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

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER
PURSUANT TO RULE 13a-16 OR 15d-16
UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the month of September 2019

Commission File Number: 001-38764

Aptorum Group Limited

17th Floor, Guangdong Investment Tower
148 Connaught Road Central
Hong Kong
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F:

Form 20-F ☒ Form 40-F ☐

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ☐

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ☐

The following exhibits are attached.

Exhibit	Description
99.1	Press Release dated September 9, 2019: Aptorum Group Limited Reports Financial Results and Business Update for the Six Months Ended June 30, 2019
99.2	Corporate Presentation
99.3	Press Release dated September 9, 2019: Aptorum Group Has Initiated IND-Enabling Studies For Its ALS-4 Small Molecule Candidate For The Treatment Of Infections Caused By Staphylococcus Aureus Including MRSA
99.4	Press Release dated September 9, 2019: Aptorum Group Announces the Development of Microbiome Drug Candidate Targeting Obesity and Repurposed Drug Candidates Targeting Neuroblastoma

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: September 9, 2019

Aptorum Group Limited

By: /s/ Sabrina Khan
Sabrina Khan
Chief Financial Officer

EXHIBIT INDEX

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NASDAQ: APM

Aptorum Group Limited Reports Financial Results and Business Update for the Six Months Ended June 30, 2019

NEW YORK, September 9, 2019 – Aptorum Group Limited ("Aptorum Group" or the "Company") (NASDAQ: APM), a biopharmaceutical company focused on the development of novel therapeutics to address global unmet medical needs, today provided a business update and announced financial results for the six months ended June 30, 2019.

"During the first six months of 2019, Aptorum Group achieved a number of milestones. Across our pipeline, ALS-4, the drug candidate for the treatment of infections caused by *Staphylococcus aureus* including methicillin-resistant *Staphylococcus aureus* (MRSA), has been progressing well and already entered IND-enabling studies. The first series of GLP toxicology study has been completed and we plan to target the related IND submission around the first to second calendar quarter of 2020. After which, hybrid clinical studies are being designed and are planned to take place in North America. We are also excited to announce the investigation and development of two new preclinical drug candidates, CLS-1 and SACT-1, targeting obesity and neuroblastoma under our recently announced Claves and Smart-ACT™ platforms respectively. Under both platforms, Aptorum Group will continue to drive the discovery and development of new therapeutic candidates focused on unmet needs related to gastrointestinal microbiome and in the orphan diseases area," said Ian Huen, Founder and Chief Executive Officer of Aptorum Group. "To promote further exciting venture opportunities, on April 24, 2019, we entered into a Master Collaboration Agreement with Singapore based A*ccelerate Technologies Pte Ltd, the enterprise office of the government research institution Agency for Science, Technology and Research (A*STAR), pursuant to which the parties may contribute up to an aggregate of $90 million cash and in-kind contributions to suitable start-ups. Through this agreement, Aptorum Group and A*ccelerate intend to jointly create a number of deep tech healthcare and life sciences based ventures in Singapore over the next five years."

Recent Business Updates

- Aptorum Group has commenced the investigational new drug (IND)-enabling studies for ALS-4, the small drug molecule candidate indicated for the treatment of infections caused by *Staphylococcus aureus* including methicillin-resistant *Staphylococcus aureus* (MRSA, a "super-bug") based on a novel anti-virulence approach.
- Claves Life Sciences Limited, a wholly owned subsidiary of Aptorum Group, established a novel therapeutic platform for the treatment of various diseases via modulation of the chemical signaling relating to gut microbiota. Investigation and development of a new preclinical drug candidate, CLS-1, targeting obesity have commenced with the view to commence IND enabling studies in 2020.
- Aptorum Group has established a new subsidiary, Smart Pharma, which operates its novel computational repurposed drug discovery, modeling and validation platform, i.e. the Smart-ACT™ platform. Abbreviated for Accelerated Commercialization of Therapeutics, Smart-ACT™ encompasses state-of-the-art technology to perform systematic screening and repurposing of approved drug molecules against thoughtfully selected therapeutic targets. Specifically, the Smart-ACT™ platform comprises of a network of modules and processes that simulate the effectiveness of drug molecules against diseases for outcome prediction and selection. The Smart-ACT™ platform will initially focus on the screening and repurposing of drug molecules for orphan diseases and diseases with other rare unmet medical needs. Under the Smart-ACT™ platform, computational screening has been completed for 1,615 marketed drugs against 3 therapeutic target proteins which are related to poor prognosis of neuroblastoma. The selected candidates under the SACT-1 program, which is looking for a cure for neuroblastoma, are currently being investigated and undergoing preclinical development.
- Aptorum Group, Aeneas Capital Limited and A*ccelerate Technologies Pte Ltd, the enterprise office of the Agency for Science, Technology and Research (A*STAR), signed a contribution agreement to co-create local deep tech start-ups in the healthcare and life sciences sector. Through this agreement, Aptorum Group and A*ccelerate intend to jointly create up to 20 deep tech ventures in Singapore over the next five years. These enterprises will leverage technologies co-developed by A*STAR research institutes and Aptorum Group. The parties agreed to contribute up to an aggregate of $90 million in cash or in-kind contributions to create these ventures.

Upcoming Milestones

- For ALS-4, Aptorum Group anticipates filing an IND submission in the first or second calendar quarter of 2020 and a hybrid Phase 1 clinical study is currently planned in North America with both healthy volunteers and patients to obtain preliminary efficacy readout.

Financial Results for the Six Months Ended June 30, 2019

Aptorum Group reported a net loss of $9.6 million for the six months ended June 30, 2019 compared to $5.5 million for the same period in 2018. The increase in net loss in current period was driven by increase in research and development expenses, general and administrative fees and legal and professional fees.

Research and development expenses were $2.7 million for the six months ended June 30, 2019 compared to $1.3 million for the same period in 2018. The increase was primarily due to the incurred expenses for new sponsored research entered into with Universities in such period, and the full operation of research and development was started in the second half of 2018 which led to depreciation and increase in payroll expenses since second half of 2018.

General and administrative fees were $3.2 million for the six months ended June 30, 2019 compared to $2.2 million for the same period in 2018. The increase was mainly driven by increased headcount in the Group to support the business development, and the higher amounts of insurance expense incurred after the Company listed its securities on NASDAQ.

Legal and professional fees were $2.0 million for the six months ended June 30, 2019 compared to $1.1 million for the same period in 2018. The increase in legal and professional fees was mainly due to the increasing need for consultancy services on various projects.

As of June 30, 2019, cash and marketable securities totaled approximately $6.1 million and total equity was in excess of $24.0 million.

On August 13, 2019, Aptorum Group entered into financing arrangements allowing the Company to access up to a total $15.0 million in line of credit debt financing. As of the date of this release, the Company has not yet drawn down from this line of credit.

Aptorum Group expects that its existing cash and marketable securities, together with expected and committed cash from existing collaborations, will enable it to fund its operating and capital expenditure requirements to the end of 2020.

About Aptorum Group

Aptorum Group is a pharmaceutical company currently in the preclinical stage, dedicated to developing and commercializing therapeutic technologies to tackle unmet medical needs. The company is pursuing therapeutic projects in infectious diseases, gastroenterology, orphan diseases and other disease areas.

For more information about the Company, please visit www.aptorumgroup.com.

Forward-Looking Statements

This press release includes statements concerning Aptorum Group Limited and its future expectations, plans and prospects that constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. For this purpose, any statements contained herein that are not statements of historical fact may be deemed to be forward-looking statements. In some cases, you can identify forward-looking statements by terms such as "may," "should," "expects," "plans," "anticipates," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "potential," or "continue," or the negative of these terms or other similar expressions. Aptorum Group has based these forward-looking statements, which include statements regarding projected timelines for application submissions and trials, largely on its current expectations and projections about future events and trends that it believes may affect its business, financial condition and results of operations. These forward-looking statements speak only as of the date of this press release and are subject to a number of risks, uncertainties and assumptions including, without limitation, risks related to its announced management and organizational changes, the continued service and availability of key personnel, its ability to expand its product assortments by offering additional products for additional consumer segments, development results, the company's anticipated growth strategies, anticipated trends and challenges in its business, and its expectations regarding, and the stability of, its supply chain, and the risks more fully described in Aptorum Group's Form 20-F and other filings that Aptorum Group may make with the SEC in the future. As a result, the projections included in such forward-looking statements are subject to change. Aptorum Group assumes no obligation to update any forward-looking statements contained in this press release as a result of new information, future events or otherwise.

NASDAQ: APM

APTORUM GROUP LIMITED
CONSOLIDATED BALANCE SHEETS
(Stated in U.S. Dollars)

	As of June 30, 2019 (unaudited)	As of December 31, 2018
ASSETS		
Current assets:		
Cash	$ 4,466,741	$ 12,006,624
Restricted cash	-	14,100,614
Digital currencies	117,482	-
Accounts receivable	8,367	2,827
Inventories	33,911	30,642
Marketable securities, at fair value	1,669,096	1,014,338
Investments in derivatives	425,916	115,721
Amounts due from related parties	-	169,051
Due from brokers	109,134	818,968
Other receivables and prepayments	911,997	464,156
Total current assets	7,742,644	28,722,941
Property, plant and equipment, net	5,777,657	4,260,602
Non-marketable investments	7,112,180	7,094,712
Intangible assets, net	1,347,594	1,409,540
Amounts due from related parties	50,000	50,000
Long-term prepayments	2,048,570	3,417,178
Loan receivable	571,975	-
Other non-current asset	89,750	119,667
Total Assets	$ 24,740,370	$ 45,074,640
LIABILITIES AND EQUITY		
LIABILITIES		
Current liabilities:		
Amounts due to related parties	$ 3,512	$ 33,417
Accounts payable and accrued expenses	548,433	1,247,147
Finance lease payable, current portion	45,196	43,877
Warrant liabilities	-	753,118
Convertible debts	-	10,107,306
Total current liabilities	597,141	12,184,865
Finance lease payable, non-current portion	120,941	143,873
Total Liabilities	$ 718,082	$ 12,328,738
Commitments and contingencies	-	-
EQUITY		
Class A Ordinary Shares ($1.00 par value; 60,000,000 shares authorized, 6,597,362 shares issued and outstanding as at June 30, 2019 and 6,537,269 shares issued and outstanding as at December 31, 2018, respectively)	$ 6,597,362	$ 6,537,269
Class B Ordinary Shares ($1.00 par value; 40,000,000 shares authorized, 22,437,754 shares issued and outstanding as at June 30, 2019 and December 31, 2018)	22,437,754	22,437,754
Additional paid-in capital	23,857,814	23,003,285
Accumulated other comprehensive gain (loss)	7,345	(1,484,688)
Accumulated deficit	(27,957,689)	(17,379,185)
Total equity attributable to the shareholders of Aptorum Group Limited	24,942,586	33,114,435
Non-controlling interests	(920,298)	(368,533)
Total equity	24,022,288	32,745,902
Total Liabilities and Equity	$ 24,740,370	$ 45,074,640

APTORUM GROUP LIMITED
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)
(Stated in U.S. Dollars)

	For the six months ended June 30,	
	2019	**2018**
	(unaudited)	**(unaudited)**
Revenue		
Healthcare services income	$ 239,792	$ 26,662
Operating expenses		
Costs of healthcare services	(371,218)	(22,749)
Research and development expenses	(2,714,217)	(1,342,179)
General and administrative fees	(3,232,916)	(2,238,025)
Legal and professional fees	(2,008,774)	(1,063,032)
Other operating expenses	(120,788)	(235,413)
Total operating expenses	(8,447,913)	(4,901,398)
Other loss		
Gain on investments in marketable securities, net	315,977	-
Gain on non-marketable investment	1,147,199	-
Gain (loss) on investments in derivatives, net	310,195	(359,844)
Realized gain on sale of digital currencies	12,334	-
Changes in fair value of warrant liabilities	(866,300)	-
Gain on extinguishment of convertible debts	1,198,490	-
Interest expense, net	(3,678,566)	(301,362)
Sundry income	128,444	-
Total other loss, net	(1,432,227)	(661,206)
Net loss	$ (9,640,348)	$ (5,535,942)
Less: net loss attributable to non-controlling interests	(551,877)	(47,570)
Net loss attributable to Aptorum Group Limited	$ (9,088,471)	$ (5,488,372)
Net loss per share – basic and diluted	$ (0.31)	$ (0.20)
Weighted-average shares outstanding – basic and diluted	28,978,151	27,864,135
Net loss	$ (9,640,348)	$ (5,535,942)
Other Comprehensive income (loss)		
Unrealized loss on investments in available-for-sale securities	-	(178,027)
Exchange differences on translation of foreign operations	2,000	167
Other Comprehensive income (loss)	2,000	(177,860)
Comprehensive loss	(9,638,348)	(5,713,802)
Less: comprehensive loss attributable to non-controlling interests	(551,877)	(47,570)
Comprehensive loss attributable to the shareholders of Aptorum Group Limited	(9,086,471)	(5,666,232)

Contact

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Media:

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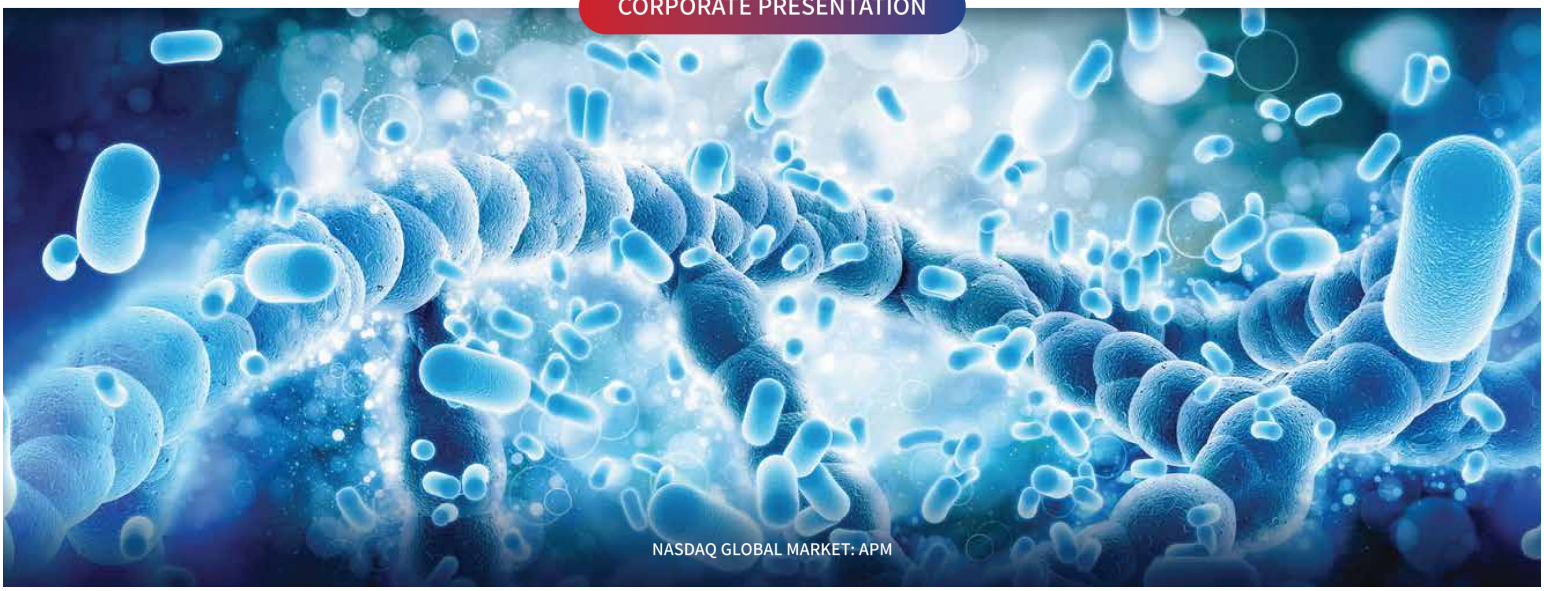
Exhibit 99.2

APTORUM

Facilitating Life Science Innovations to Serve Unmet Medical Needs

CORPORATE PRESENTATION



DISCLAIMER

Certain information included in this presentation and other statements or materials published by Aptorum Group Limited (the "Company") are not historical facts but are forward-looking statements.

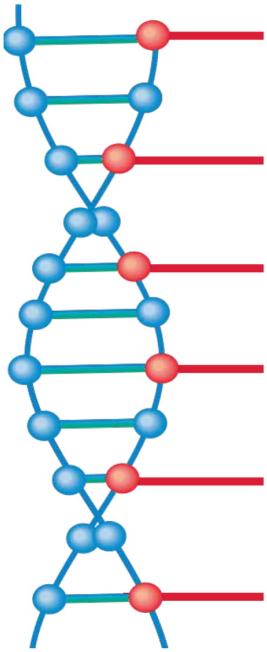
These forward-looking statements refer in particular to the Company's management's business strategies, its expansion and growth of operations, future events, trends or objectives and expectations, which are naturally subject to risks and contingencies that may lead to actual results materially differing from those explicitly or implicitly included in these statements. Forward-looking statements speak only as of the date of this presentation and, subject to any legal requirement, the Company does not undertake to update or revise the forward-looking statements that may be presented in this document to reflect new information, future events or for any other reason and any opinion expressed in this presentation is subject to change without notice. Such forward looking statements are for illustrative purposes only. Forward-looking information and statements are not guarantees of future performances and are subject to various risks and uncertainties, many of which are difficult to predict and generally beyond the control of the Company. These risks and uncertainties include among other things, the uncertainties inherent in research and development of new products, including future clinical trial results and analysis of clinical data (including post-marketing data), decisions by regulatory authorities, such as the Food and Drug Administration or the European Medicines Agency, regarding whether and when to approve any drug, device or biological application that may be filed for any such product candidates as well as their decisions regarding labelling and other matters that could affect the availability or commercial potential of such product candidates.

This presentation does not constitute an offer to sell or solicitation of an offer to buy securities of the Company. This presentation accordingly does not contain the information that would be required in a prospectus or offering memorandum intended to be distributed to persons in an offering of securities of the Company.

For illustrative purposes only. There is no guarantee of any project being completed or having a specific outcome.

APTORUM

INVESTMENT HIGHLIGHTS



Aptorum Group (Nasdaq: APM) is a biopharmaceutical company focused on development of novel therapeutics for unmet medical needs, with a current market capitalization of over USD 400 million

Over 15 therapeutic candidates under development in areas including infectious diseases, gastrointestinal microbiome, drug repurposing for orphan diseases and amongst others

3 therapeutic candidates expected to reach clinical phases over Q2 - Q4 2020. Lead programs for the treatment of (i) *S. aureus* (incl MRSA) infections, (ii) obesity, (iii) neuroblastoma

3 major pillars of drug discovery platforms: (i) targeting bacterial infections using an anti-viruluence (non-bactericidal) approach (ii) targeting over 70 potential therapeutic targets via the modulation of the chemical signaling of gut microbiota, and (iii) deploying computational and high throughput screening of FDA approved therapeutics against over 7,000 potential orphan cancer targets

Over 40 staff, clinical advisors and consultants with vast experience in drug development and clinical trials including US FDA, EMA and NMPA (formerly known as CFDA) purposes

Clinical trials and development sites based in North America and Asia

TEAM

Leadership

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, U.S. (Econ)

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. 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, U.S.

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, University of Hong Kong (BBA(Acc & Fin))

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 from Novartis & Celgene
- B.Pharm.(Hons), CUHK; Ph.D. in Pharmaceutical Sciences (Drug Delivery), the University of Wisconsin-Madison

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

COO of CUHK Medical Centre

DR. MIRKO SCHERER

Independent Non-Executive Director

CEO of CoFes China

MR. CHARLES BATHURST

Independent Non-Executive Director

Founder of Summerhill Advisors Limited

For illustrative purposes only. There is no guarantee of any project being completed or having a specific outcome.

APTORUM

TEAM

Pharmaceutical Development Team

DR. KWOK CHOW

Canada Based Development Team and Advisor

- President of Covar Pharmaceuticals Inc. and Power Pharma Coating Inc
- Former Senior Director at Global PDS Technology and Alliances at Patheon Inc.
- Formerly employed at Glaxo
- B.S. in Pharmacy, the University of Minnesota; Ph.D. in Industrial Pharmacy, the University of Toronto

MR. AUSTIN FREEDMAN

Canada Based Development Team and Advisor

- Executive Director of Pharmaceutical Development at Covar Pharmaceuticals Inc.
- Formerly employed at Glaxo, Apotex and Patheon
- Member of the Royal Pharmaceutical Society
- B.Pharm. (Hons.), the University of London

DR. HERMAN LAM

Canada Based Development Team and Advisor

- Director of Analytical Development at Covar Pharmaceuticals Inc.
- CEO of Powder Coating Pharma, Inc.
- Former Principle Investigator at Glaxosmithkline
- B.Sc. in Chemistry, the University of Toronto; Ph.D. in Chemistry, York University, Canada.

DR. MARY MAZUR MELNYK

Canada Based Development Team and Advisor

- Regulatory Consultant
- M.Sc. in Medical Sciences/ cell and Microbiology, McMaster University; Ph.D. in Molecular Biology/ Biochemistry/Toxicology, York University, U.S.

DR. ALBERT CHOW

Chief Executive Officer & Executive Director at Aptorum Pharmaceutical Development Ltd.

- Former professor at School of Pharmacy, CUHK
- Former independent Non-Executive Director, Jacobson Pharma Group
- M.Sc. in Pharmaceutical Chemistry, and Ph.D. in Physical Pharmaceutics, University of Toronto

DR. JOHN LI

Associate Director

MChem, The University of Sheffield; Ph.D. in Organic Chemistry, The University of Leeds

DR. DANIEL POON

Senior Technical Manager

B.Sc in Chemistry, HKUST; Ph.D. in Pharmacy, CUHK

DR. YANNY CHAN

Senior Scientist (Pharmaceutics)

M.Sc. in Materials Science and Nanotechnology, and Ph.D. in Biology and Chemistry, City University of Hong Kong

DR. SOPHIA TSANG

Senior Scientist (Chemistry)

B.Sc (Hons) in Chemistry, The University of Auckland; Ph.D. in Organic Chemistry, The University of Auckland

TEAM

Clinical Advisor

DR. NISHANT AGRAWAL

Senior Clinical Advisor

Professor of Surgery, School of Medicine, University of Chicago

DR. 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

Consultants, Advisors and Principal Investigators

DR. KEITH CHAN

Consultant

- Adjunct professor and advisor at the Research Center for Drug Discovery, National Yang Ming University in Taipei;
- Former Division Director of Office of Generic Drugs, US FDA
- Co-founder of Globomax LLC
- Formerly employed at Ciba-Geigy

DR. LAWRENCE BAUM

Senior Scientific Advisor

Hon. Asso. Professor, Department of Psychiatry, The University of Hong Kong

DR. FRANCIS SZELE

Senior Scientific Advisor

Asso. Professor, Department of Physiology, Anatomy & Genetics, University of Oxford; Asst. Professor, Subventricular Zone, Northwestern University; Ph.D. in Biology, The University of Pennsylvania, U.S.

DR. RICHARD KAO

Principal Investigator

Asso. Professor, Department of Microbiology, The University of Hong Kong

Technology assessment committee

DR. KENNY YU KWOK HEI

Scientific Assessment Committee Member

Research Associate, Tabar Lab, Memorial Sloan Kettering Cancer Center, New York City, New York, USA

DR. KA-WAI KWOK

Scientific Assessment Committee Member

Asst. Professor, Department of Mechanical Engineering, The University of Hong Kong

DR. JASON Y. K. CHAN

Scientific Assessment Committee Member

Asst. Professor, Department of Otorhinolaryngology, CUHK

DR. OWEN KO HO

Scientific Assessment Committee Member

Asst. Professor, Department of Medicine and Therapeutics, CUHK

DR. SUNNY WONG HEI

Scientific Assessment Committee Member

Asst. Professor, Department of Medicine and Therapeutics, CUHK

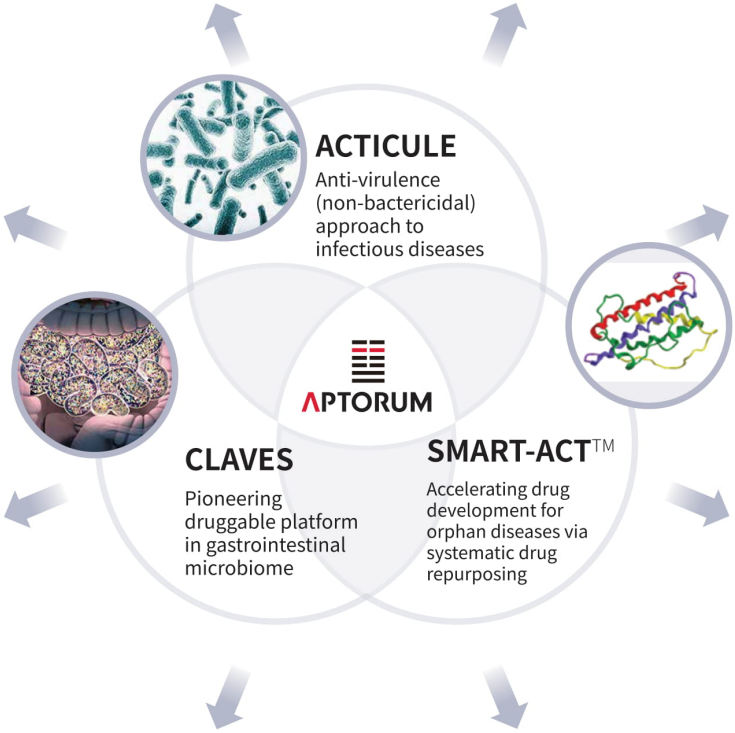
DR. WILLIAM WU KA KEI

Scientific Assessment Committee Member

Asso. Professor, Department of Anaesthesia and Intensive Care, CUHK

APTORUM'S 3 core pillars of therapeutic discovery and development, focused on novel therapeutics for unmet medical needs

Ever expanding universe of proprietary intellectual property in relation to our pipeline products



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APTORUM

PROJECT PORTFOLIO (3 MAJOR PILLARS)

Lead Projects · Other Candidates · Device Candidates · Projected timeline

Pillar 1 : Acticule (ALS series) – Infectious diseases

Small molecule, anti-virulence and non-bactericidal approach — IND — NDA

Program		Discovery	Lead optimization	IND enabling	Phase I	PhII/III based on LPAD pathway*
ALS-4	Anti *S. aureus* (including MRSA)			oral formulation → Q3 2019	Q1/2 2020	
ALS-2	Gram+ bacteria					
ALS-3	Gram+ bacteria				Hybrid study -volunteers + patients -initial efficacy readout	
ALS-1	Anti influenza A			Q4 2020		

*ALS-4's eligibility for the LPAD pathway is subject to the FDA's approval. Targeting other indications in Phase II may affect our valuation. QIDP status can be applied once we identify an indication.

Pillar 2 : Claves (CLS series) - Microbiota

Large molecule approach. Over 70 targets / indications — IND — NDA

Program		Discovery	Lead optimization	IND enabling	Phase I	PhII/III
CLS-1	Obesity		Q4 2019	Q2 2020	Q4 2020	
CLS-2	To be disclosed					
CLS-3	To be disclosed					

Pillar 3 : SMART-ACT™ – Orphan diseases drug repurposing platform

Over 7,000 orphan diseases to be screened in the next 5 years — SMARTPHARMA — 505b(2) filing**

Program		Computational discovery	*In vitro* validation (Preclinical)	*In vivo* validation (Preclinical)	IP filing and preparation of regulatory submission	PhII/III with limited population**
SACT-1	Neuroblastoma			Q4 2019	Q1 2020	ready for clinical trial Q2/Q3 2020
SACT-2	To be disclosed					
SACT-3	To be disclosed					

** Subject to FDA's approval.

For illustrative purposes only. There is no guarantee of any project being completed or having a specific outcome.

APTORUM

PROJECT PORTFOLIO (OTHERS)

Program	Modality	Indication	Formulation	Commercialisation
DOI (NLS-2)	Supplement	Menopausal symptoms		Q1 2020

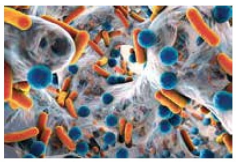
Program	Modality	Indication	Discovery	Lead optimization
NLS-1	Small molecule	Endometriosis		
VLS-2	Small molecule	Alzheimer's & Parkinson's disease		
SPLS-1	Small molecule	Liver cancer		

Program	Modality	Indication	Lab-based phantom trial	Animal trial
SLS-1	Robotic catheter platform for intra-operative MRI-guided cardiac catheterization	Heart rhythm disorders		

For illustrative purposes only. There is no guarantee of any project being completed or having a specific outcome.

APTORUM

OVERVIEW OF OUR LEAD PROJECTS



ALS-4

A small molecule anti-virulence (non-bactericidal) drug for the treatment of infections caused by *Staphylococcus aureus* including MRSA. It disarms the bacteria by inhibition of the production of staphyloxanthin, the golden pigment covering the bacteria, which makes it resistant to attack from reactive oxygen species (ROS) employed by phagocytic cells and neutrophils. Without the pigment, the bacteria are highly susceptible to host immune clearance.

Population affected:

53 million people worldwide carry MRSA[i].

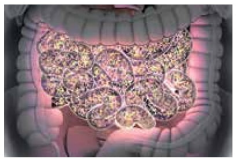
For example, in U.S., ~126,000 hospitalizations are due to MRSA yearly, where severe infections occur in ~94,000 people each year and are associated with ~19,000 deaths[ii].

Market Size:

Global Market Size in 2016:
USD 2.97 billion[iii].

Expected Global Market Size by 2025:
USD 3.91 billion[iii].

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, https://www.healthcaredive.com/press-release/20180405-global-methicillin-resistant-staphylococcus-aureus-mrsa-drugs-market-anal/



CLS-1

A macromolecule that modulates the chemical signaling of gut microbiota for the treatment of obesity. CLS-1 is an orally administered non-absorbable macromolecule that binds a metabolite excreted by gut microbiota with high affinity and specificity. In this way, the absorption of this particular metabolite, which is linked to obesity, can be inhibited.

Population affected:

Obesity is known to be a major worldwide public health problem that affects more than 1.9 billion adults in 2018, which means 39% of adults are considered obesity and overweight[i].

By 2025, global obesity prevalence will reach 18% in men and surpass 21% in women; severe obesity will surpass 6% in men and 9% in women[i] .

Market Size:

Global Market Size in 2018:
USD 6.14 billion[ii].

Expected Global Market Size by 2026:
USD 9.9 billion[ii].

i. The Gut Microbiome Profile in Obesity: A Systematic Review, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5933040; ii. Obesity Treatment Market To Reach USD 19.90 Billion By 2026, https://www.globenewswire.com/news-release/2019/06/06/1865530/0/en/Obesity-Treatment-Market-To-Reach-USD-19-90-Billion-By-2026-Reports-And-Data.html

SACT-1

Small molecule repurposed drugs targeting three important therapeutic target proteins related to poor prognosis of neuroblastoma.

Population affected:

In the US, approximately 700 children and adolescents younger than 20 years of age are diagnosed with tumors of the sympathetic nervous system each year, of which approximately 650 are neuroblastomas[i].

The incidence of neuroblastoma is 10.2 cases per million children under 15 years of age[ii].

Neuroblastoma accounts for approximately 15% of all cancer-related deaths in the pediatric population[ii].

Market Size:

Global Market Size in 2017:
USD 2.6 billion[iii].

Expected Global Market Size by 2023:
approx. USD 3.23 billion[iii]
(at CAGR of 3.7%)

i. Cancer Incidence and Survival among Children and Adolescents: United States SEER Program: 1975-1995, https://seer.cancer.gov/archive/publications/childhood/childhood-monograph.pdf; ii. Neuroblastoma, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3668791; iii. Neuroblastoma Market Global Industry Perspective, Comprehensive Analysis, Size, Share, Growth, Trends, and Forecast 2019 – 2023, https://www.medgadget.com/2019/06/neuroblastoma-market-global-industry-perspective-comprehensive-analysis-size-share-growth-trends-and-forecast-2019-2023.html

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APTORUM

OVERVIEW OF OUR LEAD PROJECTS

ALS-1

A small molecule that targets nucleoproteins for the treatment of infections caused by Influenza A. Influenza A nucleoprotein is an essential protein for the proliferation of the influenza virus. ALS-1 causes the aggregation of nucleoprotein and this prevents the aggregated nucleoprotein from entering the nucleus and triggers the replication of the virus.

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[i], around 50-80% of influenza infections are type A[ii].

Market Size:

Global Market Size in 2016: USD 0.60 billion[iii].

Expected Global Market Size by 2025: USD 1.2 billion[iii].

i. WHO: Influenza (Seasonal), http://www.who.int/en/news-room/fact-sheets/detail/influenza-(seasonal); 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), https://www.bloomberg.com/news/articles/2018-02-08/flu-relief-is-coming-as-successors-to-aging-tamiflu-near-market

NLS-1

An anti-angiogenic small molecule derived from green tea for non-hormonal treatment of endometriosis. NLS-1 inhibits the formation of blood vessels resulting in inhibition of development, growth, angiogenesis of endometriosis.

Population affected:

~176 million women globally (≈1 in 10 women during their reproductive years)[i].

~30-40% of women with endometriosis are subject to risk of infertility and may develop complications during pregnancy[ii].

Market Size:

Market Size in 2015: USD 1.72 billion (across the 7 major countries)[iii].

Expected Market Size by 2025: just over USD 2 billion (across the 7 major countries)[iii].

i. Endometriosis.org: Facts about endometriosis, http://endometriosis.org/resources/articles/facts-about-endometriosis; ii. Washington University Physicians, "Endometriosis", 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, https://www.rdmag.com/news/2016/11/endometriosis-market-expected-surpass-2-billion-2025

NLS-2

A natural supplement derived from Chinese yam for the relief of menopausal symptoms. NLS-2 was shown to stimulate estradiol biosynthesis and induce estradiol and progesterone secretion. It counteracts the progression of osteoporosis and augment bone mineral density; and improve cognitive functioning.

Population affected:

1.2 billion postmenopausal women projected by the year 2030[i].

85% of postmenopausal women experience menopause-related symptoms in their lifetime[ii].

Market Size:

Global Market Size in 2019: USD 17.1 billion[iii].

Expected Global Market Size by 2025: USD 50.1 billion[iii].

i. Cancer Incidence and Survival among Children and Adolescents: United States SEER Program: 1975-1995, https://seer.cancer.gov/archive/publications/childhood/childhood-monograph.pdf; ii. Neuroblastoma, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3668791; iii. Neuroblastoma Market Global Industry Perspective, Comprehensive Analysis, Size, Share, Growth, Trends, and Forecast 2019 – 2023, https://www.medgadget.com/2019/06/neuroblastoma-market-global-industry-perspective-comprehensive-analysis-size-share-growth-trends-and-forecast-2019-2023.html

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APTORUM

APTORUM FOCUSES ON UNMET MEDICAL NEEDS AND ORPHAN DISEASES

	Unmet medical needs	Orphan (rare) diseases
FDA criteria	"Filling an unmet medical need is defined as providing a therapy where none exists or providing a therapy which may be potentially better than available therapy"[1]	"defined as those intended for the safe and effective treatment, diagnosis or prevention of rare diseases/disorders that affect fewer than 200,000 people in the U.S., or that affect more than 200,000 persons but are not expected to recover the costs of developing and marketing a treatment drug"[2]
Estimated number of cases	Not limited as filing an unmet medical need to the FDA include therapeutics which may be potentially better than available therapy[1]	· An estimated 7,000 orphan diseases[3] · An estimated 25-30 million[3] people in the US are living with an orphan disease[3]
Regulatory incentives	Include Breakthrough Therapy[4] and Fast Track[1] designations in the U.S.; Sakigake designation in Japan[5]; and Priority Medicines (PRIME) scheme[6], accelerated assessment[7], and conditional marketing authorization[8] in Europe **A drug that receives FDA Fast Track designation is eligible for:** · More frequent meetings and communication with FDA[1] · Eligibility for Accelerated Approval and Priority Review[1] · Rolling Review for BLA or NDA[1]	**FDA's Orphan Drug Designation Program and Orphan Products Grant Program provides the following incentives[9,10]:** • Phase I clinical investigations may receive up to $200,000 per year for up to three years and Phase II and Phase III clinical investigations, may receive up to $400,000 of total costs per year for up to four years • Exclusivity – The first sponsor of a designated orphan drug to obtain FDA marketing approval for the designated rare disease or condition receives seven years of marketing exclusivity • Tax credit – A sponsor may claim as tax credits half of the qualified clinical research costs for a designated orphan product • Waiver of Prescription Drug User Fees – The sponsor's fee as prescribed by the Prescription Drug User Fee Act (PDUFA Fees) at the time of submitting a marketing application to FDA are waived for a designated product
Aptorum's strategic angle	• Aptorum's focus on unmet medical needs and orphan diseases strategically position ourselves to exploit untapped markets without fierce competition • Aptorum's team has expertise and drug development experience in orphan diseases and unmet medical needs • Fast to market as a result of accelerated regulatory approval processes	

1. https://www.fda.gov/patients/fast-track-breakthrough-therapy-accelerated-approval-priority-review/fast-track; 2. https://www.fda.gov/about-fda/office-special-medical-programs/office-orphan-products-development; 3. https://rarediseases.info.nih.gov/diseases/pages/31/faqs-about-rare-diseases; 4. https://www.fda.gov/patients/fast-track-breakthrough-therapy-accelerated-approval-priority-review/breakthrough-therapy; 5. https://www.mhlw.go.jp/english/policy/health-medical/pharmaceuticals/140729-01.html; 6. https://www.ema.europa.eu/human-regulatory/research-development/prime-priority-medicines; 7. https://www.ema.europa.eu/en/human-regulatory/marketing-authorisation/accelerated-assessment; 8. https://www.ema.europa.eu/human-regulatory/marketing-authorisation/conditional-marketing-authorisation; 9. https://www.fda.gov/industry/developing-products-rare-diseases-conditions/fda-rare-disease-day-february-28-2011. Data from 2011, may have since been updated or changed by the FDA; 10. https://www.fda.gov/about-fda/office-special-medical-programs/office-orphan-products-development.

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APTORUM

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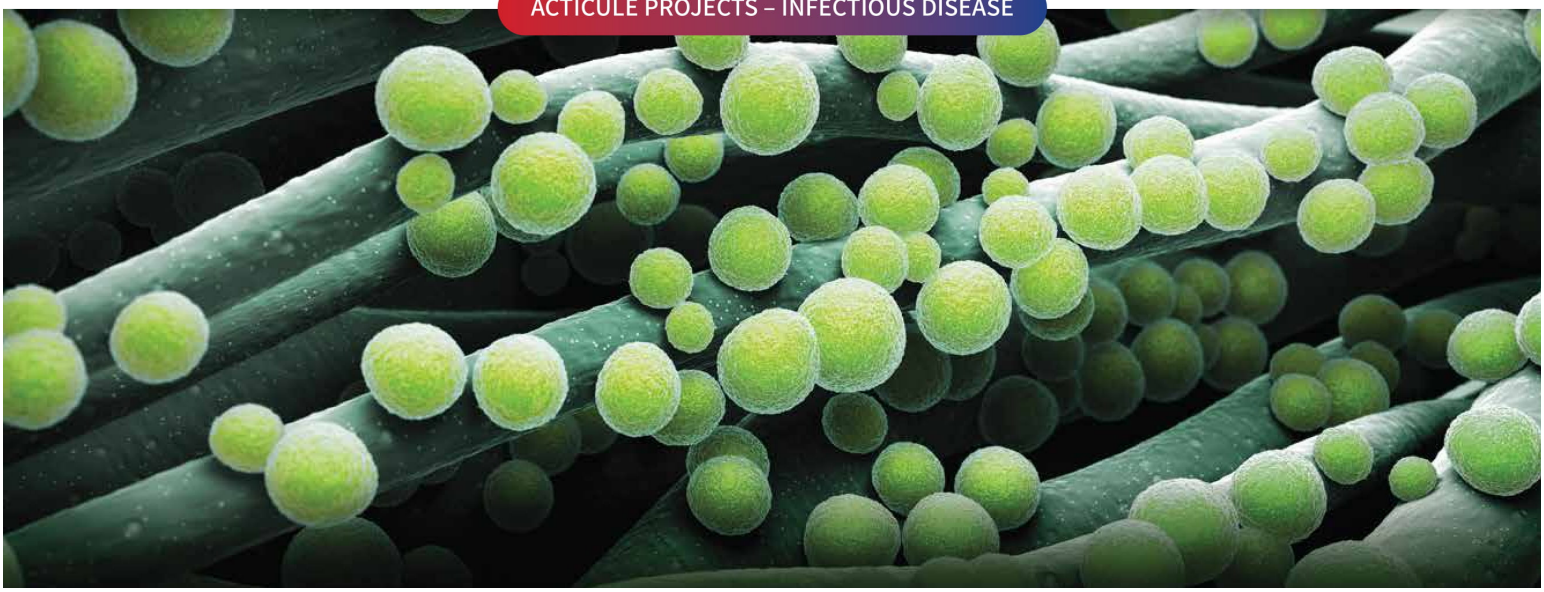
Facilitating Life Science Innovations to Serve Unmet Medical Needs

ACTICULE PROJECTS – INFECTIOUS DISEASE



EXECUTIVE SUMMARY: ACTICULE PROJECTS

ALS-4

- Aptorum's lead program ALS-4 is an anti-virulent, non-bactericidal drug candidate for *Staphylococcus aureus* infections including MRSA[1]
- Unlike all major treatments on the market[2], ALS-4 relies on an anti-virulent non-bactericidal approach[1], potentially reducing significant risks of developing *S. aureus* resistance
- IND-enabling studies commenced in Q2 2019, Targeting IND submission by Q1/2 2020
- Upon IND approval, a hybrid Phase I clinical study to commence in 2020 in North America to obtain preliminary efficacy readout
- Targeting to submit written request for approval under the newly established LPAD regulatory pathway (Limited Population Pathway for Antibacterial and Antifungal Drugs), to expedite marketing approval and commercialization

ALS-1

- A unique antiviral therapeutic against Influenza A that has a more upstream target than Tamiflu which is shown to be more effective *in vitro*[1]
- Viral resistance to Tamiflu and other neuraminidase inhibitors has risen rapidly in recent years[3]
- ALS-1 has a distinct mechanism of action compared with Tamiflu and Xofluza[1,4]

ALS-2 / ALS-3

- Additional novel anti-virulent, non-bactericidal approach therapeutics targeting Gram-positive bacteria[1]
- In discovery/lead optimization stage and generating good traction towards doing IND-enabling studies[1]

1. Based on Aptorum's internal tests/experimentation and has not yet been verified by clinical trials or third party testing; 2. P T. 2016 Feb; 41(2): 126–128; 3. Influenza Antiviral Medications: Summary for Clinicians. CDC. https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm; 4. Nat Biotechnol. 2010 Jun;28(6):600-5

MARKET SIZE

RECENT DEALS IN INFECTIOUS DISEASE

- In 2014, Merck's acquisition of Cubist Pharmaceuticals, a large developer of antibiotics, for USD 8.4bn[3]
- In 2018, Roivant's licensing of Intron's Phase II asset for USD 667.5m in upfront and milestone payments[4]

1. Clin Microbiol Rev. 2012 Apr;25(2):362-86; 2. "Methicillin-resistant *Staphylococcus Aureus* (MRSA) Drugs Market - Global Industry Analysis, Size, Share, Growth, Trends, and Forecast, 2017-2025" (2018). Transparency market research; 3. https://dealbook.nytimes.com/2014/12/08/merck-agrees-to-acquire-drug-maker-cubist-for-9-5-billion/; 4. https://www.prnewswire.com/news-releases/roivant-sciences-and-intron-bio-sign-licensing-deal-for-novel-anti-superbugs-biologic-sal200-300753307.html

ALS-4: APPROVED DRUGS FOR MRSA INFECTIONS

Frequently prescribed antibiotics for MRSA infections[1]

Product (Company)	Antibiotic Class	Indication(s)	RoA	Dosw	Cost of Treatment (duration)	Notes
Vancomycin (Generic)	Glycopeptide	Severe infections caused by MRSA	IV / oral*	2g/day	USD 101-144 (7-10 days)	• **Currently, the most frequently prescribed** antibiotic for MRSA-suspected infections[1,2] • In Clinical use for >60 years[3], **vancomycin-resistant *S. aureus* (VRSA) was first discovered in 2002**[4]
Daptomycin (Merck)	Lipopeptide	ABSSSI, S. aureus bacteremia	IV	4-6mg/kg/day	USD 6,736-23,710[5] (14-42 days)	• In clinical use since 2003[6] • **Daptomycin resistance described in *S. aureus* as early as 2006**[7]
Linezolid (Pfizer)	Oxazolidinone	ABSSSI, CABP, HABP, uSSSI	IV / oral	0.8-1.2g/day	IV: USD 1,920-5,376 Oral: USD 2,978-11,429 (10-14 days)	• In clinical use since 2003[8]. Entirely synthetic, not expected to develop clinical resistance[9] • **Linezolid resistance encountered clinically since 2010**[9]
Ceftaroline fosamil (Actavis)	Cephalosporin	ABSSSI, CABP	IV	1.2g/day	USD 1,831-5,127 (5-14 days)	• In clinical use since 2010[10] • **Ceftaroline resistance encountered clinically since 2016**[11]
Tigecycline (Pfizer)	Glycycycline	ABSSSI, CABP, CIAI	IV	0.1-0.2mg/day	USD 1,888-4,977 (5-14 days)	• In clinical use since 2005[12] • **Tigecycline resistance encountered clinically in developing countries since 2017**[13,14]
Televancin (Theravance Biopharma)	Lipoglycopeptide	ABSSSI, HABP, VABP	IV	10mg/kg/day	USD 3,002-10,568 (7-21 days)	• In clinical use since 2009[15] • **Vancomycin resistance leads to a 4-8x increase in telavancin MIC** (minimum inhibitory concentration)[16]

ABSSSI: acute bacterial skin and skin structure infection; CABP: community-acquired bacterial pneumonia; HABP: hospital-acquired bacterial pneumonia; CIAI: complicated intra-abdominal infection; VABP: ventilator-associated bacterial pneumonia;
* Only for intestinal infections;

1. Reproduced from "Companies Take Aim at MRSA Infections" P T. 2016 Feb; 41(2): 126–128; 2. Clin Infect Dis. 2011 Feb 1;52(3):e18-55; 3. Clin Infect Dis. 2006 Jan 1;42 Suppl 1:S5-12; 4. Centers for Disease Control and Prevention. https://www.cdc.gov/hai/settings/lab/vrsa_lab_search_containment.html; 5. Cost of treatment of Daptomycin for *S. aureus* bacteremia at a dosage of 6mg/kg; 6. FDA. https://www.accessdata.fda.gov/drugsatfda_docs/nda/2003/21-572_Cubicin.cfm; 7. Int J Antimicrob Agents. 2006 Oct;28(4):280-7; 8. FDA. https://www.accessdata.fda.gov/drugsatfda_docs/nda/2002/21-130s003_21131s003_21132s003_ZyvoxTOC.cfm; 9. Pharmaceuticals (Basel). 2010 Jul; 3(7): 1988–2006; 10. FDA. https://www.accessdata.fda.gov/drugsatfda_docs/nda/2010/200327orig1s000toc.cfm; 11. J Antimicrob Chemother. 2016 Jun; 71(6): 1736–1738; 12. FDA. https://www.accessdata.fda.gov/drugsatfda_docs/nda/2005/21-821_Tygacil.cfm; 13. New Microbes New Infect. 2017 Sep; 19: 8–12; 14. Journal of Microbiology and Infectious Diseases 2017; 7 (4):173-177; 15.FDA. https://www.accessdata.fda.gov/drugsatfda_docs/nda/2009/022110s000TOC.cfm; 16. Clin Infect Dis. 2015 Sep 15;61 Suppl 2:S58-68.

ALS-4: ADDRESSING THE SHORTFALL OF VANCOMYCIN

VANCOMYCIN

- Generic antibiotic that is the most frequently prescribed for MRSA-suspected infections[1,2]
- After >60 years[3] of clinical use, its use against *S. aureus* is becoming limited. Vancomycin has been shown to have slow bactericidal activity, poor antistaphylococcal activity, poor tissue penetration, and high rates of infection relapse[4,5,6,7,8,9]
- The shortcomings of vancomycin has been compounded since the discovery of vancomycin-resistant *S. aureus* (VRSA) in 2002[10]
- Vancomycin is not orally bioavailable and must be administered intravenously in order to treat systemic infections[11,12]. Oral vancomycin is only effective for treating local intestinal infections. Therefore, for MRSA-suspected infections oral vancomycin is only indicated for the treatment of pseudomembranous colitis

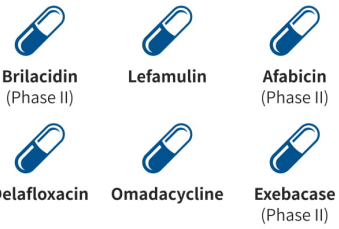
ALS-4: POTENTIALLY A COMPLEMENTARY THERAPEUTIC TO VANCOMYCIN

- As a combination therapy to overcome the shortcomings of vancomycin
- ALS-4 can potentially complement other bactericidal antibiotics as well, therefore ALS-4 is not a direct competitor of antibiotics
- Synergistic effects of other drugs with vancomycin against MRSA has been demonstrated previously with β-lactam antibiotics and vancomycin[13]

1. Reproduced from "Companies Take Aim at MRSA Infections" P T. 2016 Feb; 41(2): 126–128; 2. Clin Infect Dis. 2011 Feb 1;52(3):e18-55; 3. Clin Infect Dis. 2006 Jan 1;42 Suppl 1:S5-12; 4. Antimicrob Agents Chemother. 2008 Jan;52(1):192-7; 5. Clin Infect Dis. 2007 Jan 15;44(2):190-6; 6. Clin Infect Dis. 2007 Sep 1;45(5):601-8; 7. J Clin Microbiol. 2011 Oct;49(10):3669-72; 8. Clin Infect Dis. 2007 Sep 15;45 Suppl 3:S191-5; 9. J Clin Microbiol. 2004 Jun;42(6):2398-402; 10. Centers for Disease Control and Prevention. https://www.cdc.gov/hai/settings/lab/vrsa_lab_search_containment.html; 11. J Infect. 2018 Dec;77(6):489-495; 12. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2019-2018 Nov 18; 13. J Clin Microbiol. 2016 Mar; 54(3): 565–568

ALS-4: VALUE PROPOSITION

ALS-4 is uniquely poised to tackle multidrug-resistant *S. aureus*



Prone to resistance

- Bactericidal reagents creates strong selective pressure for resistance
- Antibiotics/bactericides leaked into the ecosystem creates a continuous selective pressure for bacterial resistance

Symbiotics© Treatment

(Gene therapy for bacteria to inactivate antibiotic sensitivity)

Likely extremely costly

- *S. aureus* has a doubling time of 30 minutes[1]. To perform efficient gene therapy on bacteria will likely be prohibited by cost
- Can only design therapy for known antibiotic resistant mechanisms

APTORUM

ALS-4

(Anti-virulent drug candidate)

Not prone to resistance

- **Disables bacterial virulence** to facilitate host immune clearance
- **Not bactericidal on its own**, if exposed to the ecosystem the selective pressure to develop resistance is less significant
- Oral formulation opens up ALS-4 to the preventive market and maintenance therapy. **Mainstay of current antibiotic treatments have no oral form for systemic infection**
- Does not directly compete with antibiotics

Todar's online textbook of bacteriology: http://textbookofbacteriology.net/growth_3.html

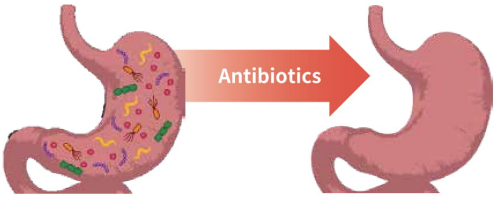
The description of ALS-4 and related conclusory statements on ALS-4 on this slide are based on Aptorum' s internal tests/experimentation and has not yet been verified by clinical trials or third party testing.

ALS-4: VALUE PROPOSITION

ANTIBIOTIC

- Antibiotic resistance in *S. aureus* has been discovered in most prescribed antibiotics for MRSA[1]
- Broad spectrum and indiscriminate[2]
- Commonly affect normal flora, may lead to super-infection in case of drug resistance[3]

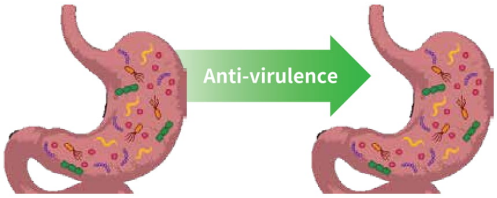
INDISCRIMINATE CLEARANCE



ANTI-VIRULENCE (ALS-4)

- ✓ Not bactericidal, potentially less selective pressure and much less likely for bacteria to develop resistance[4,5]
- ✓ "Disarms" the bacteria by reducing pathogenicity[4,5,6]
- ✓ Bacterial clearing is mediated by host immunity[4,5]

DIRECTED AGAINST PATHOGEN



1. Refer to slide 8 for complete set of sources; 2. P T. 2016 Feb; 41(2): 126–128; 3. J Infect Dis. 2018 Jan 30;217(4):628-636; 4. Based on Aptorum's internal tests/experimentation and has not yet been verified by clinical trials or third party testing; 5. MBio. 2017 Sep 5;8(5). pii: e01224-17; 6. J Exp Med. 2005 Jul 18;202(2):209-15.

APTORUM

ALS-4: MECHANISM OF ACTION

ALS-4
inhibits a key enzyme in the biosynthesis of staphyloxanthin[1]

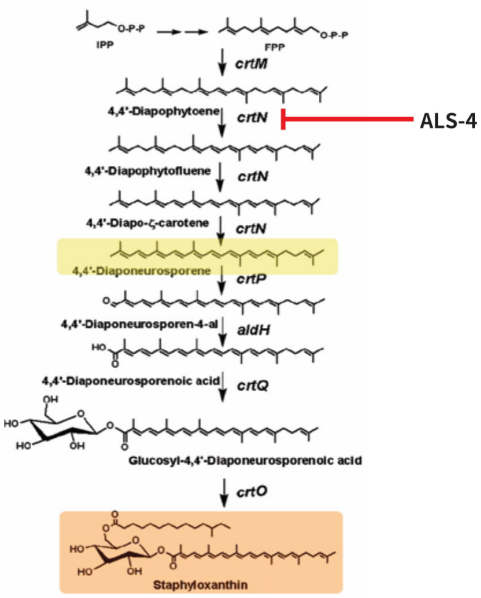
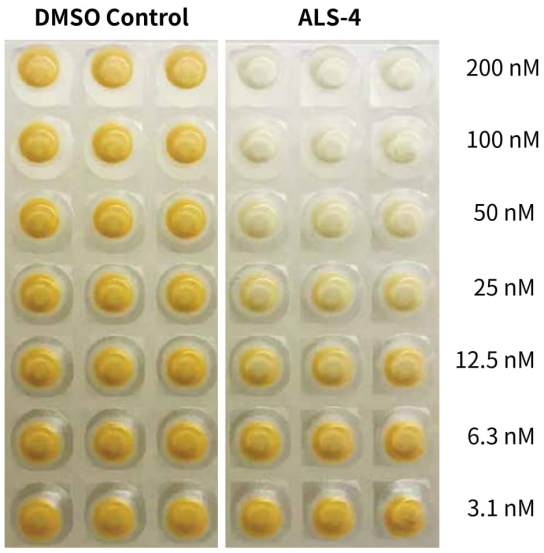


Figure adapted from MBio. 2017 Sep 5;8(5). pii: e01224-17.
The description of ALS-4 and related conclusory statements on ALS-4 on this slide are based on Aptorum' s internal tests/experimentation and has not yet been verified by clinical trials or third party testing.

ALS-4: MECHANISM OF ACTION

ALS-4
inhibits S. aureus pigment production with an IC_{50} = 20nM



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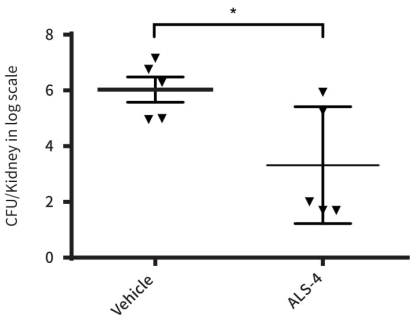
APTORUM

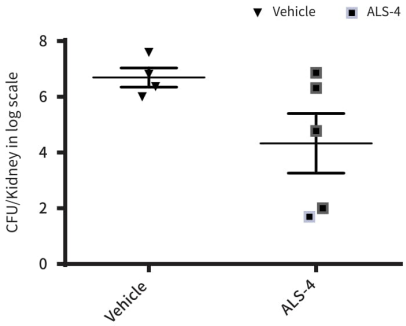
ALS-4 inhibits S. aureus pigment production with an IC_{50} = 20nM

ACUTE TREATMENT



Compound concentration:	1 mM
Inoculum:	5 X 10^6 per mouse
Treatment:	twice for first 7 days
First inject:	30 min after infection

DELAYED TREATMENT



Compound concentration:	1 mM
Inoculum:	2 X 10^7 per mouse
Treatment:	twice for 7 days
First inject:	11 days after infection

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OUR LEADING CANDIDATE ALS-4 PRESENTS A UNIQUE OPPORTUNITY TO TACKLE INFECTIOUS DISEASES

REVOLUTIONARY ANTI-VIRULENCE APPROACH

Award-winning approach to tackle a huge global unmet need: bacterial infections caused by *Staphylococcus aureus* including MRSA

EXCELLENT TRACTION TOWARDS IND FILING

Good progress on IND-enabling studies, with the expected IND filing in Q1/2 2020

1ST PLACE. INNOVATION ACADEMY CATEGORY, ICPIC 2017

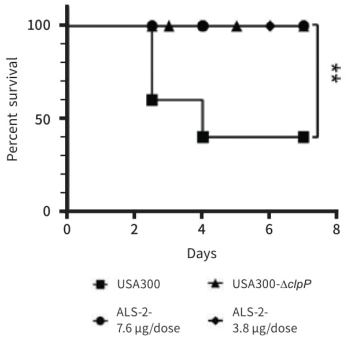
- Awarded to the Company's Hong Kong team, led by **Dr. Richard KAO**
- For the revolutionary concept of applying chemical genetics to tackle MRSA infection, which forms the scientific basis of ALS-2, ALS-3 and ALS-4

ALS-2 & ALS-3

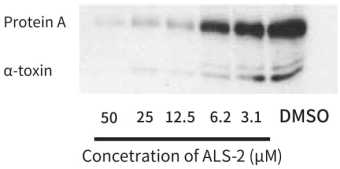
Additional anti-virulence, non-bactericidal therapeutics for the treatment of infections caused by Gram Positive bacteria

ALS-2 Anti-virulence compound that suppresses multiple unrelated virulence factors in *S. aureus*[1]

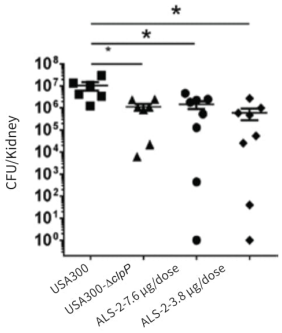
ALS-2 rescues mice from MRSA infection[1]



ALS-2 reduces virulence gene production[1]



ALS-2 reduces bacterial load in mice[1]



ALS-3 Antibiotic-potentiating compound by using a non-bactericidal approach

1. Proc Natl Acad Sci U S A. 2018 Jul 31;115(31):8003-8008

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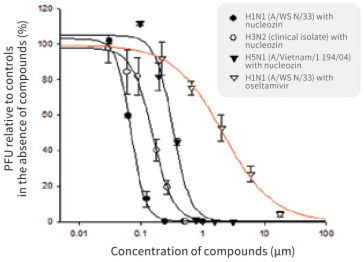
ALS-1 INHIBITS INFLUENZA A NUCLEOPROTEIN (NP)

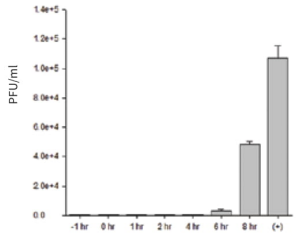
- NP is the most abundantly expressed protein during the course of an infection[1]. Its primary function is to encapsidate the virus genome for RNA transcription, replication and packaging. It is also a key adapter molecule between virus and host processes[1]
- ALS-1, by targeting NPs, acts upstream of Neuraminidase inhibitors such as Tamiflu, which target the last stage (budding) of the viral life cycle[2]. This novel mechanism distinguishes ALS-1 from all other currently marketed antiviral drugs[3]

ALS-1 outperforms Tamiflu® (oseltamivir, in red) *in vitro* with a lower IC_{50}[2]



This figure shows the concentration dependence of ALS-1 in reducing the plaque-forming unit (pfu, a measure of number of infectious virus particulates) of human H1N1, H3N2 and H5N1 influenza viruses. The IC_{50} for these viruses is between 0.1-1µM.

ALS-1 inhibited viral growth up to 6 hours after infection, indicating antiviral activities reside on post-entry and post-nuclear events[2]



This figure shows that MDCK cells were infected and ALS-1 (1 µM) 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. (+) control without ALS-1.

1. J Gen Virol. 2002 Apr;83(Pt 4):723-34; 2. Nat Biotechnol. 2010 Jun;28(6):600-5; 3. Refer to the next slide "ALS-1: A Unique Antiviral Therapeutic Against Influenza A".

ALS-1: A UNIQUE ANTIVIRAL THERAPEUTIC AGAINST INFLUENZA A

INFLUENZA A

- WHO estimates ~1 billion people are infected and up to 500,000 people die from influenza each year[1]
- There are four types of influenza viruses: influenza A, B, C, D. Influenza A causes the most serious disease in humans and is the most common cause of seasonal flu epidemics and pandemics[1]

TREATMENTS FOR INFLUENZA A[2]

Recommended by the CDC for the 18/19 season

Drug (Trade name)	Class	Mechanism	Route of Administration	Notes
Oseltamivir (Tamiflu)	Neuraminidase inhibitor	Prevents viral release from host cell	Oral	• Most commonly prescribed, oseltamivir (Tamiflu) was approved in 1999[3]. Almost 100% of the 08/09 seasonal H1N1 viruses in the US were resistant to oseltamivir[4,5,6,7,8,9].
Zanamivir (Relenza)			Inhalation / IV	• Resistance against other neuraminidase inhibitors are rapidly rising[10]
Peramivir (Rapivab)			IV	
Baloxavir marboxil (Xofluza)	Cap-dependent endonuclease inhibitor	Prevents viral RNA replication	Oral	• Recently approved in October 2018[11]. According to FDA, baloxavir beat placebo but not oseltamivir (Tamiflu) on the alleviation of symptoms[12]
Adamantanes incl. amantadines and rimantadines	M2 inhibitor	Prevents intracellular uncoating of the virus's shell	Oral	• Not recommended due to >99% resistance among circulating viruses[2]

1. World Health Organization. Influenza (seasonal)—Fact sheet No 211. 2014. www.who.int/mediacentre/factsheets/fs211/en; 2. Influenza Antiviral Medications: Summary for Clinicians. CDC. https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm; 3. https://www.accessdata.fda.gov/drugsatfda_docs/nda/99/21087_Tamiflu.cfm; 4. N Engl J Med. 2006 Nov 23;355(21):2174-7; 5. Science. 2006 Apr 21;312(5772):389-91; 6. N Engl J Med. 2009 Mar 5;360(10):953-6; 7. JAMA. 2009 Mar 11;301(10):1034-41; 8. Science. 2009 Mar 20;323(5921):1560-1; 9. Curr Opin Infect Dis. 2008 Dec;21(6):626-38; 10. Acta Biochim Pol. 2014;61(3):505-8; 11. https://www.accessdata.fda.gov/drugsatfda_docs/nda/2018/210854Orig1s000TOC.cfm; 12. https://www.fda.gov/news-events/press-announcements/fda-approves-new-drug-treat-influenza.

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Facilitating Life Science Innovations to Serve Unmet Medical Needs

CLAVES PROJECTS

EXECUTIVE SUMMARY : CLAVES PROJECTS

HUMAN MICROBIOTA

- We live in constant symbiosis with our gut bacteria, and dysbiosis can be the cause to numerous diseases[1]

CLAVES TECHNOLOGY

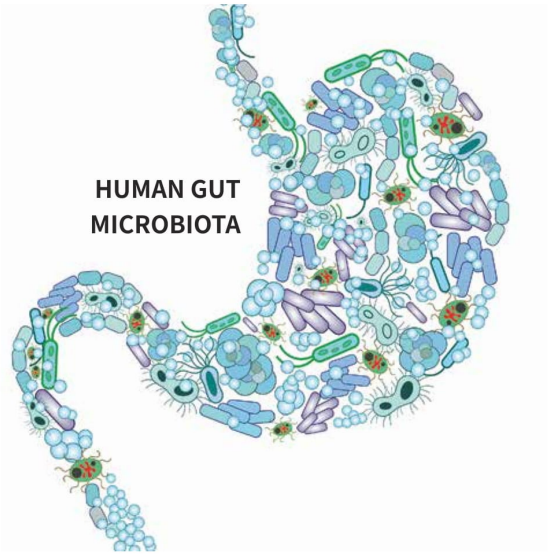
- The Claves technology is designed to physically modulate the chemical signaling of diseases-causing microbiota[2]
- Highly scalable large molecule technology with over 70 potential therapeutic targets possible for development[2]
- Claves therapeutics bind target chemicals with high affinity and specificity, they are non-absorbable and expected to be free from any systemic toxicity[2,3]
- Multiple candidates under development for various indications[2]

CLS-1: LEAD PROGRAM TARGETING OBESITY

- CLS-1 is the lead program in the Claves projects, intended to target metabolites secreted by the microbiota linked to obesity[2]
- CLS-1 is also shown to modulate gut microbiota population linked to obesity[2,3]
- CLS-1 achieves significant weight loss in a mouse model without affecting the gut mucosa, inflammation, and the functions of the liver and kidneys[2,3]
- Non-absorbable nature of the Claves therapeutics may expedite traditional toxicological studies[2]
- US FDA IND submission and Phase 1 studies expected to commence in Q4 2020

1. Lancet. 2003 Feb 8;361(9356):512-9; 2. Based on Aptorum's internal tests/experimentation and has not yet been verified by clinical trials or third party testing; 3. Data available in this presentation

LANDSCAPE OVERVIEW: THE HUMAN GUT MICROBIOTA



- Contains **100s of species of microbes**
- Constantly producing **1000s of active metabolites**
- Some metabolites provides immunological and metabolic benefits
- **Dysbiosis (microbial imbalance) is a significant factor in disease**

Source: 1. Lancet. 2003 Feb 8;361(9356):512-9; 2. Science. 2012 Jun 8;336(6086):1268-73; 3. Gastroenterology. 2014 May;146(6):1547-53

OBESITY TREATMENT

- First-line intervention for obesity such as dietary change and increased physical activity often fail in the long term[1]
- No consensus regarding the optimal therapy, and existing pharmacotherapy has limited effectiveness and an imperfect safety record[1]
- Gastric bypass surgery is still considered the "gold standard" due to its effectiveness, but only a small fraction of the qualifying population undergoes these procedures because of the associated risks[1,2]

FDA-approved anti-obesity medications (trade name, company)[3]	Mechanism	Common side effects	Other complications
Orlistat (Xenical, Roche)	Reduces fat absorption in the gut	Diarrhea, gas, leakage of oily stools, stomach pain	FDA issued a warning on the possibility of sever liver damage in people taking orlistat. May also cause permanent kidney damage[4]
Lorcaserin (Belviq, Arena)	Suppressing appetite	Constipation, cough, dizziness, dry mouth, feeling tired, headaches, nausea	May cause complications when taken with antidepressants
Phentermine-topiramate (Qsymia, Vivus)		Constipation, dizziness, dry mouth, taste changes, tingling of hands and feet, insomnia	May lead to birth defects
Naltrexone-bupropion (Contrave, Nalpropion)		Constipation, diarrhea, dizziness, dry mouth, headache, increased blood pressure, increased heart rate, insomnia, liver damage, nausea, vomiting	May not use in conjunction with a variety of medications
Liraglutide (Saxenda, Novo Nordisk)		Constipation, diarrhea, nausea, abdominal pain, headache, increased heart rate	May increase chance of developing pancreatitis
Others (phentermine, benzphetamine, diethylpropion, phendimetrazine)		Dry mouth, constipation, insomnia, dizziness, restlessness, headache, raised blood pressure, increased heart rate, feeling nervous	May not use in conjunction with a variety of medications

1. Obes Surg. 2012 Jun;22(6):956-66; 2. J Am Assoc Nurse Pract. 2017 Oct;29(S1):S30-S42; 3. National Institute of Diabetes and Digestive and Kidney Diseases https://www.niddk.nih.gov/health-information/weight-management/prescription-medications-treat-overweight-obesity
4. https://www.forbes.com/sites/melaniehaiken/2012/12/10/popular-weight-loss-drug-may-cause-liver-failure/

CLS-1: VALUE PROPOSITION

CLS-1

- Identified specific microbiota metabolite linked to obesity
- Novel therapeutic that physically modulates microbiota metabolite
- Acts locally in the gut with high affinity and specificity
- Non-absorbable and is expected to be free from any systemic toxicity
- Significant weight loss in an animal study

CLAVES PLATFORM

- Novel platform technology that can be customized to bind a wide variety of microbiota metabolites with high affinity and specificity
- Sustainable pipeline of drug candidates for treatment of multiple indications (see next page)

POSSIBLE INDICATIONS

SYSTEMIC DISEASES		DIGESTIVE DISEASES
Obesity	Renal failure	C. difficile infection
Diabetes	Depression	Colorectal cancer
Fatty liver	Parkinsonism	Inflammatory bowel disease
Cardiovascular diseases	Autistic spectrum disorder	Irritable bowel syndrome

All conclusory statements on this slide are based on Aptorum' s internal tests/experimentation and has not yet been verified by clinical trials or third party testing.

For illustrative purposes only. There is no guarantee of any project being completed or having a specific outcome.

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CLS-1: the lead program in the Claves projects, targeting obesity

MARKET SIZE

RECENT DEALS IN OBESITY TREATMENT

- Boehringer Ingelheim committed up to USD 300m to work with Gubra on obesity treatments

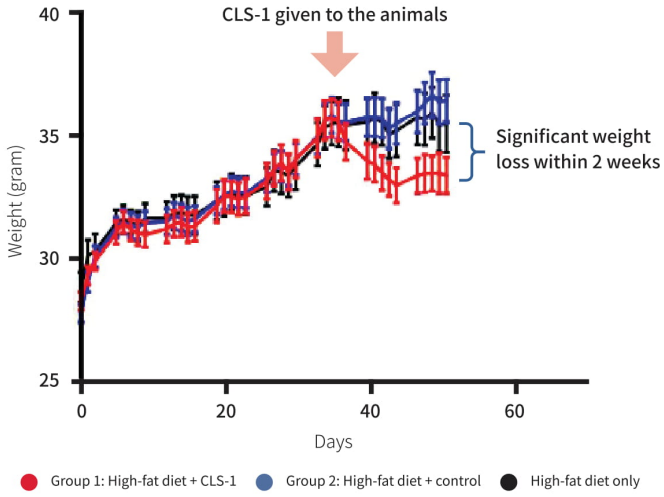
COMPETING DRUGS

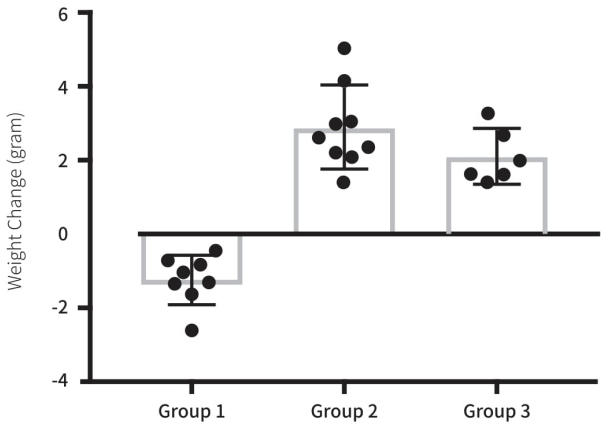
- CLS-1 is a drug candidate for obesity treatment that achieves its effect by modulating the chemical signaling of gut microbiota. There are no obesity treatment drugs on the market using similar mechanism[3].

1. World Health Organization. Obesity and overweight fact sheet. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight; 2. "Obesity Treatment Market To Reach USD 19.90 Billion By 2026 " (2019). Reports And Data. https://www.globenewswire.com/news-release/2019/06/06/1865530/0/en/Obesity-Treatment-Market-To-Reach-USD-19-90-Billion-By-2026-Reports-And-Data.html; 3. To the extent of our knowledge at the time of writing

CLS-1: EFFICACY IN A MOUSE MODEL

CLS-1 treatment significantly reduces body weight in mice





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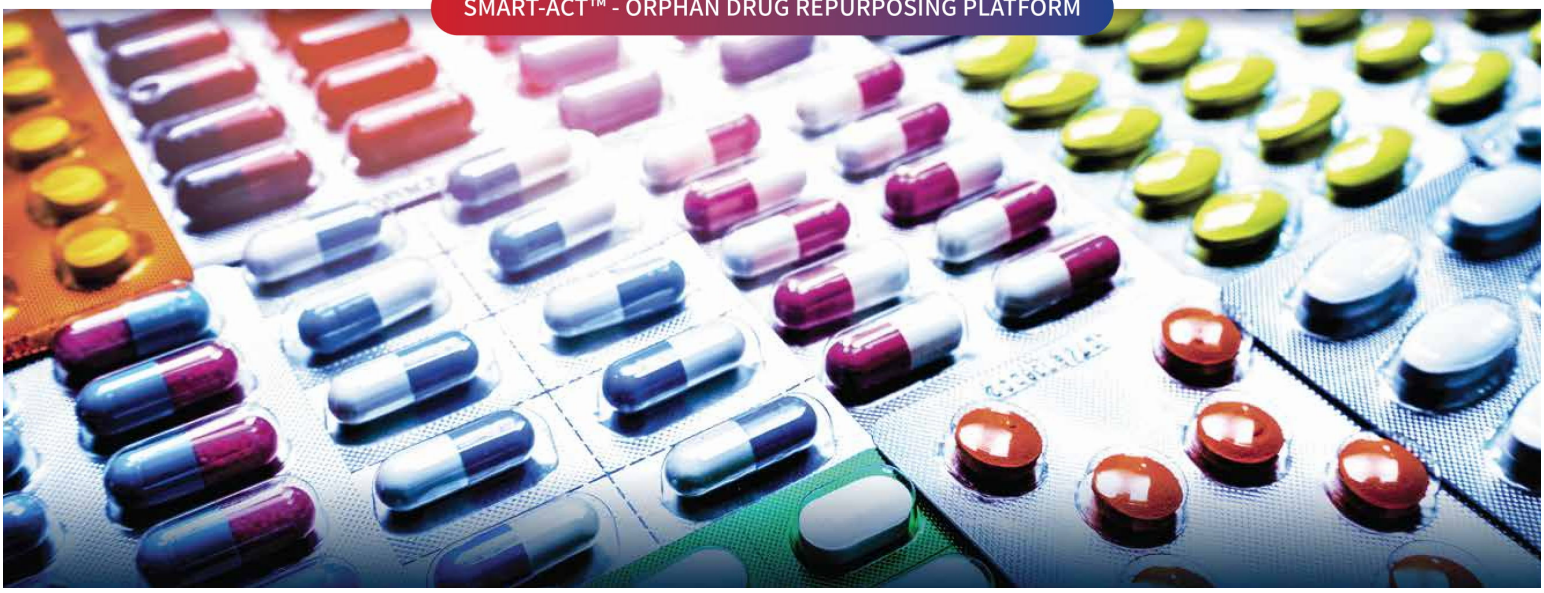
Facilitating Life Science Innovations to Serve Unmet Medical Needs

SMART-ACT™ - ORPHAN DRUG REPURPOSING PLATFORM



SMART-ACT™

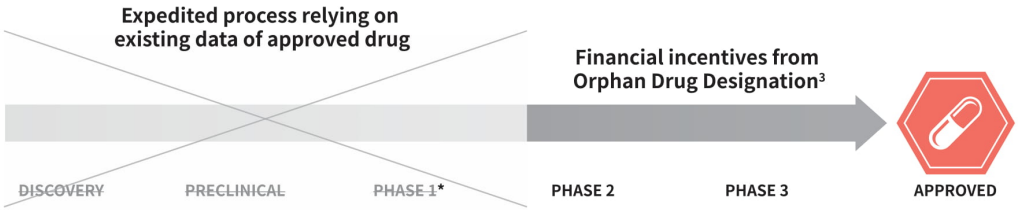
- Smart-**ACT**™ is a platform technology that repurposes drugs for **orphan diseases with unmet clinical needs**
- Repurposing drugs greatly reduces time and cost of drug development and clinical trials on average from ~12 years[1] to ~4 years[2]
- Orphan Designation may, if obtained, enable the sponsor to obtain a number of advantages for the development of the candidate, including fast track procedures for FDA review and smaller scale clinical trials, including at least 7 years of marketing exclusivity (in parallel to any patent protections)[3]
- Smart-ACT™ has generated **3 ongoing programs with candidate assets in pre-clinical phase**
- **SACT-1**: lead program targeting neuroblastoma, an aggressive cancer in nerve tissues found mostly in children
- Continuously developing new pipeline candidates with potential targets against up to 7,000 orphan diseases

1. JACC Basic Transl Sci. 2016 Jun 27;1(4):277-287; 2. .Average time from FDA application to approval of drug. JACC Basic Transl Sci. 2016 Jun 27;1(4):277-287;
3. https://www.fda.gov/industry/developing-products-rare-diseases-conditions.

SMART-ACT™: VALUE PROPOSITION

TRADITIONAL DRUG DISCOVERY & DEVELOPMENT

ACT



*Subject to the FDA' s approval, IND-enabling studies and Phase I for repurposing approved drugs may be expedited

1. Success rate. "Drug Discovery in the 21st Century. How to save time, money and resources while increasing your chances of success." Aptuit. [online]; 2. Success rate. "Clinical Development Success Rates 2006-2015." Biotechnology Innovation Organization (2016). [online]; 3. https://www.fda.gov/industry/developing-products-rare-diseases-conditions.

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APTORUM

SMART-ACT™: VALUE PROPOSITION

CONTINUOUS ASSET PIPELINE

- SMART-ACT™ is screening 2,600 approved drugs against a pool of up to 7,000 orphan diseases
- Targeting 5-10[1] candidates each year to enter clinical trials
- Expecting 1st clinical asset in 2020 and 4 clinical assets in total by 2023
- Exit options include out-licensing and third-party collaborations

1. Clinical Development Success Rates 2006-2015. Biotechnology Innovation Organization (2016). [online]; 2. Average time from FDA application to approval of drug. JACC Basic Transl Sci. 2016 Jun 27;1(4):277-287; 3. Nature. 2016 Jun 16;534(7607):314-6; 4. Repurposed drugs have an approval rate of 30%. "Drug Repurposing and Repositioning: Making New Out of Old." DCAT (2016). [online]

For illustrative purposes only. There is no guarantee of any project being completed or having a specific outcome.

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SACT-1: DEVELOPMENT

CURRENT
Q3 2019

Computer database of chemical structures of 2,600 approved drugs

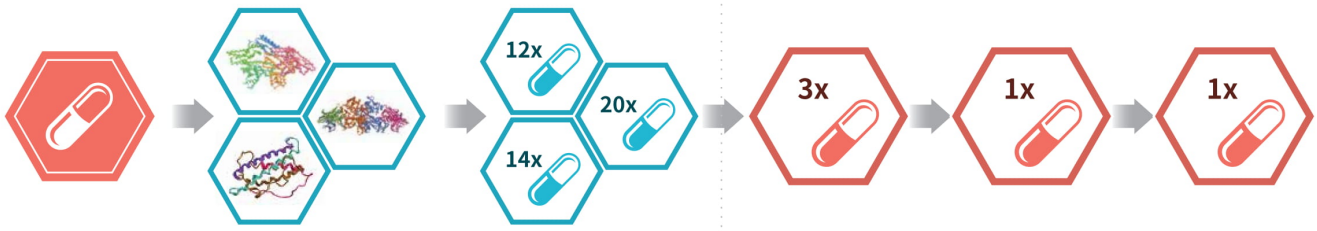
Screening against 3 major therapeutic targets for neuroblastoma

Candidate validation on *in vitro* neuroblastoma model

Q4 2019
In vivo xenograft efficacy model

2020
Phase 2/3 trial commencement

2024
Regulatory approval



For illustrative purposes only. There is no guarantee of any project being completed or having a specific outcome.

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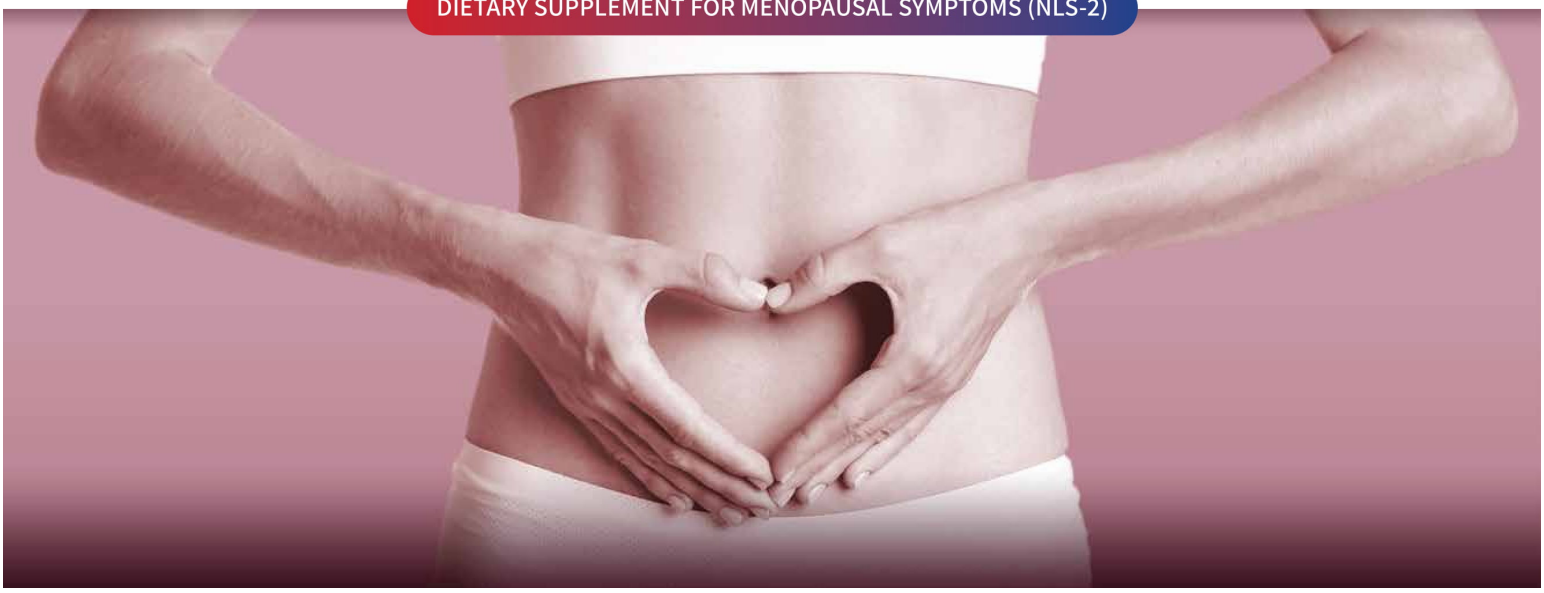
Facilitating Life Science Innovations to Serve Unmet Medical Needs

DIETARY SUPPLEMENT FOR MENOPAUSAL SYMPTOMS (NLS-2)



EXECUTIVE SUMMARY

NLS-2[1]

- NLS-2 is a dietary supplement for the relief of menopausal symptoms.
- The bioactive component of NLS-2 is DOI, a novel non-hormonal compound extracted from Chinese Yam
- DOI significantly increased estradiol biosynthesis and aromatase expression in granulosa cells *in vitro* and *in vivo* (rat animal model)
- Osteoporosis is frequently associated with menopause. DOI increases the apparent bone mineral density, bone volume fraction and trabecular thickness in an *in vivo* rat model
- DOI acts in a tissue-specific manner. Upregulation of aromatase, an enzyme involved in the production of estrogen, by DOI was found in ovary but not in other tissue
- DOI does not cause toxicity *in vitro* based on cell viability in the MTT assay
- Targeting to launch as a dietary supplement in Q1 2020

TIMELINE

Current progress of pipeline programs → Lead Projects → Other Candidates → Projected timeline

Program	Modality	Indication	Formulation	Commercialisation
DOI (NLS-2)	Supplement	Menopausal symptoms	→	Q4 2019

1. Lancet. 2003 Feb 8;361(9356):512-9; 2. Based on Aptorum's internal tests/experimentation and has not yet been verified by clinical trials or third party testing; 3. Data available in this presentation

LANDSCAPE OVERVIEW AND VALUE PROPOSITION

Menopausal syndrome	• Symptoms include hot flashes, mood disorders, night sweats, depression, nervous tension, and insomnia • Menopause also puts women at increased risk of cardiovascular disease and osteoporosis
Hormone replacement therapy (HRT)	• Hormone replacement therapy restores endogenous estrogen levels using exogenous estrogen and progestin[1,2,3,4] • Effective in relieving menopausal symptoms, however HRT is associated with: • Breast cancer[5,6,7] • Ovarian cancer[5] • Venous thromboembolism[8] • Stroke[8] • Endometrial cancer[9] • Current crisis in shortage of HRT supplies highlights urgent need for alternative treatments[10,11]
Currently available dietary supplements	• A widely-marketed type of dietary supplement for menopausal symptoms are plant-based phytoestrogens (a class of isoflavones)[12,] commonly derived from soy, black cohosh and red clover[12] • Evidence for relief of menopausal symptoms is weak, with a large placebo effect observed in most clinical trials[13,14,15,16] • "Among nonprescription remedies, clinical trial results are insufficient to either support or refute efficacy for soy foods and isoflavone supplements (from either soy or red clover), black cohosh, or vitamin E." -2004 statement from the North American Menopause Society[17]
APTORUM DOI supplement	• DOI is a non-toxic novel compound. Proof-of-concept studies demonstrated that DOI stimulated estrogen production via a non-hormonal, tissue-specific mechanism[18] • Aptorum is developing formulation as dietary supplement containing DOI

1. Obstet Gynecol. 2002 Dec;100(6):1209-18; 2. Obstet Gynecol. 2004 Nov;104(5 Pt 1):1042-50; 3. Journal of internal medicine. 256, 361–374. 4. Lancet. 2003; 362:419–427; 5. Womens Health (Lond). 2013 Jan;9(1):59-67; 6. JAMA. 2000; 283:485–491; 7. Lancet. 2003; 362:419–427; 8. J Intern Med. 2004 Nov;256(5):361-74; 9. Obstet Gynecol. 1995 Feb;85(2):304-13; 10. https://www.theguardian.com/society/2019/aug/24/hrt-shortage-uk-women; 11. https://www.bbc.com/news/health-49304163; 12. Front Neuroendocrinol. 2010 Oct; 31(4): 400–419; 13. Mol. Nutr. Food Res. 2009; 53:1084–1097; 14. Inflammopharmacology. 2008; 16:227–229; 15. Expert. Opin. Pharmacother. 2009; 10:1133–1144; 16. J. Nutr. 2003; 133:1983S–1986S; 17. Menopause. 2004; 11:11–33; 18. Sci. Rep. 5, 10179; doi: 10.1038/srep10179 (2015).

MARKET OVERVIEW

1.2bn

- postmenopausal women projected by the year 2030[1]
- **85%** of postmenopausal women experience menopause-related symptoms in their lifetime[2]

USD **2.5** bn

Value of the global menopause treatment market in 2019[3]

USD **17.1** bn

Value of the global isoflavone supplement market in 2019[4]

4.2%

CAGR global menopause treatment market (2017-2023)[3]

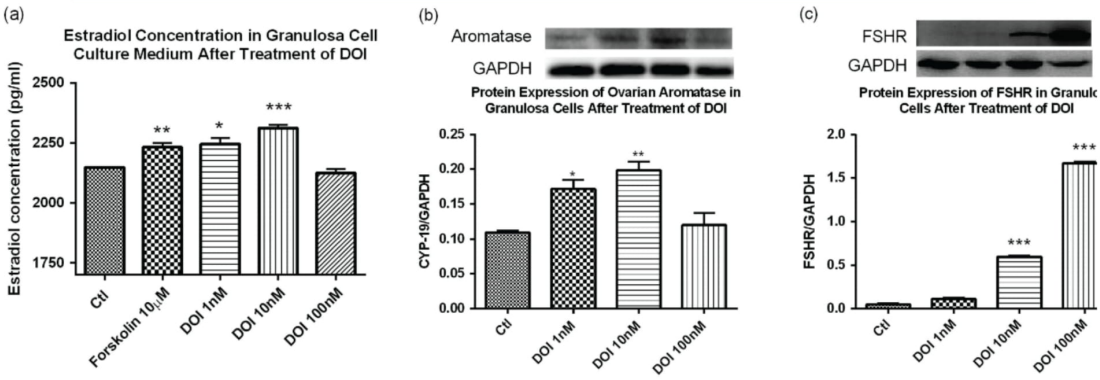
1. World Health Technical Report Series . Research on the Menopause in the 1990's, https://apps.who.int/iris/bitstream/handle/10665/41841/WHO_TRS_866.pdf?sequence=1&isAllowed=y; 2. Symptoms during the perimenopause: prevalence, severity, trajectory, and significance in women's lives, https://www.amjmed.com/article/S0002-9343(05)00885-5/fulltext; 3. Calculated based on the forecasted market size of USD 3bn by 2023 and a forecasted CAGR of 4.2% between 2017-2023. Menopause Treatment Market 2019: https://www.reuters.com/brandfeatures/venture-capital/article?id=119980; 4. Isoflavones Market Size To Reach USD 50.06 Billion By 2025. https://www.grandviewresearch.com/press-release/global-isoflavones-market. (Isoflavones are naturally occurring compounds found in a wide variety of plants. The isoflavones supplement market is the main menopausal supplement market.)

DOI - A CHINESE YAM EXTRACT TO ADDRESS MENOPAUSAL SYNDROME

DOI, a novel bioactive peptide with estrogen-stimulating activity[1]

- Discovered an estrogen-stimulating activity from an extract obtained from the Chinese yam, Dioscorea opposita Thunb
- Identified and isolated a novel bioactive component, DOI, which conferred the estrogen-stimulating activity[1]
- DOI significantly increased estradiol biosynthesis and aromatase expression in granulosa cells
- The upregulation of aromatase, an enzyme involved in the production of estrogen, by DOI was found in ovary but not in other cells/tissues

In vitro **studies show that DOI stimulated estradiol level in rat ovarian granulosa within a specified concentration range.**

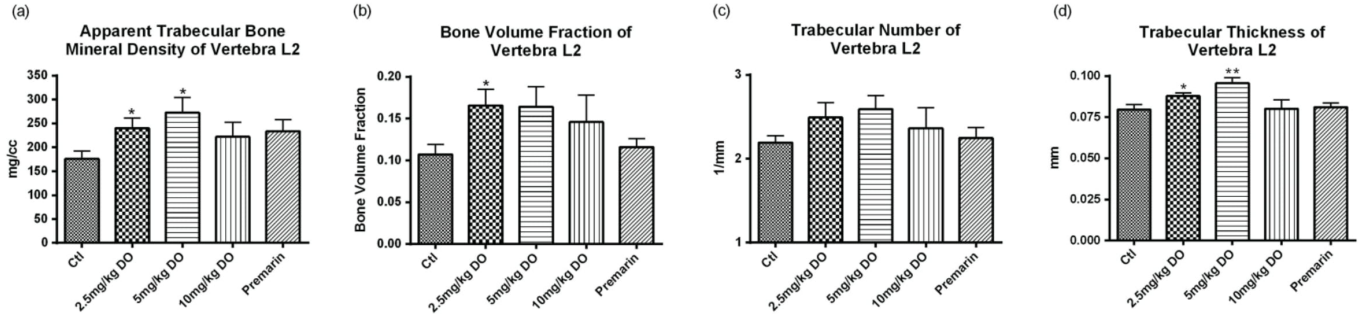


(a) Stimulatory activity of DOI on estrogen biosynthesis in granulosa cells. Protein expression of (b) aromatase and (c) follicle-stimulating hormone receptor (FSHR) in ovarian granulosa cells. Results are expressed as means ± SEM (n = 3). *P < 0.05, **P < 0.01, ***P < 0.001 compared with the control group (unpaired t-test). (Adopted from Science Report (5:10179, 2015))

1. Sci. Rep. 5, 10179; doi: 10.1038/srep10179 (2015). This source applies to all the content on this slide.

DOI and bone density[1]

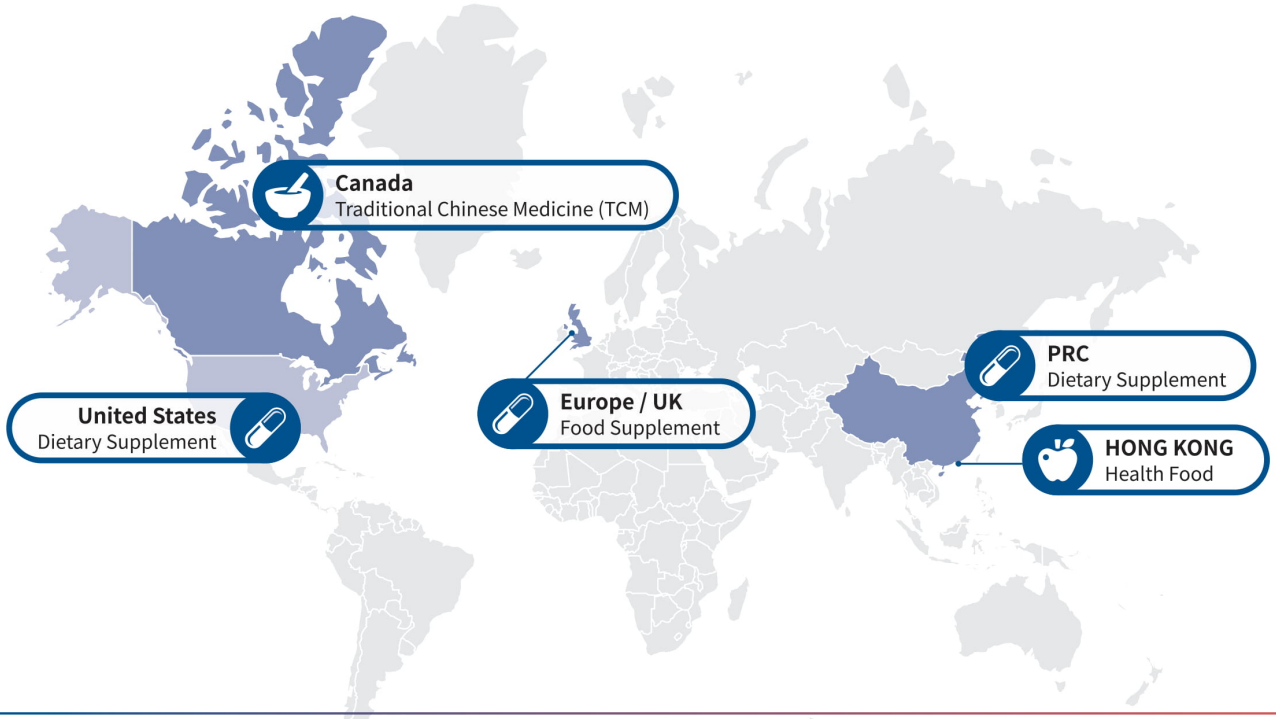
- DOI in old female SD rats demonstrated an increase in the apparent bone mineral density, bone volume fraction and trabecular thickness by microCT scanning



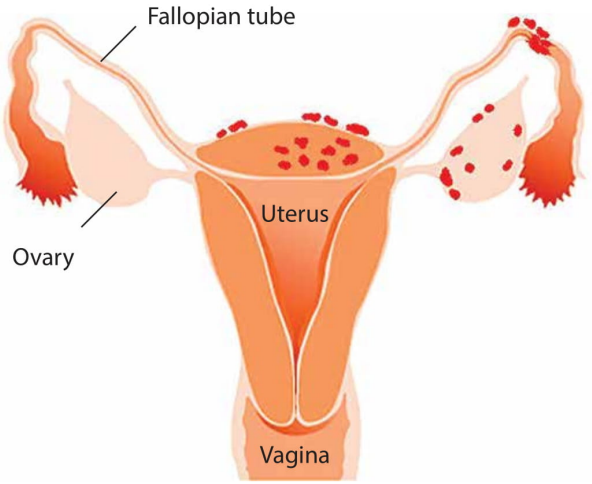
(a) Serum estradiol, (b) apparent trabecular bone mineral density, (c) bone volume fraction of Sprague Dawley rats after treatment with DOI for 2, 4, and 6 weeks. Results are expressed as means ± SEM (n = 6; except Premarin group, where n = 3). *p < 0.05, **p < 0.01 compared with the control group (unpaired t-test).

1. Sci. Rep. 5, 10179; doi: 10.1038/srep10179 (2015). This source applies to all the content on this slide

REGULATORY INFORMATION



NLS-1: TREATMENT OF ENDOMETRIOSIS WITH A NON-HORMONAL APPROACH



In *in vivo* rat models, DOI is shown to stimulate estradiol level and induce estrogen-related gene expressions[1]

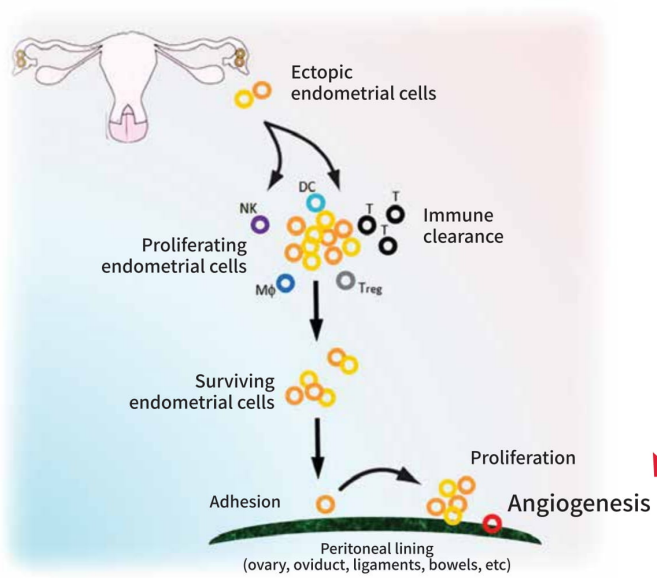
A chronic gynecological disorder affecting 10% of woman during reproductive ages with 176 million known cases worldwide[1]

Medical Problem[2]

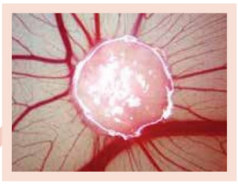
- chronic pelvic pain
- dysmenorrhea
- Infertility ectopic pregnancy
- miscarriage

1. Endometriosis.org: Facts about endometriosis, http://endometriosis.org/resources/articles/facts-about-endometriosis/; 2. J Assist Reprod Genet. 2010 Aug;27(8):441-7.

NLS-1: PATHOPHYSIOLOGY

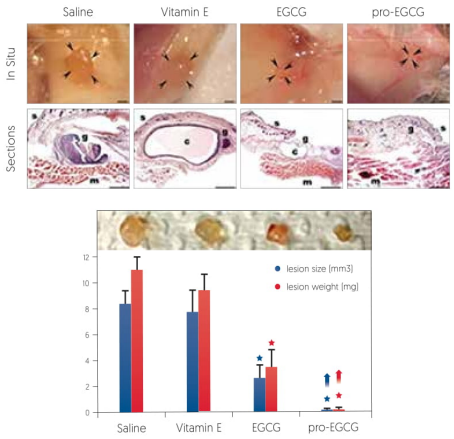


The areas of endometriosis bleed, resulting in inflammation and scarring[2]

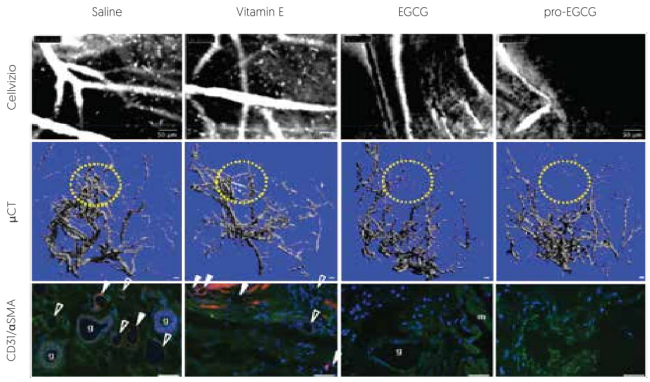


1. The figure is modified from Hum Reprod Update. 2011 Nov-Dec;17(6):829-47; 2. J Assist Reprod Genet. 2010 Aug;27(8):441-7.

NLS-1: A POTENT ANTI-ANGIOGENESIS AGENT FOR ENDOMETRIOSIS IN MICE



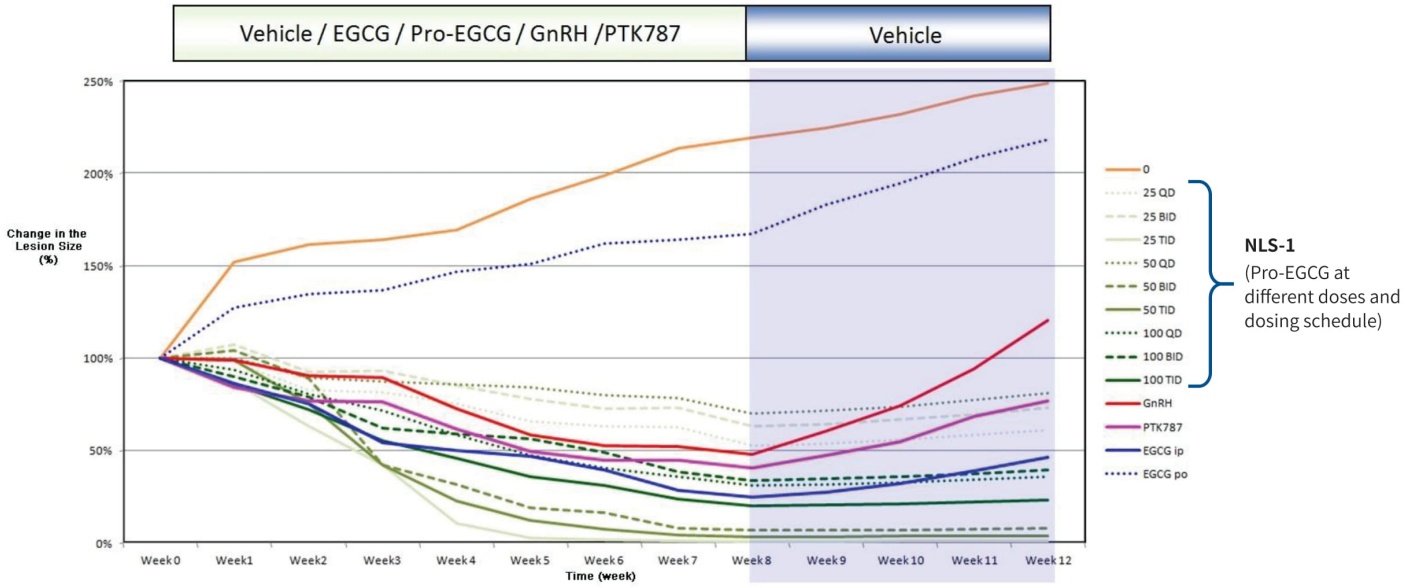
Studies utilizing mouse endometriosis models demonstrated that administration of NLS-1 resulted in greater reductions in the size and weight of lesions than Vitamin E, EGCG or the control without any treatment molecule.



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.

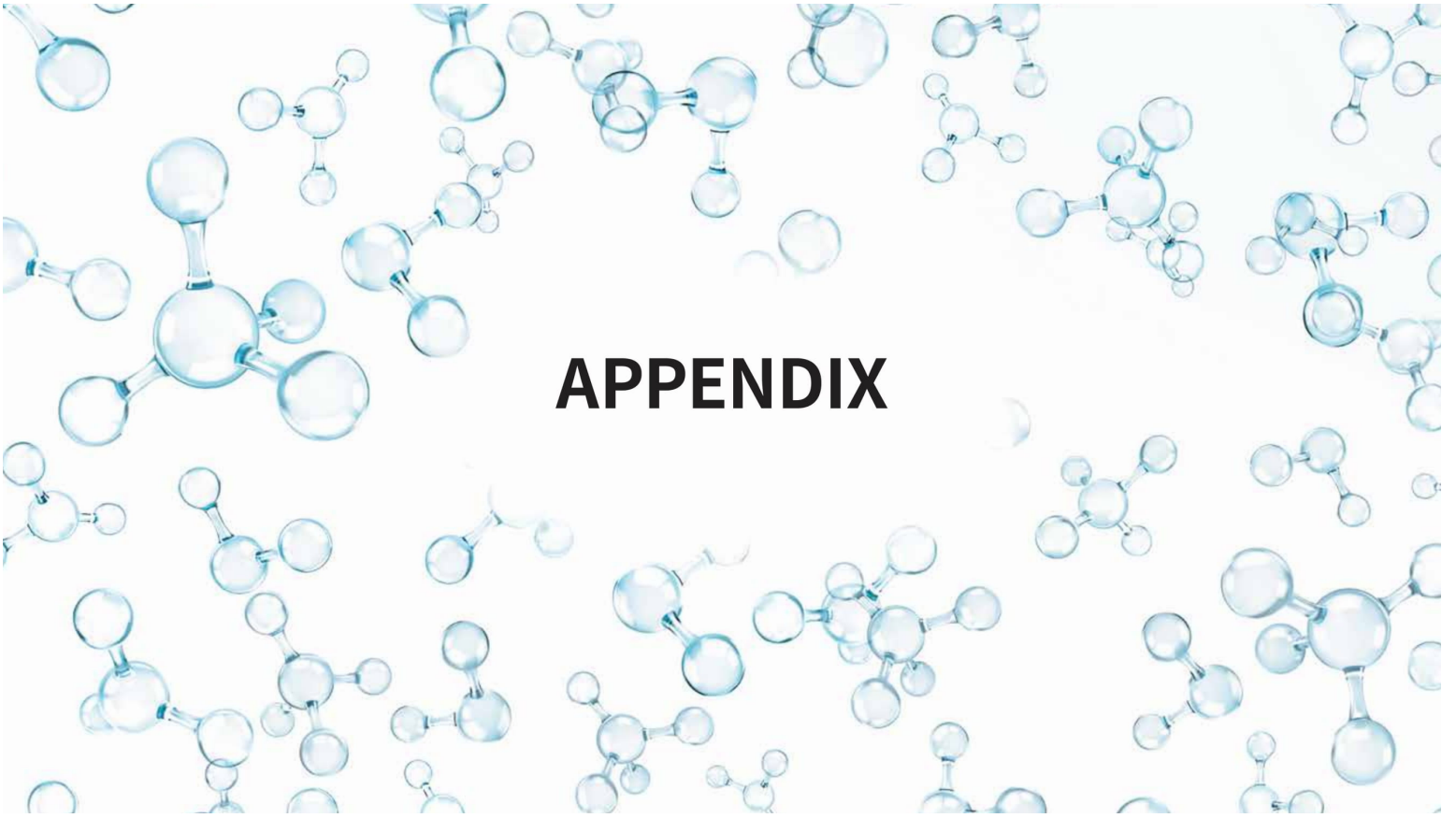
All content on this slide is adapted from Angiogenesis. 2013 Jan;16(1):59-69.

NLS-1: EFFICACY IN AN ANIMAL MODEL



Comparison of the efficacy of different treatment in an experimental endometriosis model

The above data are based on Aptorum's internal tests and has not yet been verified by clinical trials or third party testing.



APPENDIX

RECENT BUSINESS UPDATE

SEPTEMBER 9, 2019	Aptorum Group has initiated IND-enabling studies for its ALS-4 small molecule candidate against *S. aureus* including MRSA
	Aptorum Group commenced the preclinical development of two novel drug candidates, CLS-1 and SACT-1, for indications in Obesity and Neuroblastoma respectively
May 6, 2019	Aptorum Group's Subsidiary, Claves Life Sciences Limited, established a novel therapeutic platform for treatment of various diseases via modulation of the chemical signaling relating to gut microbiota
April 24, 2019	Aptorum Group, Aeneas Capital Limited, and A*ccelerate Technologies Pte Ltd, the enterprise office of the Agency for Science, Technology and Research (A*STAR), signed a USD 90 million agreement to co-create local deep tech start-ups in the healthcare and life sciences sector
April 24, 2019	Aptorum Group established Smart Pharma to focus on computational repurposed drug discovery for orphan and unmet diseases

ALS-4: PROJECTED SALES

A highly-specific, anti-virulent drug candidate[1], ALS-4's pricing will be in contrast with the low pricing of generic antibiotics (e.g. vancomycin)[2]

Invasive MRSA[3]	US	EU	PRC	JP	RoW	Global
Infection rate	0.029%	0.029%	0.029%	0.029%	0.029%	0.029%
Treatment penetration rate	100%	100%	80%	100%	30%	50%
Peak patient volume share	80%	70%	50%	80%	50%	57%
ASP at launch (USD)	20,000	10,000	6,000	10,000	3,000	7,705
Patients covered at peak sales ('000)	86	159	222	28	266	762
Peak sales (USDm)	1,716	1,594	1,335	284	799	5,722

S. Aureus excl. invasive MRSA[3]	US	EU	PRC	JP	RoW	Global
Infection rate	0.036%	0.036%	0.036%	0.036%	0.036%	0.036%
Treatment penetration rate	100%	100%	80%	100%	30%	50%
Peak patient volume share	20%	15%	10%	20%	5%	10%
ASP at launch (USD)	20,000	10,000	6,000	10,000	3,000	9,067
Patients covered at peak sales ('000)	26	42	55	9	33	165
Peak sales (USDm)	529	421	329	87	99	1,465

1. MBio. 2017 Sep 5;8(5). pii: e01224-17 and based on Aptorum's internal tests/experimentation and has not yet been verified by clinical trials or third party testing; 2. P T. 2016 Feb; 41(2): 126–128;
3. All projected figures on this slide are internal estimates.

INCOME STATEMENT SUMMARY (U.S. GAAP)[1]

	SIX MONTHS ENDED JUNE 30 (UNAUDITED)		YEAR ENDED DECEMBER 31, 2018	MARCH 1, 2017 THROUGH DECEMBER 31, 2017
	2019	2018		
	USD	USD	USD	USD
Revenue	239,792	26,662	383,450	-
Research and development expenses	(2,714,217)	(1,342,179)	(3,101,432)	(2,560,323)
General and administrative fees	(3,232,916)	(2,238,025)	(4,919,626)	(1,480,093)
Legal and professional fees	(2,008,774)	(1,063,032)	(1,811,770)	(1,395,490)
Net loss attributable to Aptorum Group Limited	(9,088,471)	(5,488,372)	(14,831,723)	(2,547,462)
Net loss per share – basic and diluted	(0.31)	(0.20)	(0.53)	(0.09)
Interest (expense) income, net[2]	(3,678,566)	(301,362)	(4,458,191)	44,269
Depreciation and amortization	(585,701)	(209,267)	(682,902)	(58,903)
Share based compensation expenses	(593,806)	-	-	-

Notes:

1. The following slide contains selected information for the Company's income statement. Please see the Company's most recently filed Form 20-F and Form-1/A for the Company's complete financial statements.
2. During the six months ended June 30, 2019 and year ended December 31, 2018, the net interest expenses included USD 3.1 M and USD 2.4 M, respectively, amortization of beneficial conversion feature which are non-cash items.

SELECTED BALANCE SHEET ITEMS (U.S. GAAP)[1]

	June 30 2019 (unaudited)	December 31 2018	December 31 2017
	USD	USD	USD
Cash, restricted cash and marketable securities	6,135,837	27,121,576	18,698,455
Total current assets	7,742,644	28,722,941	20,283,399
Property, plant and equipment, net	5,777,657	4,260,602	346,587
Total assets	24,730,370	45,074,640	31,559,982
Convertible debts	-	(10,107,306)	(480,000)
Warrant liabilities	-	(753,118)	-
Total current liabilities	(597,141)	(12,184,865)	(1,330,734)
Total liabilities	(718,082)	(12,328,738)	(1,330,734)
Total equity attributable to the shareholders of Aptorum Group Limited	24,942,586	33,114,435	30,243,293
Working Capital[2,3]	7,145,503	16,538,076	18,952,665

Notes:

1. The following slide contains selected information for the Company's balance sheets. Please see the Company's most recently filed form 20-F and Form F-1/A for the Company's complete financial statements.
2. Current assets less current liabilities.
3. As of September 2019, Aptorum Group has access to over USD15m in working capital from shareholder support

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Exhibit 99.3

NASDAQ: APM

Aptorum Group Has Initiated IND-Enabling Studies For Its ALS-4 Small Molecule Candidate For The Treatment Of Infections Caused By Staphylococcus Aureus Including MRSA

New York, September 9, 2019 – Aptorum Group Limited (Nasdaq: APM) ("Aptorum Group"), a biopharmaceutical company focused on the development of novel therapeutics to address global unmet medical needs, announces that it has initiated investigational new drug (IND)-enabling studies for ALS-4, a small drug molecule candidate indicated for the treatment of infections caused by Staphylococcus aureus (or "S. aureus") including methicillin-resistant Staphylococcus aureus (MRSA, i.e., one of the commonly known "super-bugs") based on a novel anti-virulence approach.

The ALS-4 candidate has been progressing well and the first series of GLP toxicology studies have been completed through an appointed North American based contract research organization (CRO). In particular, ALS-4 candidate did not show any mutagenicity in the *in vitro* Ames tests. ALS-4 development is on track and the company targets to submit the related IND in the first half year of 2020 and a hybrid Phase 1 clinical study is currently planned in North America with both healthy volunteers and patients to obtain preliminary efficacy readout.

S. aureus is a bacteria which is a leading cause of blood, lung, skin, bone and device-related infections, as well as toxin-related diseases[1]. It is estimated that patients with S. aureus bacteremia have an average mortality rate of 30%[2] and that it is responsible for causing more deaths than AIDS, tuberculosis and viral hepatitis combined[3]. MRSA and vancomycin-intermediate and resistant S. aureus have also been classified by the World Health Organization (WHO) as high priority pathogens for research and development[4].

About ALS-4

ALS-4 is a small molecule drug candidate that is believed to inhibit dehydrosqualene desaturase of S. aureus (incl. MRSA) which is involved in the generation of staphyloxanthin, a commonly visible "golden pigment" covering the bacteria and is primarily responsible for the bacteria's resistance to attack from reactive oxygen species (ROS) deployed by phagocytic cells and neutrophils[5]. On this basis, ALS-4 is not bactericidal and through inhibiting the production of staphyloxanthin, S. aureus becomes highly susceptible to the host's immune clearance. ALS-4 deploys a novel approach towards the treatment of bacterial infection which is significantly different from the bactericidal approach found in most current antibiotics that are experiencing increasing drug resistance issues.

About Aptorum Group Limited

Aptorum Group Limited (Nasdaq: APM) is a pharmaceutical company dedicated to developing and commercializing novel therapeutics to tackle unmet medical needs. Aptorum Group is pursuing therapeutic projects in neurology, infectious diseases, gastroenterology, oncology and other disease areas.

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[1] Clin Microbiol Rev. 2015 Jul;28(3):603-61.

[2] Clin Microbiol Rev. 2012 Apr;25(2):362-86

[3] van Hal et al. Clin Microbiol Rev 2012

[4] https://www.who.int/news-room/detail/27-02-2017-who-publishes-list-of-bacteria-for-which-new-antibiotics-are-urgently-needed

[5] mBio 2017 8(5): e01224-17

For more information about Aptorum Group, please visit www.aptorumgroup.com.

Disclaimer and Forward-Looking Statements

This press release includes statements concerning Aptorum Group Limited and its future expectations, plans and prospects that constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. For this purpose, any statements contained herein that are not statements of historical fact may be deemed to be forward-looking statements. In some cases, you can identify forward-looking statements by terms such as "may," "should," "expects," "plans," "anticipates," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "potential," or "continue," or the negative of these terms or other similar expressions. Aptorum Group has based these forward-looking statements, which include statements regarding projected timelines for application submissions and trials, largely on its current expectations and projections about future events and trends that it believes may affect its business, financial condition and results of operations. These forward-looking statements speak only as of the date of this press release and are subject to a number of risks, uncertainties and assumptions including, without limitation, risks related to its announced management and organizational changes, the continued service and availability of key personnel, its ability to expand its product assortments by offering additional products for additional consumer segments, development results, the company's anticipated growth strategies, anticipated trends and challenges in its business, and its expectations regarding, and the stability of, its supply chain, and the risks more fully described in Aptorum Group's Form 20-F and other filings that Aptorum Group may make with the SEC in the future. As a result, the projections included in such forward-looking statements are subject to change. Aptorum Group assumes no obligation to update any forward-looking statements contained in this press release as a result of new information, future events or otherwise.

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Exhibit 99.4

NASDAQ: APM

Aptorum Group Announces the Development of Microbiome Drug Candidate Targeting Obesity and Repurposed Drug Candidates Targeting Neuroblastoma

New York, September 9, 2019 – Aptorum Group Limited (Nasdaq: APM) ("Aptorum Group"), a biopharmaceutical company focused on the development of novel therapeutics to address global unmet medical needs, announces the development of two preclinical drug candidates which target obesity and neuroblastoma, respectively.

About CLS-1: Treatment of obesity via modulation of chemical signaling relating to gut microbiota

Under the recently-announced microbiota modulation platform operated by Aptorum Group's wholly-owned subsidiary Claves Life Sciences Limited, we have commenced the preclinical development of macromolecule candidate CLS-1 targeting the treatment of obesity. CLS-1 is undergoing lead optimization and is expected to progress into the IND enabling stage in 2020.

The prevalence of obesity continues to escalate globally; however, there is no current optimal therapy for this condition[1]. 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[2]. We believe current pharmacotherapy has limited efficacy and is associated with substantial safety issues, and this will provide immeasurable market opportunity for CLS-1.

Chemical signaling of gut microbiota is known to be one of the major causes of obesity[1]. CLS-1 is an orally administered non-absorbable macromolecule that modulates 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.

Aptorum Group is also pursuing two further indications based on the modulation of microbiota based chemical signaling involving the above large molecule technology, which we believe to be highly scalable and we hope to be making further announcements regarding our efforts in due course.

[1] Protein Cell. May; 9(5): 397–403.

[2] Obes Surg. 2012 Jun;22(6):956-66

About SACT-1: Repurposed Drug Candidates for the Treatment of Neuroblastoma

Under the recently announced Smart-ACT™ computational drug discovery platform operated by our wholly-owned subsidiary Smart Pharma Group, Aptorum Group has completed computational screening of approximately 1,615 marketed drugs against 3 therapeutic target proteins to potentially tackle poor prognosis of neuroblastoma, i.e., a rare type of children's cancer that forms in certain types of nerve tissue and most frequently in the adrenal glands as well as spine, chest, abdomen or neck, especially in children[3]. For the high-risk group, the 5-year survival rate of this condition is around 40-50% as observed by the American Cancer Society.[4] Aptorum Group has identified an array of repurposed candidates and has proceeded to evaluate them in cell-based and animal models in order to validate the candidates' usage for such new indication and potential efficacies.

Aptorum Group is also pursuing two further indications under the Smart-ACT™ drug discovery platform and hopes to be making further announcements regarding our research in due course.

About Aptorum Group Limited

Aptorum Group Limited (Nasdaq: APM) is a pharmaceutical company dedicated to developing and commercializing novel therapeutics to tackle unmet medical needs. Aptorum Group is pursuing therapeutic projects in neurology, infectious diseases, gastroenterology, oncology and other disease areas.

For more information about Aptorum Group, please visit www.aptorumgroup.com.

About Claves Life Sciences Limited

Claves Life Sciences Limited is a wholly-owned therapeutics subsidiary of Aptorum Group Limited. Claves focuses on the clinical development of therapeutic candidates related to the field of gastroenterology. The potential candidates under review and potentially developed focus on the modulation of gut microbiota-derived metabolites, for the prevention or treatment of diseases. Claves is also exploring a gut microbiota modulation platform that can generate novel customized candidates capable of fine-tuning levels of gut metabolites, potentially treating a wide range of medical conditions.

About Smart Pharma Group

Smart Pharma Group includes Smart Pharmaceutical Limited Partnership, SMTPH Limited and its subsidiaries. The Smart Pharma Group is wholly owned by Aptorum Group Limited. Smart Pharma Group focuses on systematically repurposing existing approved drugs for the treatment of a large array of orphan diseases. Smart Pharma Group conducts both computational based screening and preclinical validations in advancing the development of its repurposed candidates.

For more information about Smart Pharma Group, please visit www.smtph.com.

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[3] https://www.cancer.gov/publications/dictionaries/cancer-terms?expand=N

[4] See https://www.cancer.org/cancer/neuroblastoma/detection-diagnosis-staging/survival-rates.html.