

# ∧PTORUM

OUR MISSION IS TO FACILITATE LIFE SCIENCE INNOVATIONS TO SERVE UNMET MEDICAL NEEDS

Corporate Presentation

NASDAQ Global Market: APM

**FWP Issuer Free Writing Prospectus** 

Filed Pursuant to Rule 433 of the Securities Act of 1933, as amended

Registration Statement No. 333-227198

The issuer has filed a registration statement (including a preliminary prospectus) with the SEC for the offering to which this communication relates (file no. 333-227198). Before you invest, you should read the preliminary prospectus in that registration statement and other documents the issuer has filed with the SEC for more complete information about the issuer and this offering. You may get these documents for free by visiting SEC EDGAR web site at www.sec.gov. Alternatively, the issuer, any underwriter or any dealer participating in the offering will arrange to send you the preliminary prospectus if you request it by calling +1(949)502-4409.

To review a filed copy of our current registration statement, click on the following link:

https://www.sec.gov/Archives/edgar/data/1734005/000121390018016881/f424b4113018\_aptorumgroup.htm

Aptorum Group Limited has filed a registration statement (including a preliminary prospectus) with the SEC for the offering to which this communication relates (file no. 333-227198). Before you invest, you should read the preliminary prospectus in that registration statement and other documents the issuer has filed with the SEC for more complete information about the issuer and this offering. You may get these documents for free by visiting SEC EDGAR web site at <a href="https://www.sec.gov">www.sec.gov</a>. Alternatively, the issuer, any underwriter or any dealer participating in the offering will arrange to send you the preliminary prospectus if you request it by calling +1[949]502-4409.

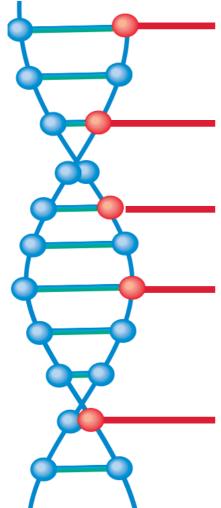
All statements contained herein other than statements of historical fact, including statements regarding our future results of operations and financial position, our business strategy and plans and our objectives for future operations, are forward-looking statements. The words "believe," "estimate," "anticipate," "expect," "plans," "intend," "may," "could," "might," "will," "should," "approximately," "potential," and similar expressions are intended to identify forward-looking statements. We have based these forward-looking statements largely on our current expectations and projections about future events and trends that we believe may effect our financial condition, results of operations, business strategy, short-term and long-term business operations and objectives, and financial needs. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in the "Risk Factors" section of the preliminary prospectus.

Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, 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 we may make. In light of these risks, uncertainties and assumptions, the future events and trends discussed in this preliminary prospectus may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

All references to dollar amounts in the offering summary or to use of proceeds are subject to change pending a final prospectus.



## **INVESTMENT HIGHLIGHTS**



Portfolio of molecules intended to diagnose or treat MRSA, Influenza, Endometriosis, etc.

Management team coupled with medical talents and prominent scientific advisory board

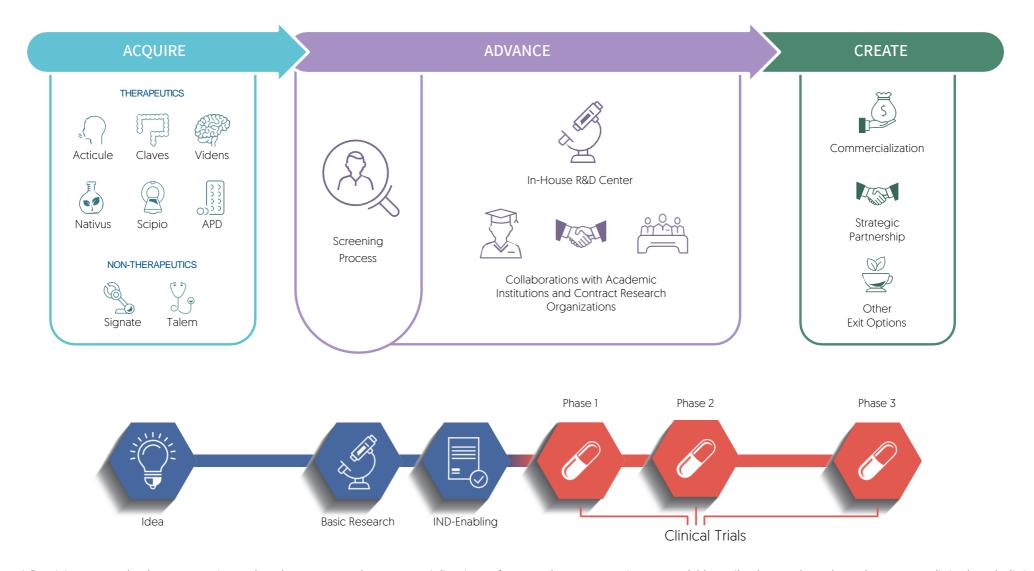
Board of directors with diverse background and accomplishments in finance and in healthcare industry

Located in Hong Kong with proximity and access to the first 3 CFDA-accredited facilities outside China to carry out clinical trials, including The University of Hong Kong, The Chinese University of Hong Kong, and Hong Kong Eye Hospital

Pre-IPO investor base including Adamas Ping An Opportunities Fundiand medical professionals

<sup>1</sup>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.

## **BUSINESS MODEL**



<sup>\*</sup> Decisions on whether to continue development and commercialization of our early-stage projects would heavily depend on the relevant preclinical and clinical data and trial results. The Company expects to follow the business model outlined above.



MR. IAN HUEN

Founder, Chief Executive Officer and
Executive Director

- Over 15 years in global asset management
- US healthcare equity research analyst at Janus Henderson Group
- Trustee board member of Dr. Stanley Ho Medical Development Foundation
- CFA, Princeton University (Econ)



MISS SABRINA KHAN

Chief Financial Officer

- Almost 10 years serving US & Asian healthcare companies
- Extensive experience in business development, restructuring, US & Asian IPO, and M&A deals
- Solid accounting experience gained from Big 4
- Advanced China Certified Taxation Consultant
- CPA, the University of Hong Kong (BBA(Acc & Fin))



MR. DARREN LUI

President, Chief Business Officer and Executive Director

- Over 13 years in global capital market
- Extensive exposure in UK, Singapore, US, etc.
- ICAS, CFA & Associate of Chartered Institute of Securities & Investments (UK)
- First-Class Honors from Imperial College (Biochemistry)



DR. THOMAS LEE WAI YIP

Head of Research and Development

- Former Assistant Professor at The Chinese University of Hong Kong (CUHK) specialized in drug delivery and formulation development
- 10 years working at Novartis & Celgene
- B.Pharm.(Hons), CUHK; Ph.D. in Pharmaceutical Sciences (Drug Delivery), the University of Wisconsin-Madison



DR. CLARK CHENG

Chief Medical Officer and Executive Director

- Almost 10 years working in Raffles Medical Group as Operations Director and Deputy General Manager
- Received medical training at the University College London in 2005 & obtained membership of the Royal College of Surgeons of Edinburgh in 2009
- MBA. University of Iowa



DR. Angel NG SIU YAN

Chief Operating Officer

- Research Officer cum Project Manager at The University of Hong Kong (HKU) towards cadaveric trial for a novel soft robotics medical device
- Former Project Manager at Hong Kong Science & Technology Parks Corporation and CUHK
- B.Sc (Hons), HKU; M.Sc in Composite Materials, Imperial College London; Ph.D. in Mechanical Engineering, HKU



## INDEPENDENT NON-EXECUTIVE DIRECTORS



PROFESSOR DOUGLAS ARNER

Independent Non-Executive Director

Kerry Holdings Professor in Law. HKU



DR. JUSTIN WU

Independent Non-Executive Director

Chief Operating Officer, CUHK Medical Centre



DR.
MIRKO SCHERER
Independent Non-Executive

CEO of CoFes China

Director



MR. CHARLES BATHURST

Independent Non-Executive Director

Founder of Summerhill Advisors Limited

## **SCIENTIFIC ADVISORS**

Chicago



DR.
NISHANT AGRAWAL

Senior Clinical Advisor

Professor of Surgery, School of Medicine, University of



HENRY CHAN LIK YUEN

Senior Advisor

Associate Dean, Faculty of Medicine, CUHK



DR.
PHILIP W.Y. CHIU

Senior Advisor
Professor, Department of
Surgery, Institute of
Digestive Disease, CUHK



DR.
VINCENT MOK
CHUNG TONG
Senior Advisor

Head of Division of Neurology, Dept of Medicine & Therapeutics, CUHK



DR.
KEITH CHAN
Scientific Assessment
Committee Member

Former Director of Division of Bioequivalence responsible for managing and approval of generic drugs in US



DR. KENNY YU KWOK HEI

Scientific Assessment Committee Member

NIHR Academic Clinical Lecturer, the University of Manchester



DR. KA-WAI KWOK

Scientific Assessment Committee Member

Assistant Professor, Department of Mechanical Engineering, the University of Hong Kong



DR. JASON Y. K. CHAN

Scientific Assessment Committee Member

Assistant Professor,
Department of
Otorhinolaryngology,
CUHK



DR. OWEN KO HO

Scientific Assessment Committee Member

Assistant Professor, Department of Medicine and Therapeutics, CUHK



DR. WAI-LUNG NG

Scientific Assessment Committee Member

Research fellow, Dana-Farber Cancer Institute/ Harvard Medical School



DR. SUNNY WONG HEI

Scientific Assessment Committee Member

Assistant Professor, Department of Medicine and Therapeutics, CUHK



DR. WILLIAM WU KA KEI

Scientific Assessment Committee Member

Associate Professor,
Department of
Anaesthesia and Intensive
Care, CUHK

# **PROJECT PORTFOLIO**

| DRUG AND DEVICE CANDIDATES |   |   |   |                   |                      |              |         |         |         |
|----------------------------|---|---|---|-------------------|----------------------|--------------|---------|---------|---------|
|                            |   |   | DEVELOPMENT STAGE                       |                   |                      |              |         |         |         |
| PROJECTS                   | CANDIDATE / MODALITY                                      | INDICATION  | Target<br>Identification &<br>Selection | Lead<br>Discovery | Lead<br>Optimization | IND-Enabling | Phase 1 | Phase 2 | Phase 3 |
| VIDENS' SERI               | ES  |   |   |                   |                      |              |         |         |         |
| VLS-1                      | Curcumin-MNP<br>(Medical Imaging Agent for MRI Diagnosis) | Diagnosis of Alzheimer's Disease  |   |                   |                      |              |         |         |         |
| VLS-2                      | MITA (mTor-independent TFEB activator)                    | Treatment of Alzheimer's & Parkinson's Disease                                      |   |                   |                      |              |         |         |         |
| VLS-4                      | Imaging Agent for MRI Diagnosis                           | Diagnosis of Alzheimer's Disease  |   |                   |                      |              |         |         |         |
| ACTICULE'S S               | SERIES  |   |   |                   |                      |              |         |         |         |
| ALS-1                      | Small Molecule  | Treatment of viral infections caused by Influenza virus A                           |   |                   |                      |              |         |         |         |
| ALS-2                      | Small Molecule  | Treatment of bacterial infections caused by Staphylococcus aureus including MRSA    |   |                   |                      |              |         |         |         |
| ALS-3                      | Small Molecule  | Reviving existing antibiotics to overcome drug resistance                           |   |                   |                      |              |         |         |         |
| ALS-4                      | Small Molecule  | Treatment of bacterial infections caused by<br>Staphylococcus aureus including MRSA |   |                   |                      |              |         |         |         |





# PROJECT PORTFOLIO

|                 |                                  |   |                   | DEVELOPMENT STAGE    |              |         |         |         |  |  |
|-----------------|----------------------------------|---|-------------------|----------------------|--------------|---------|---------|---------|--|--|
| PROJECTS        | CANDIDATE / MODALITY INDICATION  | Target<br>Identification &<br>Selection                                 | Lead<br>Discovery | Lead<br>Optimization | IND-Enabling | Phase 1 | Phase 2 | Phase 3 |  |  |
| NATIVUS' SEI    | NATIVUS' SERIES                  |   |                   |                      |              |         |         |         |  |  |
| NLS-1           | Small molecule                   | Treatment of Endometriosis  |                   |                      |              |         |         |         |  |  |
| NLS-2           | An extract from Chinese yam      | Relief of Menopausal Symptoms   |                   |                      |              |         |         |         |  |  |
| NLS-3           | SAC                              | Treatment of and protection against retinal ischemia/reperfusion injury |                   |                      |              |         |         |         |  |  |
| SCIPIO'S SERIES |                                  |   |                   |                      |              |         |         |         |  |  |
| SPLS-1          | 83b-1 Novel Quinoline Derivative | Treatment of liver cancer   |                   |                      |              |         |         |         |  |  |

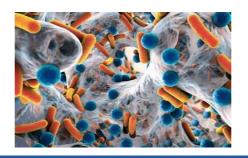
| DD O IF CTO  | CANDIDATE (MODALITY  | INDICATION   | DEVELOPMENT STAGE |                 |                             |                                     |                           |                          |  |
|--------------|----------------------|--|-------------------|-----------------|-----------------------------|-------------------------------------|---------------------------|--------------------------|--|
| PROJECTS     | CANDIDATE / MODALITY | DIDATE / MODALITY INDICATION                                     |                   | Animal<br>Trial | IDE Application<br>Approval | Safety/Fesibility<br>Clinical Study | Pivotal Clinical<br>Study | Process of obtaining PMA |  |
| SIGNATE'S SE | SIGNATE'S SERIES     |  |                   |                 |                             |                                     |                           |                          |  |
| \  \         |                      | Heart rhythm disorders by cardiac electrophysiology intervention | On-going          |                 |                             |                                     |                           |                          |  |

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|---------------|--------------------|----------------------|
| Lead Projects | Other Candidates   | Device Candidates    |
|               |                    |                      |

| OTHER KEY PROJECTS |  |  |                                   |  |  |  |
|--------------------|--|--|-----------------------------------|--|--|--|
| ALS-DDC            | Drug Discovery Center + Chemical Library | Drug discovery by identification and screening of drug molecules for various indications | Setting Up                        |  |  |  |
| AML Clinic         | Clinic - Talem Medical                   | Medical Services   | Commenced operations in June 2018 |  |  |  |

## **OVERVIEW OF OUR LEAD PROJECTS**







| ALS-1 INFLUENZA A   | ALS-4 STAPHYLOCOCCUS INCLUDING METHICILLIN-RESISTANT S. AUREUS (MRSA)  | NLS-1 ENDOMETRIOSIS  |
|---|--|--|
| Population affected:  Annual epidemics estimated to result in ~3-5 million cases of serious influenza infections, causing about 290,000-650,000 deaths each year, around 50-80% of influenza infections are type A. | Population affected: 53 million people worldwide carry MRSA <sup>i</sup> .  For example, in U.S., ~126,000 hospitalizations are due to MRSA yearly, where severe infections occur in ~94,000 people each year and are associated with ~19,000 deaths <sup>ii</sup> . | Population affected: ~176 million women globally (≈1 in 10 women during their reproductive years) <sup>i</sup> . ~30-40% of women with endometriosis are subject to risk of infertility and may develop complications during pregnancy <sup>ii</sup> . |
| Market Size: Global Market Size in 2016: US\$ 0.60 billion**.  Expected Global Market Size by 2025: US\$ 1.2billion**.  | Market Size: Global Market Size in 2016: US\$ 2.97 billion*.  Expected Global Market Size by 2025: US\$ 3.91 billion*.   | Market Size:  Market Size in 2015: US\$ 1.72 billion (across the 7 major countries) <sup>™</sup> .  Expected Market Size by 2025: just over US\$ 2 billion (across the 7 major countries) <sup>™</sup> .   |

i. WHO: Influenza (Seasonal), <a href="http://www.who.int/en/news-room/fact-sheets/detail/influenza-seasonal">http://www.who.int/en/news-room/fact-sheets/detail/influenza-seasonal</a>)

ii. WHO Global circulation of influenza viruses,

http://apps.who.int/flumart/Default?ReportNo=6

iii.Bloomberg: New Drugs Are Coming to Fight Nasty Flu Seasons (9 Feb 2018),

 $\underline{https://www.bloomberg.com/news/articles/2018-02-08/flu-relief-is-coming-as-successors-to-aging-tamiflu-near-market}$ 

i. Roche Annual report 2017, https://www.roche.com/dam/jcr:78519d71-10af-4e02-b490-7b4648a5edb8/en/ar17e.pdf

ii. emedicinehealth: MRSA

https://www.emedicinehealth.com/mrsa\_infection/article\_em.htm#how\_common\_is \_mrsa

iii. Healthcare Drive: Global Methicillin-resistant Staphylococcus Aureus (MRSA) Drugs Market Analysis and Forecast Predictions, <a href="https://www.healthcaredive.com/press-release/20180405-global-methicillin-resistant-staphylococcus-aureus-mrsa-drugs-market-anal/">https://www.healthcaredive.com/press-release/20180405-global-methicillin-resistant-staphylococcus-aureus-mrsa-drugs-market-anal/</a>

i.Endometriosis.org: Facts about endometriosis,

http://endometriosis.org/resources/articles/facts-about-endometriosis/

ii. Washington University Physicians, "Endometriosis",  $\frac{https://fertility.wustl.edu/getting-started-infertility/infertility-factors/endometriosis/$ 

J. Fisher M. Kirkman, "Endometriosis and fertility: women's accounts of healthcare", Human Reproduction, Volume 31, Issue 3, March 1, 2016, Pages 554–562, January 11, 2016, https://doi.org/10.1093/humrep/dev337

iii. R&D: Endometriosis Market Expected to Surpass \$2 Billion by 2025 [11 Nov 2016] – By Global Data. List of 7 major countries: the US, France, Germany, Italy, Spain, the UK and Japan, <a href="https://www.rdmag.com/news/2016/11/endometriosis-market-expected-surpass-2-billion-2025">https://www.rdmag.com/news/2016/11/endometriosis-market-expected-surpass-2-billion-2025</a>



#### **CHARACTERISTICS**

- Small drug molecule
- ALS-1 acts on a unique therapeutic target, nucleoproteins, which distinguishes it from all other currently marketed antiviral drugs which currently experience resistance from Influenza A virus

#### **MECHANISM OF ACTION**

• We believe the therapeutic target, nucleoproteins, is essential for proliferation of viruses

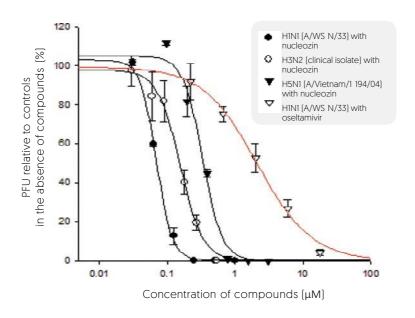
## **ADMINISTRATION**

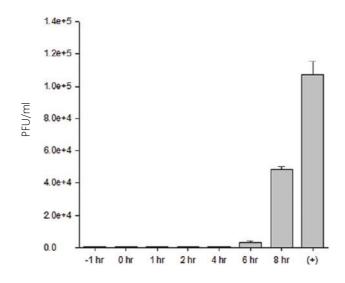
• We intend to develop this molecule for oral administration



## **LEAD PROJECT - ALS-1**

#### A SMALL MOLECULE FOR THE TREATMENT OF VIRAL INFECTIONS CAUSED BY INFLUENZA VIRUS A





This figure shows the concentration dependence of ALS-1 in reducing the plaque-forming unit (pfu, a measure of number of infectious virus particulates, which represents the in vitro efficacy of the drug) of human H1N1, H3N2 and H5N1 influenza viruses. The  $IC_{50}$  (the concentration of drug at which 50% of the virus is inhibited) for these viruses is between 0.1- $I\mu$ M. Oseltamivir (curve in red) is included for comparison in terms of in vitro efficacy against H1N1. The curve of ALS-1 is in the left side of the red curve, indicating ALS-1 has a lower  $IC_{50}$ .

This figure shows that MDCK cells were infected and ALS-1 (1  $\mu$ M) was added before infection (–1 h), at the time of infection (0 h) and at 1, 2, 4, 6 and 8 hour after infection as indicated. + = a control without ALS-1. This figure indicates that ALS-1 inhibited viral growth even when added within 6 hours after inoculation of the MDCK cells with the virus, indicating that the antiviral activities of ALS-1 reside on post-entry and post-nuclear events, suggesting that multiple processes involving NP may be affected.

[Adapted from Nature Biotechnology [28 [6]: 600, 2010]]

12

[Adapted from Nature Biotechnology [28 [6]: 600, 2010]]

## **CURRENT TREATMENT OPTIONS**

FOR VIRAL INFECTIONS CAUSED BY INFLUENZA VIRUS A

| COMPANY               | PRODUCT<br>(GENERIC NAME) | PRODUCT<br>(BRAND NAME) | FORMULATION             | FDA APPROVAL<br>(YEAR) | AVAILABILITY OF<br>GENERIC VERSIONS |
|-----------------------|---------------------------|-------------------------|-------------------------|------------------------|-------------------------------------|
| GlaxoSmithKline (GSK) | Zanamivir                 | Relenza                 | Powder                  | 1999                   | N                                   |
| Roche                 | Oseltamivir               | Tamiflu                 | Capsule, for Suspension | 1999                   | Υ                                   |
| Seqirus               | Peramivir                 | Rapivab                 | Intravenous             | 2014                   | N                                   |

- ALS-1 acts on a unique therapeutic target, nucleoproteins, which distinguishes it from all other currently marketed antiviral drugs which currently experience resistance from Influenza A virus.
- Inhibition of virus replication in vitro and outperforms oseltamivir (Tamiflu®) with a lower IC<sub>50</sub> (half maximal effective concentration).
- Animal studies suggest that ALS-1 has the potential to be developed into a useful anti-influenza therapeutic.

Reference

FDA: FDA Approved Drug Products: <a href="https://www.accessdata.fda.gov/scripts/cder/daf/index.cfm?event=BasicSearch.process">https://www.accessdata.fda.gov/scripts/cder/daf/index.cfm?event=BasicSearch.process</a> MedicineNet.com: <a href="https://www.medicinenet.com">https://www.medicinenet.com</a>



A SMALL MOLECULE FOR THE TREATMENT OF INFECTIONS CAUSED BY STAPHYLOCOCCUS AUREUS INCLUDING MRSA

#### **CHARACTERISTICS**

- MRSA has developed resistance to many, if not all, of the existing drugs available for treatment
- Intended to inhibit formation of golden color pigment that enables bacteria to invade cells and also avoid attack by the immune system

#### **MECHANISM OF ACTION**

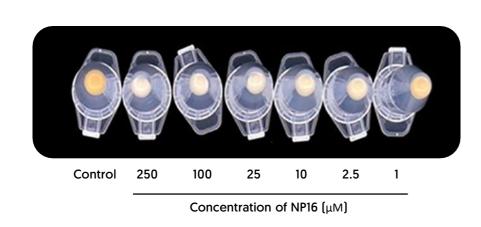
 Intended to inhibit golden color pigment formation, an important factor in promoting the bacteria to invade healthy cells, and to protect them from attack by immune system

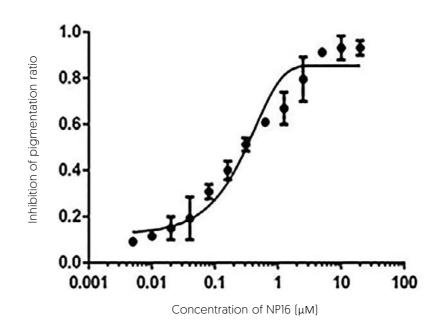
#### **ADMINISTRATION**

• We intend to develop this molecule for oral or IV administration

## **LEAD PROJECT - ALS-4**

#### A SMALL MOLECULE FOR THE TREATMENT OF INFECTIONS CAUSED BY STAPHYLOCOCCUS AUREUS INCLUDING MRSA





ALS-4 has been developed to inhibit the formation of the golden pigment in vitro in a dose-dependent manner.

The  $IC_{50}$  of ALS-4 for the inhibition of the golden pigment formation is roughly 300nM.

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]]

| PRODUCT<br>(GENERIC NAME) |               |  |  |  |  |
|---------------------------|---------------|--|--|--|--|
| Cefazolin                 | Dicloxacillin |  |  |  |  |
| Cefuroxime                | Vancomycin    |  |  |  |  |
| Cephalexin                | Clindamycin   |  |  |  |  |
| Nafcillin                 | Rifampin      |  |  |  |  |
| Oxacillin                 | Telavancin    |  |  |  |  |

- MRSA has developed resistance to many, if not all, of the existing drugs available for treatment.
- ALS-4 employs a non-antibiotic approach designed to act on a unique therapeutic target to inhibit production of staphyloxanthin, which distinguishes it from other current treatments.
- Studies have shown that staphyloxanthin is an important factor in enabling MRSA bacteria to escape from the immune system.
- ALS-4 has been developed to inhibit production of staphyloxanthin without killing the bacteria, which should enable the immune system to clear MRSA.

REFERENCE:

MedicineNet.com: Staph Infection: <a href="https://www.medicinenet.com/staph\_infection/article.htm#what\_is\_antibiotic-resistant\_s\_aureus">https://www.medicinenet.com/staph\_infection/article.htm#what\_is\_antibiotic-resistant\_s\_aureus</a>

#### **CHARACTERISTICS**

- Drug molecule derived from a small molecule extracted from green tea
- Non-hormonal treatment

## **MECHANISM OF ACTION**

Act as an antiangiogenic therapy

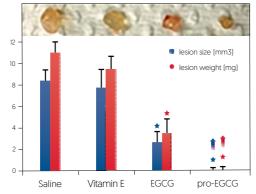
#### **ADMINISTRATION**

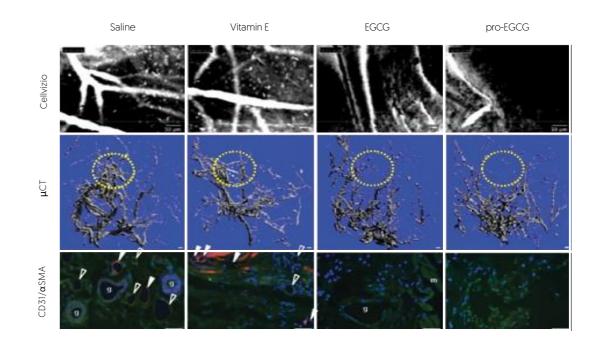
• We intend to develop this molecule for oral administration

## **LEAD PROJECT - NLS-1**

#### PRO-EGCG, A DERIVATIVE OF EPIGALLOCATECHIN-3-GALLATE FOR THE TREATMENT OF ENDOMETRIOSIS







Studies utilizing mouse endometriosis models demonstrated that administration of NLS-1 resulted in greater reductions in the size and weight of lesions than Vitamin E, EGCG or the control without any treatment molecule.

Studies utilizing mouse endometriosis models demonstrated that administration of NLS-1 resulted in greater reductions in angiogenesis than Vitamin E, EGCG or the control without any treatment molecule.

[Adapted from Angiogenesis [16:59, 2013]]

[Adapted from Angiogenesis (16:59, 2013]]

## **CURRENT TREATMENT OPTIONS**

FOR ENDOMETRIOSIS

#### **CURRENT HORMONAL TREATMENTS**

| PRO               | PRODUCT (GENERIC NAME)            |  |  |  |  |  |
|-------------------|-----------------------------------|--|--|--|--|--|
| GnRH agonist      | GnRH agonist Leuprorelin          |  |  |  |  |  |
|                   | Goserelin                         |  |  |  |  |  |
|                   | Nafarelin                         |  |  |  |  |  |
|                   | Buserelin                         |  |  |  |  |  |
|                   | Triptorelin                       |  |  |  |  |  |
| Progestins        | Dienogest                         |  |  |  |  |  |
|                   | Medroxyprogesterone acetate       |  |  |  |  |  |
|                   | Depot medroxyprogesterone acetate |  |  |  |  |  |
|                   | Norethisterone                    |  |  |  |  |  |
| Danazol           |                                   |  |  |  |  |  |
| Aromatase Inhibi  | Aromatase Inhibitors              |  |  |  |  |  |
| Oral contraceptiv | Oral contraceptive pills          |  |  |  |  |  |
| Mirena coils      | Mirena coils                      |  |  |  |  |  |

- Drug molecule derived from EGCG which is extracted from green tea.
- Intended as non-hormonal treatment for endometriosis.
- Studies in animal models show reductions in development, growth and angiogenesis of endometriosis greater than EGCG.
  - Statistically significant reduction in the development, growth and angiogenesis of endometriosis.
- We believe our treatment may provide an alternative to hormonal treatments which have undesirable side effects.
  - Statistically significant reduction in the lesion size over oral EGCG and other hormone-based therapy in animal models.

#### REFERENCE:

Endometriosis.org: Treatments: <a href="http://endometriosis.org/treatments/gnrh/">http://endometriosis.org/treatments</a>
Endometriosis.org: GnRH: <a href="http://endometriosis.org/treatments/gnrh/">http://endometriosis.org/treatments/gnrh/</a>
Endometriosis.org: Progestins: <a href="http://endometriosis.org/treatments/progestins/">http://endometriosis.org/treatments/progestins/</a>



## OTHER PROJECTS UNDER DEVELOPMENT

ALS-2



**110-7** 



VLS-1



VIS-4



- A small molecule targeting bacterial virulence for the treatment of bacterial infections caused by Staphylococcus aureus including MRSA, by suppressing the expression of multiple virulence factors simultaneously.
- Currently at the Lead Optimization Stage to optimize its drug-like properties.
- A small molecule that is presently under investigation to combine with certain classes of existing antibiotics to overcome drug resistance.
- Currently at the Lead Optimization Stage to optimize its drug-like properties.
- An MRI contrast agent, which may enable imaging for identifying amyloid beta plaques in Alzheimer's disease.
- Currently at the Lead Discovery Stage.
- Developing a new class of MRI contrast agents for diagnosis of neurodegenerative diseases.
- Currently at the Lead Discovery Stage.

## OTHER PROJECTS UNDER DEVELOPMENT

VLS-2



• We believe VLS-2 is a small drug molecule that appears to activate autophagy without inhibiting mTOR function, an endogenous cellular mechanism for clearing multiple pathological protein aggregates including tau, which are responsible for the development of neurodegenerative diseases.

• Currently at the Lead Discovery Stage.

NLS-2



• Extract isolated from Chinese Yam, Dioscorea opposita Thunb, in development for the treatment of menopausal syndrome.

Currently at the Lead Discovery Stage.

NLS-3



• Extract from garlic S-allyl L-Cysteine (SAC) for the treatment of and protection against retinal ischemia/reperfusion injury.

• Currently at the Lead Discovery Stage.

SPLS-1

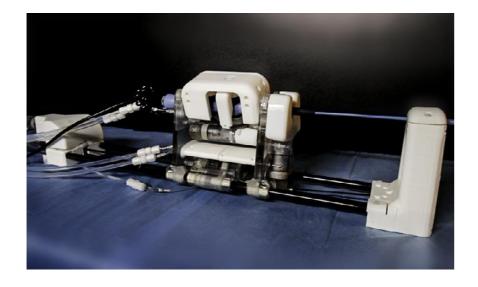


• A quinoline derivative from Ephedra pachyclada, is at present under active investigation for the treatment of liver cancer.

• Currently at the Lead Discovery Stage.

## **DEVICE UNDER DEVELOPMENT**

|              |  |  | DEVELOPMENT STAGE          |                 |                             |                                     |  |                          |  |  |
|--------------|--|--|----------------------------|-----------------|-----------------------------|-------------------------------------|--|--------------------------|--|--|
| PROJECTS     | CANDIDATE / MODALITY   | INDICATION   | Lab-based<br>Phantom Trial | Animal<br>Trial | IDE Application<br>Approval | Safety/Fesibility<br>Clincial Study |  | Process of obtaining PMA |  |  |
| SIGNATE'S SI | SIGNATE'S SERIES   |  |                            |                 |                             |                                     |  |                          |  |  |
| SLS-1        | Robotic catheter platform for Intra-operative MRI-guided cardiac catheterization | Heart rhythm disorders by cardiac electrophysiology intervention | On-going                   |                 |                             |                                     |  |                          |  |  |



- Robotic catheter platform for MRI-guided cardiovascular intervention for the treatment of arrhythmia.
- The platform consists of a magnetic resonance imaging ("MRI-guided") robotic electrophysiology ("EP") catheter system, an MR-based positional tracking unit, and a navigation interface.
- Currently in Lab-based Phantom Trial, followed by preclinical trials when all the components are ready.

## OTHER NON-THERAPEUTIC PROJECTS

| OTHER KEY PROJECTS |  |  |                                   |  |  |  |
|--------------------|--|--|-----------------------------------|--|--|--|
| ALS-DDC            | Drug Discovery Center + Chemical Library | Drug discovery by identification and screening of drug molecules for various indications | Setting Up                        |  |  |  |
| AML Clinic         | Clinic - Talem Medical                   | Medical Services   | Commenced operations in June 2018 |  |  |  |

#### **TALEM MEDICAL**



For illustrative purposes only. There is no guarantee that any project will have a specific outcome or will be completed.

Our Company has set up an outpatient clinic under the name of Talem Medical in Central, Hong Kong.

- Focus on treatment of chronic diseases resulting from modern sedentary lifestyles and aging population.
- Clinic commenced operation in June 2018.

# **IP AROUND LEAD PROGRAMS**

| PROJECT COMPANY<br>/ PROJECT NAME | LICENSOR(S)  | LICENSEE                           | LICENSED / IP RIGHTS   | PATENT EXPIRATION DATES   |
|-----------------------------------|--|------------------------------------|--|---|
| Acticule / ALS-1                  | Versitech Limited  | Acticule Life<br>Sciences Limited  | Exclusive licensee: 1 U.S. patent (US9212177), 1 European Patent (EP2462138B1), 1 PRC patent (CN102596946B), 1 German patent (DE60 2010 019 171.0)   | The licensed IP rights include granted patents in the U.S., Switzerland, Germany, Great Britain and PRC.  The U.S. patent will expire in 2031; the European Patent in 2030; the PRC patent in 2030 and the German patent in 2030.   |
| Acticule / ALS-4                  | Versitech Limited  | Acticule Life<br>Sciences Limited  | Exclusive licensee: 2 pending U.S. application (16/041,836 and US16/041,838) and 2 pending PCT application (PCT/IB2018/055458, PCT/IB2018/055459)  | The licensed IP rights include pending patent applications in the U.S. and under the PCT.  Any patent based on the application, if granted, will have a 20-year patent term from 2018.  |
| Nativus / NLS-1                   | <ol> <li>PolyU Technology and<br/>Consultancy Company Limited</li> <li>McGill University</li> <li>Wayne State University</li> <li>H. Lee Moffitt Cancer Center and<br/>Research Institute Inc.</li> <li>The Chinese University of Hong<br/>Kong</li> </ol> | Aptorum<br>Therapeutics<br>Limited | Exclusive licensee: 6 U.S. patents (US9713603, US7544816, US8193377, US8710248, US9169230, US10188629), 1 European Patent (EP1778663), 1 PRC patent (CN101072764B), 1 Indian patent (IN263365) and 1 Japanese patent (JP5265915), as well as 1 pending U.S. application (US16/259,620), 1 pending PRC application (CN104703596A), and 1 pending Hong Kong application (HK15111955.3) | The licensed IP rights include granted patents in the U.S., Germany, Great Britain, France, Italy, Spain, PRC, India and Japan, as well as pending patent applications in the U.S., PRC and Hong Kong. We cannot predict whether such future patent applications will result in the issuance of patents that effectively protect the candidate.  The U.S., European and PRC patents covering the compound will expire in 2025; the indication U.S. patent will not expire until 2033. |

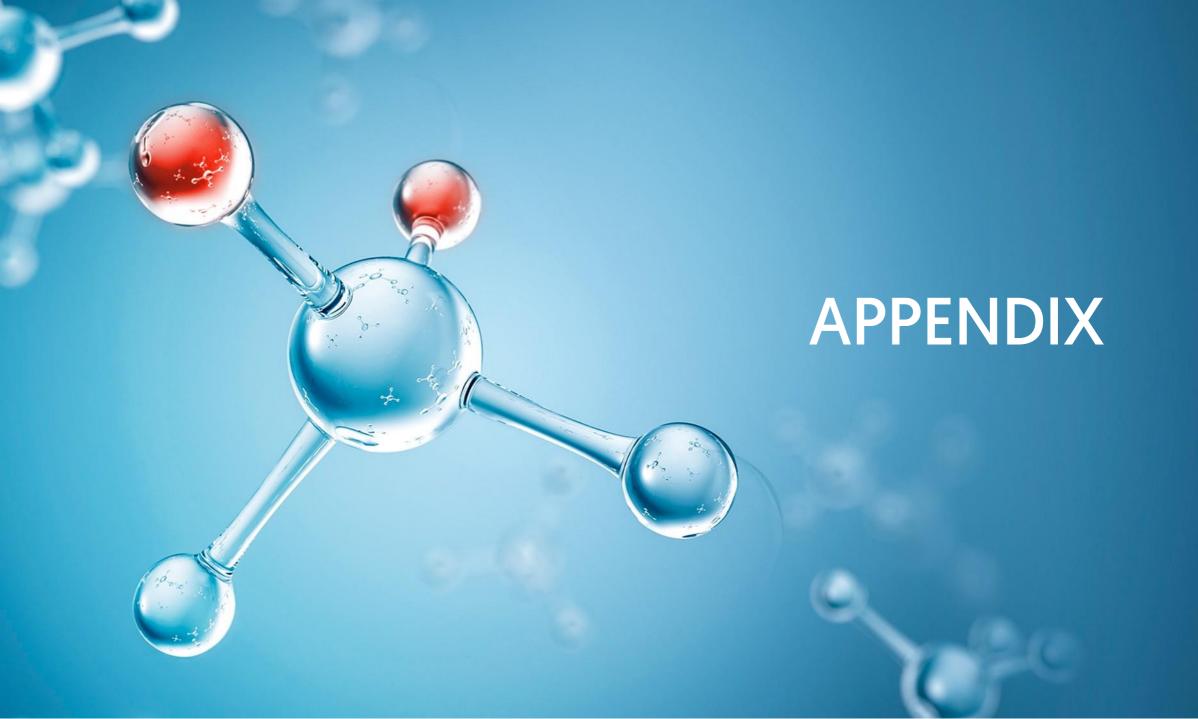


| (US\$) ROUNDED TO THE NEAREST THOUSAND              |   |  |
|---|---|--|
| Cash and restricted cash, and marketable securities | US\$18,698,000 (as of 12/31/2017)           | US\$27,122,000 (as of 12/31/2018)      |
| Intangible assets, net                              | US\$1,473,000 (as of 12/31/2017)            | US\$1,410,000 (as of 12/31/2018)       |
| Operating expenses                                  | US\$5,693,000 (ten months ended 12/31/2017) | US\$10,712,000 (year ended 12/31/2018) |
| Convertible debts                                   | US\$480,000 (as of 12/31/2017)              | US\$10,107,000 (as of 12/31/2018)      |

## **CAPITAL RAISED IN THE PAST 12 MONTHS**







| SELECTED INCOME STATEMENT SUMMARY (US GAAP)            |                                       |                                 |  |
|--|---------------------------------------|---------------------------------|--|
|  | Ten months ended<br>December 31, 2017 | Year ended<br>December 31, 2018 |  |
|  | US\$                                  | US\$                            |  |
| Healthcare services income                             | -                                     | 383,450                         |  |
|  |                                       |                                 |  |
| Costs of healthcare services                           | -                                     | (318,011)                       |  |
| Research and development expenses                      | (2,560,323)                           | (3,101,432)                     |  |
| General and administrative fees                        | (1,480,093)                           | (4,919,626)                     |  |
| Legal and professional fees                            | (1,395,490)                           | (1,811,770)                     |  |
| Other operating expenses                               | (257,177)                             | (560,709)                       |  |
| Total operating expense                                | (5,693,083)                           | (10,711,548)                    |  |
|  |                                       |                                 |  |
| Other income (loss)                                    | 3,131,576                             | (4,806,387)                     |  |
|  |                                       |                                 |  |
| Net loss attributable to the<br>Company's shareholders | (2,547,462)                           | (14,831,723)                    |  |
|  |                                       |                                 |  |
| Depreciation and amortisation                          | (58,903)                              | (682,292)                       |  |

## SELECTED BALANCE SHEET ITEMS (US GAAP)

|                                    | December 31, 2017 | December 31, 2018 |
|------------------------------------|-------------------|-------------------|
|                                    | US\$              | US\$              |
| Cash and restricted cash           | 16,725,807        | 26,107,238        |
| Total current assets               | 20,283,399        | 28,722,941        |
|                                    |                   |                   |
| Property, plant and equipment, net | 346,587           | 4,260,602         |
| Intangible assets, net             | 1,472,707         | 1,409,540         |
| Total assets                       | 31,559,982        | 45,074,640        |
|                                    |                   |                   |
| Convertible debts                  | 480,000           | 10,107,306        |
| Total current liabilities          | 1,330,734         | 12,184,865        |
|                                    |                   |                   |
| Total liabilities                  | 1,330,734         | 12,328,738        |
|                                    |                   |                   |
| Total shareholders' equity         | 30,229,248        | 32,745,902        |
|                                    |                   |                   |
| Working capital*                   | 18,952,665        | 16,538,076        |

<sup>\*</sup> Total current assets less total current liabilities





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