shall be deemed to have waived their respective Right of First Refusal in respect of the Tag Along Shares which are Transferred in accordance with this Clause 14.4. If the Transferring Shareholder fails to procure the Prospective Purchaser to purchase the Tag Along Shares of any Tag Along Shareholder in accordance with this Clause 14.4, the Transferring Shareholder shall not be entitled to transfer any ROFR Offer Shares to the Prospective Purchaser.

14.5 Call Option over A\*ccelerate Shares:

- 14.5.1 In consideration of AIHL entering into this Agreement and proceeding to the First Closing hereunder, A\*ccelerate hereby grants to AIHL an option to require A\*ccelerate to sell and Transfer to AIHL (or its nominee) [\*\*\*] of all Shares in the capital of the Company which are registered under A\*ccelerate’s name (“**A\*ccelerate Call Option Shares**”) subject to the provisions of this Clause 14.5.
- 14.5.2 For purposes of determining the consideration payable for the A\*ccelerate Call Option Shares, the A\*ccelerate Call Option Shares shall be valued at the higher of:
  - (a) [\*\*\*] valuation of the Company; or

(b) the market valuation of the Company based on the most recent prior round investment (if available).

14.5.3 The A\*ccelerate Call Option may only be exercised by AIHL after it has invested a total of [\*\*\*] in the Company since the First Closing Date for the purpose of the hiring of new headcount and funding other types of overheads incurred in carrying out the Company's business activities in Singapore, such investment shall be independent to the AIHL Total Subscription Amounts hereunder.

14.5.4 The A\*ccelerate Call Option shall expire on [\*\*\*] Date ("A\*ccelerate Call Option Expiry Date").

14.5.5 The A\*ccelerate Call Option may be exercised by AIHL at any time prior to the expiry of the A\*ccelerate Call Option Expiry Date by serving a written notice of its exercise of the A\*ccelerate Call Option on A\*ccelerate ("A\*ccelerate Call Option Notice"). Upon receipt of the A\*ccelerate Call Option Notice, A\*ccelerate shall be obliged to sell and Transfer all the A\*ccelerate Call Option Shares to AIHL (or its nominee, as the case may be). A\*ccelerate and AIHL shall engage each other in good faith, and shall use all reasonable endeavours, to complete the sale and Transfer of the A\*ccelerate Call Option Shares within ten (10) Business Days from the date of the A\*ccelerate Call Option Notice.

14.5.6 For the avoidance of doubt, Clauses 14.1 to 14.4 shall not apply in respect of the Transfer of the A\*ccelerate Call Option Shares from A\*ccelerate to AIHL pursuant to this Clause 14.5.

#### 14.6 Shares of Founding Scientists:

14.6.1 If any of the Founding Scientists were to cease necessary support for achievement of the agreed milestones prior to the completion or termination of the specific milestones within Project under the Company-A\*STAR RI Funding Agreement (each, an "Relevant Founding Scientist"), then the Relevant Founding Scientist shall transfer Shares ([\*\*\*] for each milestone not completed up to [\*\*\*]) registered under his name to either:

(a) the Contributing Subscribers on a [\*\*\*] proportion; or

(b) to AIHL,

(as A\*ccelerate may elect at its own discretion and subject to acceptance by AIHL) based on the net asset value per Share.

In the event that the Contributing Shareholders cannot agree on the above election, the Relevant Founding Scientists are allowed to keep his Shares notwithstanding this Clause 14.6.1.

14.6.2 For the avoidance of doubt, Clauses 14.1, 14.3 and 14.4 shall not apply in respect of a Transfer made by a Founding Scientist under Clause 14.6.1, and the Shareholders shall exercise their respective powers to procure that the Board approves such a Transfer.

### 15. RIGHT OF PRE-EMPTION; EMPLOYEE SHARE OPTION SCHEME

15.1 Subject to the terms and conditions of this Agreement, and in compliance with the procedure set out in this Clause 15, in the event that, the Company is desirous of issuing any Dilution Instruments within a period of two (2) years following First Closing Date ("Proposed Issuance"), the Company shall comply with the Constitution and the affirmative approval provisions contained in Clause 10.6, and shall provide a right to each Shareholder (each, "Pre-emptive Right Holder") a right to participate in the Proposed Issuance to the extent necessary to maintain their respective shareholdings in the Company ("Pro-Rata Share") in accordance with the provisions of this Clause 15 ("Right of Pre-emption").

- 15.2 The Company shall give the Pre-emptive Right Holders written notice of the Proposed Issuance (“**Issuance Notice**”) specifying the following terms (collectively, “**Offered Terms**”):
- 15.2.1 Number and class of the Dilution Instrument proposed to be issued (“**Issuance Shares**”).
- 15.2.2 Price per Issuance Share (“**Issuance Price**”).
- 15.2.3 Manner and time of payment of the Issuance Price.
- 15.2.4 Date of the Proposed Issuance and details of new proposed investor.
- 15.3 The Pre-emptive Right Holders shall be entitled to exercise their Right of Pre-emption by issuing a written notice to the Company, within one (1) month from the date of receipt of the Issuance Notice, notifying their intention to the Company that they wish to exercise their Right of Pre-emption on all or part of their Pro-rata Share of the Issuance Shares (“**Exercise Notice**”) and shall pay for and subscribe to such number of Issuance Shares as they wish to subscribe to (but up to their Pro-rata Share as the case may be), at the Issuance Price and on the Offered Terms as set out in the Issuance Notice.
- 15.4 If any Pre-emptive Right Holder fails to issue the Exercise Notice within the time period specified in Clause 15.3 or does not wish to subscribe to its full entitlement, then after the receipt of all the Exercise Notice(s), the Company by way of written notice (“**Balance Issuance Notice**”) shall offer to issue and allot the Balance Issuance Shares to the other Pre-emptive Right Holders on a *pro-rata* basis on the same terms as mentioned in the Issuance Notice. If any Pre-emptive Right Holder(s) wishes to exercise its Pre-emptive Right over the Balance Issuance Shares, then within seven (7) days from the Balance Issuance Notice, it shall issue a notice to the Company notifying its intention to exercise the Pre-emptive Right on all or part of its Pro-Rata Share of the Balance Issuance Shares (“**Balance Shares Exercise Notice**”). Subject to the receipt of the payment against exercise of the Pre-emptive Right by the Pre-emptive Right Holders, the Company shall issue and allot such number of the Issuance Shares and/or Balance Issuance Shares as is set out in the Exercise Notice and/or the Balance Shares Exercise Notice, as the case may be, to the Pre-emptive Right Holders on the date of closing of the issuance as stated in the Issuance Notice or the Balance Issuance Notice.
- 15.5 If the Pre-emptive Right Holders do not subscribe to their Pro-Rata Share of the Issuance Shares and/or the Balance Issuance Shares, in full or in part, then the Board may, in its discretion, issue and allot such unsubscribed Issuance Shares and/or the Balance Issuance Shares to any Person as it deems fit on the Offered Terms as set out in the Issuance Notice within a period of within one (1) month from the expiry of the period as set out in Clause 15.4. If the Company does not complete the issuance and allotment to such Person within one (1) month of the expiry of the period as set out in Clause 15.4, the Company shall not proceed with such issuance and allotment without issuing a fresh Issuance Notice and following the procedure set out in this Clause 15.
- 15.6 If the Company issues and allots any Issuance Shares to a new investor (the “**New Investor**”) pursuant to this Clause 15, the New Investor shall be required to execute a Deed of Ratification and Accession unless otherwise agreed amongst the Contributing Subscribers and the New Investor.
- 15.7 Creation of an employee share option scheme:
- 15.7.1 The Shareholders agree that the Board shall be authorised to adopt and implement an employee share option scheme or share grant scheme for the benefit of the Company’s employees (“**ESOS**”) which shall comprise up to 5% of the enlarged share capital of the Company following the Second Closing Date. The Board shall have sole discretion to determine the terms and conditions of the ESOS, and the criteria for the selection of eligible employees for participation in the ESOS.

15.7.2 The foregoing provisions of this Clause 15 shall not apply in the event of an offering of new Shares to any eligible employees pursuant to the ESOS.

**16. RIGHT OF FIRST NEGOTIATION**

16.1 If AIHL and/or its Affiliates acquire or develop new intellectual property rights relating to “Next-Generation Sequencing in the detection of pathogens in human infectious disease diagnosis space”, the Company shall have right of first negotiation to the said rights which may be exercised by the Company at any time during the period commencing on the effective date of the Exclusive Licence Agreement and the expiry of [\*\*\*] from the said effective date (“**Right of First Negotiation**”).

16.2 A\*ccelerate shall grant to the Company an option to negotiate a royalty bearing, revocable for cause licence to use the New A\*STAR RI IP for their commercial activities pursuant to Section 14 of the Exclusive Licence Agreement.

**17. DURATION AND TERMINATION**

17.1 Except as otherwise provided herein, this Agreement shall, after the First Closing and/or the Second Closing, continue in full force and effect without limit in point of time until the earlier of the following events:

17.1.1 termination pursuant to the provisions of this Agreement;

17.1.2 the Contributing Subscribers agree in writing to terminate this Agreement;

17.1.3 a resolution to wind-up the Company is passed in accordance with the Constitution, this Agreement and Applicable Law, or if a liquidator is otherwise appointed; or

17.1.4 in relation to any one Shareholder, upon that Shareholder ceasing to hold any Shares, whether in accordance with Clause14 or following the occurrence of an Event of Default.

17.2 An “**Event of Default**” shall be deemed to have occurred after the First Closing and/or the Second Closing (whichever is applicable) if a Party (“**Defaulting Party**”):

17.2.1 commits a material breach of any part of this Agreement that is not capable of remedy;

17.2.2 commits a material breach of any part of this Agreement and fails to remedy the same within thirty (30) days from the service of any written notice by other Parties (“**Non-defaulting Parties**”) complaining of such breach;

17.2.3 enters into any composition or arrangement with its creditors generally or an encumbrancer lawfully takes possession of or an administrative receiver is appointed over the whole or any part of the undertaking, property or assets of the Defaulting Party;

17.2.4 an order is made or resolution is passed or a notice is issued convening a meeting for the purpose of passing a resolution or any analogous proceedings are taken for the appointment of an administrator of or the winding up of the Defaulting Party, other than members’ voluntary liquidation solely for the purpose of amalgamation or reconstruction, or in the case of an individual, bankruptcy proceedings are instituted against the Defaulting Party; or

17.2.5 a notification by the relevant authorities that the Defaulting Party is not a fit and proper person (or any such notice/words carrying that effect) to be a Shareholder.

- 17.3 Upon the occurrence of an Event of Default, the Non-defaulting Party may serve written notice on the Defaulting Parties within thirty (30) days of the Event of Default coming to the actual notice of the Non-defaulting Parties (“**Termination Notice**”) to:
- 17.3.1 require the Defaulting Party to perform its obligation, in which case the remedy of specific performance of this Agreement shall be available to the Non-Defaulting Parties; or
- 17.3.2 require the Company be wound up in which event the Parties shall forthwith do all acts and things necessary to wind up the Company in accordance with Applicable Law; or
- 17.3.3 to terminate this Agreement, whereupon this Agreement shall have no further force and effect with no Party having any rights and obligations against the other save and except for any antecedent breaches, and the obligations under Clauses 12 (Confidentiality), 13 (Restrictive Covenants), 17 (Duration and Termination) and 18 (General Terms) (collectively, the “**Surviving Obligations**”) and such other obligations hereunder which are intended to survive the expiry or termination of this Agreement.

## 18. GENERAL TERMS

- 18.1 **Prevalence of Agreements:** In the event of any inconsistency or conflict between the provisions of this Agreement and the provisions of the Constitution, the provisions of this Agreement shall prevail, and the Parties shall exercise all powers and rights available to them to give effect to the provisions of this Agreement, to the extent permitted under Applicable Law, and/or procure an amendment of the relevant provisions of the Constitution to ensure consistency with the provisions of this Agreement.
- 18.2 **Costs and Expenses:** The Parties shall bear their own costs and expenses incurred in connection with the preparation, negotiation and execution of this Agreement and any documents ancillary to it, and in complying with its obligations under this Agreement (unless otherwise expressly specified herein).
- 18.3 **Entire Agreement:** This Agreement (including the Schedules and the other Transaction Agreements) constitute the entire agreement between the Parties, and supersede all prior or contemporaneous proposals, agreements and all other communications (whether written or oral, express or implied), in respect of the subject matters hereof.
- 18.4 **No Partnership or Agency:** This Agreement shall not constitute or imply any partnership, agency, fiduciary relationship or other relationship among the Parties other than the contractual relationship expressly provided for in this Agreement.
- 18.5 **Assignment:** Save as otherwise permitted under this Agreement, no Party shall transfer or assign all or any of its rights, obligations or benefits hereunder in whole or in part to any third party unless otherwise made in accordance with this Agreement. Subject to the other provisions of this Agreement, all the terms and conditions of this Agreement shall be binding upon and inure to the benefit of the Parties and their respective permitted assigns and successors-in-title except that any permitted assignee or transferee shall agree in writing to comply with all terms and conditions of this Agreement, and any assignment shall not exceed the existing scope of this Agreement.
- 18.6 **Amendments:** No amendment, modification of or addition to any provision of this Agreement shall be effective unless made in writing and signed by the duly authorised representatives of the Parties.
- 18.7 **Waiver:** No failure or delay by any Party in exercising any right, power or privilege under this Agreement shall impair the same or operate as a waiver of the same nor shall any single or partial exercise of any right, power or privilege preclude any further exercise of the same or the exercise of any other right, power or privilege.

- 18.8 Severance: If any provision of this Agreement or the application of any such provision is held by a court of competent jurisdiction to be wholly or partly illegal, invalid or unenforceable, the same shall be deemed to be deleted from this Agreement and shall be no force and effect, whereas the other provisions hereof shall remain in full force and effect as if such provision had not originally been contained in this Agreement. In the event of such deletion, and if the commercial basis of this Agreement is, whether by reason of any illegality or change in circumstances, substantially altered, the Parties shall review and agree on revisions mutually acceptable to them which shall most closely reflect their original intent and purposes in place of the terms so deleted.
- 18.9 Third Party Rights: A person who is not a Party shall have no right under the Contracts (Rights of Third Parties) Act (Cap. 53B) to enforce any provision under this Agreement.
- 18.10 Counterparts: This Agreement may be signed in any number of counterparts, all of which taken together shall constitute one and the same instrument. The Parties agree that execution of this Agreement by industry standard electronic signature software shall have the same legal force and effect as the exchange of original signatures, and that in any proceeding arising under or related to this Agreement, each Party hereby waives any right to raise any defense or waiver based upon execution of this Agreement by means of such electronic signatures or maintenance of the executed agreement electronically.
- 18.11 Governing Law and Jurisdiction: This Agreement and the relationship between the Parties shall be governed by, and interpreted, in accordance with the laws of Singapore. The Parties irrevocably submit to the exclusive jurisdiction of the Courts of Singapore.

## **19. REPRESENTATIONS AND WARRANTIES OF THE PARTIES**

- 19.1 Each Party warrants that as at the date of this Agreement:
- 19.1.1 it has the full legal power, authority and capacity to enter into this Agreement and be bound in all respects in accordance with its terms;
- 19.1.2 no consents, permits or approvals, corporate, governmental or otherwise are required as a condition precedent to its execution of this Agreement or to its performance of its obligations hereunder;
- 19.1.3 the execution of this Agreement and the performance of its respective obligations hereunder will not conflict with or result in a breach of the terms, conditions or provisions of; constitute a default under; or result in a violation of any agreement, instrument, order, decree or judgement to which it is subject or by which it or any of its property is bound, nor shall it conflict with or violate any statute, law, rule, regulation, order, decree, or judgement of any court or governmental authority which is binding upon it or its property;
- 19.1.4 this Agreement (and all other contracts and instruments contemplated hereunder) have been duly and validly executed and delivered by it and constitute the due and legal valid and binding agreements enforceable against it in accordance with the applicable terms; and
- 19.1.5 there is no claim, litigation, proceeding or governmental investigation pending or, so far as is known to it, threatened against or relating to it or its properties or business or the transactions contemplated by this Agreement which does or would materially and adversely affect its ability to enter into this Agreement or to carry out any of its obligations hereunder and, so far as is known to it, there is no basis for any such claim, litigation, proceeding or governmental investigation, except as has been fully disclosed by written notice to the other Shareholders.

19.2 The Parties acknowledge that they have read this Agreement and understood its provisions. No promise, inducement, representation or agreement other than as expressly set forth in this Agreement has been made to or by any Party to any of the other Parties.

**20. NOTICES**

20.1 Any notice required or permitted hereunder shall be in writing and shall be deemed given as of the date it is delivered by hand or sent by overnight courier or registered or certified mail, postage prepaid, to the other Parties at the address first given hereunder or to such other addresses as the Parties may direct in writing.

If to the Company:  
If to AHIL:

If to A\*ccelerate:  
If to the Founding Scientists:  
Please refer to the contact information set forth in Schedule 1

*[THE REST OF THIS PAGE IS INTENTIONALLY LEFT BLANK]*

**SCHEDULE 1  
FOUNDING SCIENTISTS**

**IN WITNESS WHEREOF**, the Parties have caused their duly authorised officers to execute this Agreement on the date first above written.

Company

Signed for and on behalf of )  
**APTORUM INNOVATIONS HOLDING PTE. LIMITED** )  
in the presence of: )

\_\_\_\_\_  
Name:  
Designation:

\_\_\_\_\_  
Name of Witness:

A\*ccelerate

Signed for and on behalf of )  
**ACCELERATE TECHNOLOGIES PTE LTD** )  
in the presence of: )

\_\_\_\_\_  
Name:  
Designation:

\_\_\_\_\_  
Name of Witness:

AIHL

Signed for and on behalf of )  
**APTORUM INNOVATIONS HOLDING LIMITED** )  
in the presence of: )

\_\_\_\_\_  
Name:  
Designation:

\_\_\_\_\_  
Name of Witness:

Founding Scientist

Signed by \_\_\_\_\_ )  
in the presence of: \_\_\_\_\_ )

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Name of Witness: \_\_\_\_\_

Founding Scientist

Signed by \_\_\_\_\_ )  
in the presence of: \_\_\_\_\_ )

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Name of Witness: \_\_\_\_\_

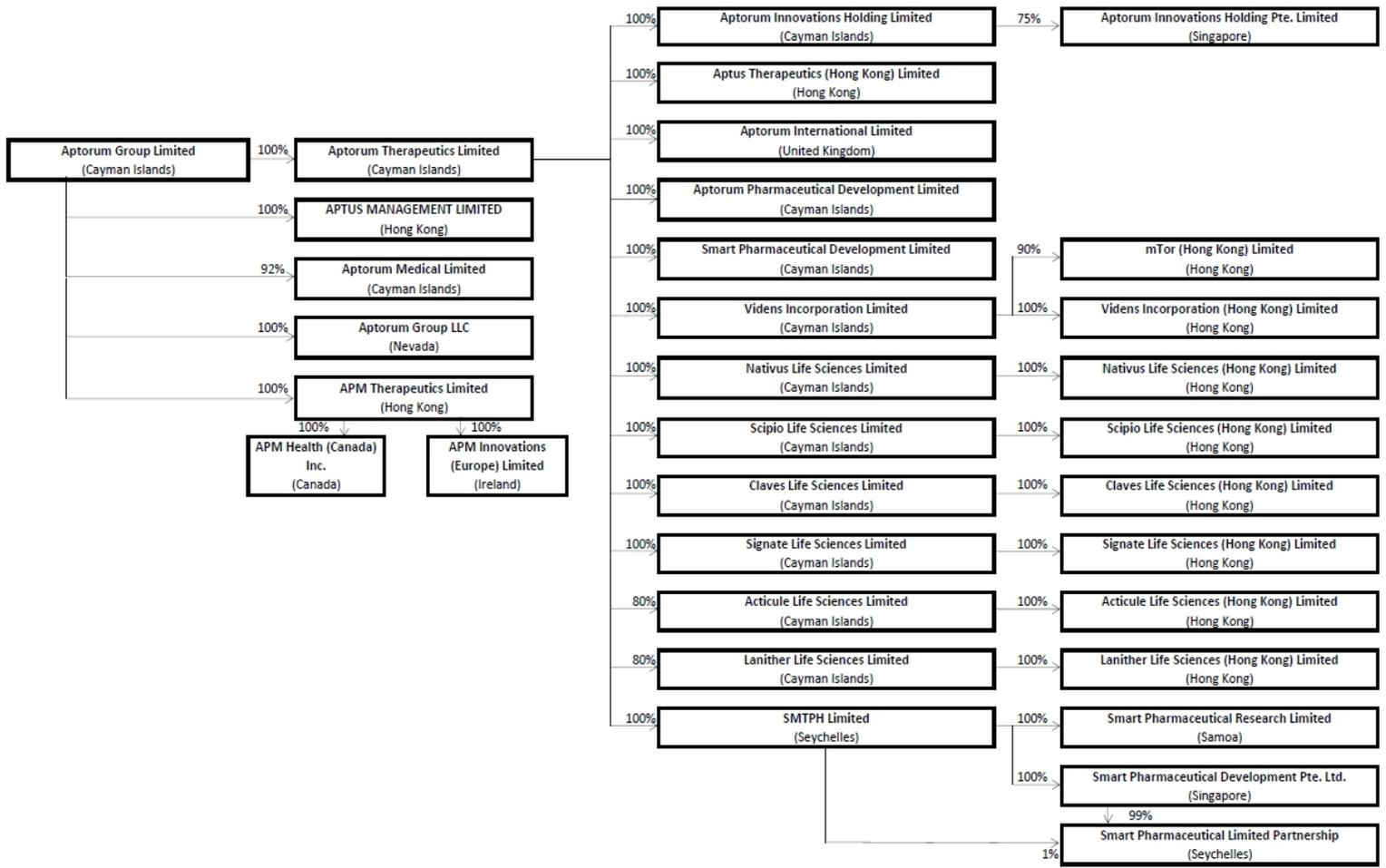
Founding Scientist

Signed by \_\_\_\_\_ )  
in the presence of: \_\_\_\_\_ )

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Name of Witness: \_\_\_\_\_



**Certification**  
**Pursuant to Rule 13a-14(a) of the Exchange Act**

I, Ian Huen, certify that:

1. I have reviewed the annual report on Form 20-F of Aptorum Group Limited;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the company as of, and for, the periods presented in this report;
4. The company's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the company and have:
  - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
  - c. Evaluated the effectiveness of the company's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - d. Disclosed in this report any change in the company's internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the company's internal control over financial reporting; and
5. The company's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the company's auditors and the audit committee of the company's board of directors (or persons performing the equivalent functions):
  - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the company's ability to record, process, summarize and report financial information; and
  - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the company's internal control over financial reporting.

Date: April 19, 2021

By: /s/ Ian Huen

Name: Ian Huen  
Title: Chief Executive Officer  
(Principal Executive Officer)

**Certification**  
**Pursuant to Rule 13a-14(a) of the Exchange Act**

I, Sabrina Khan, certify that:

1. I have reviewed the annual report on Form 20-F of Aptorum Group Limited;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the company as of, and for, the periods presented in this report;
4. The company's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the company and have:
  - a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
  - b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
  - c. Evaluated the effectiveness of the company's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
  - d. Disclosed in this report any change in the company's internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the company's internal control over financial reporting; and
5. The company's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the company's auditors and the audit committee of the company's board of directors (or persons performing the equivalent functions):
  - a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the company's ability to record, process, summarize and report financial information; and
  - b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the company's internal control over financial reporting.

Date: April 19, 2021

By: /s/ Sabrina Khan

Name: Sabrina Khan

Title: Chief Financial Officer

(Principal Financial and Accounting Officer)

**Certification**  
**Pursuant to 18 U.S.C. Section 1350**

Pursuant to U.S.C. Section 1350 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code), each of the undersigned officers of Aptorum Group Limited (the "Company"), does hereby certify, to such officer's knowledge, that the Annual Report on Form 20-F for the year ended December 31, 2020 of the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and information contained in the Form 20-F fairly presents, in all material respects, the financial condition and results of operations of the Company.

**Aptorum Group Limited**

April 19, 2021

By: /s/ Ian Huen  
Name: Ian Huen  
Title: Chief Executive Officer  
(Principal Executive Officer)

April 19, 2021

By: /s/ Sabrina Khan  
Name: Sabrina Khan  
Title: Chief Financial Officer  
(Principal Financial and Accounting Officer)



**New York Office**  
7 Penn Plaza, Suite 830  
New York, NY 10001  
T 212.279.7900



**INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT**

We consent to the incorporation by reference in this Registration Statement of Aptorum Group Limited on Form F-3 (FILE NO. 333-235819) of our report dated April 19, 2021, with respect to our audits of the consolidated financial statements of Aptorum Group Limited as of December 31, 2020 and 2019, and for each of the three years in the period ended December 31, 2020, appearing in the Annual Report on Form 20-F of Aptorum Group Limited for the year ended December 31, 2020.

/s/ Marcum Bernstein & Pinchuk LLP

Marcum Bernstein & Pinchuk LLP  
New York, New York  
April 19, 2021

[www.marcumbp.com](http://www.marcumbp.com)