

REVOLUTIONISE PHARMACEUTICAL PROCESSES WITH **SMART**



NASDAQ: APM
aptorumgroup.com



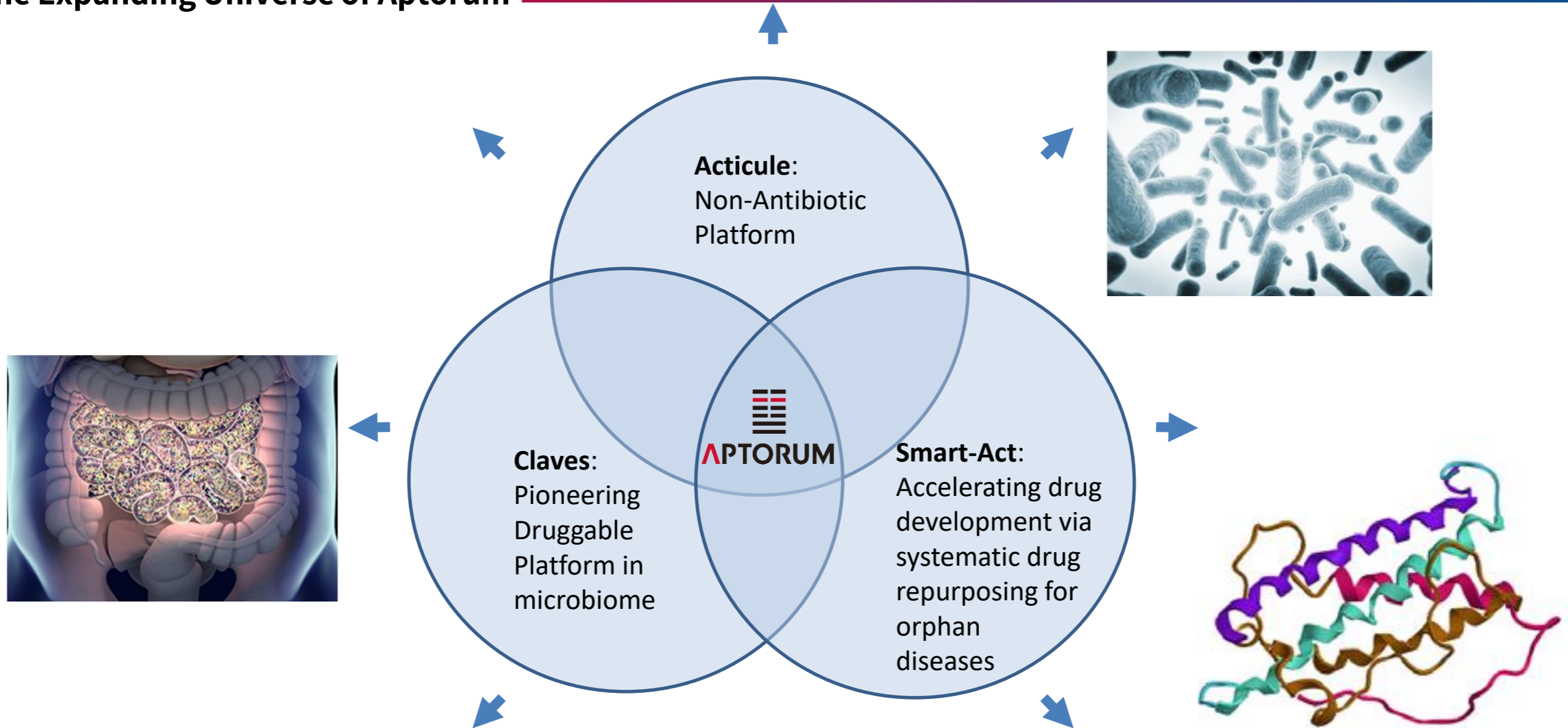
SMART PHARMACEUTICAL IS A SUBSIDIARY OF
APTORUM GROUP (NASDAQ: APM)



APTORUM

On 18th December 2018, Aptorum Group Limited listed on the NASDAQ (ticker symbol: APM). IPO stock price is **USD 15.80**. Latest stock price is **over USD 28.00** with current market capital of over **USD 800 M**.

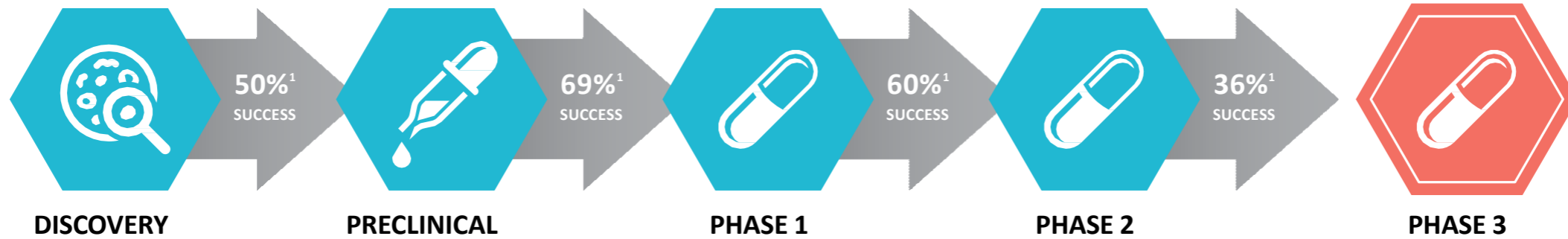
The Expanding Universe of Aptorum



Ever expanding universe of drug IP

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ACT- Accelerating the Commercialisation of Therapeutics



Traditionally, drug discovery and development (“3D”) is a time-consuming, costly and high-risk business

TIME



~12 YEARS^{2,3}

COST



USD 2.6 BILLION³

FAILURE RATE

86.2%

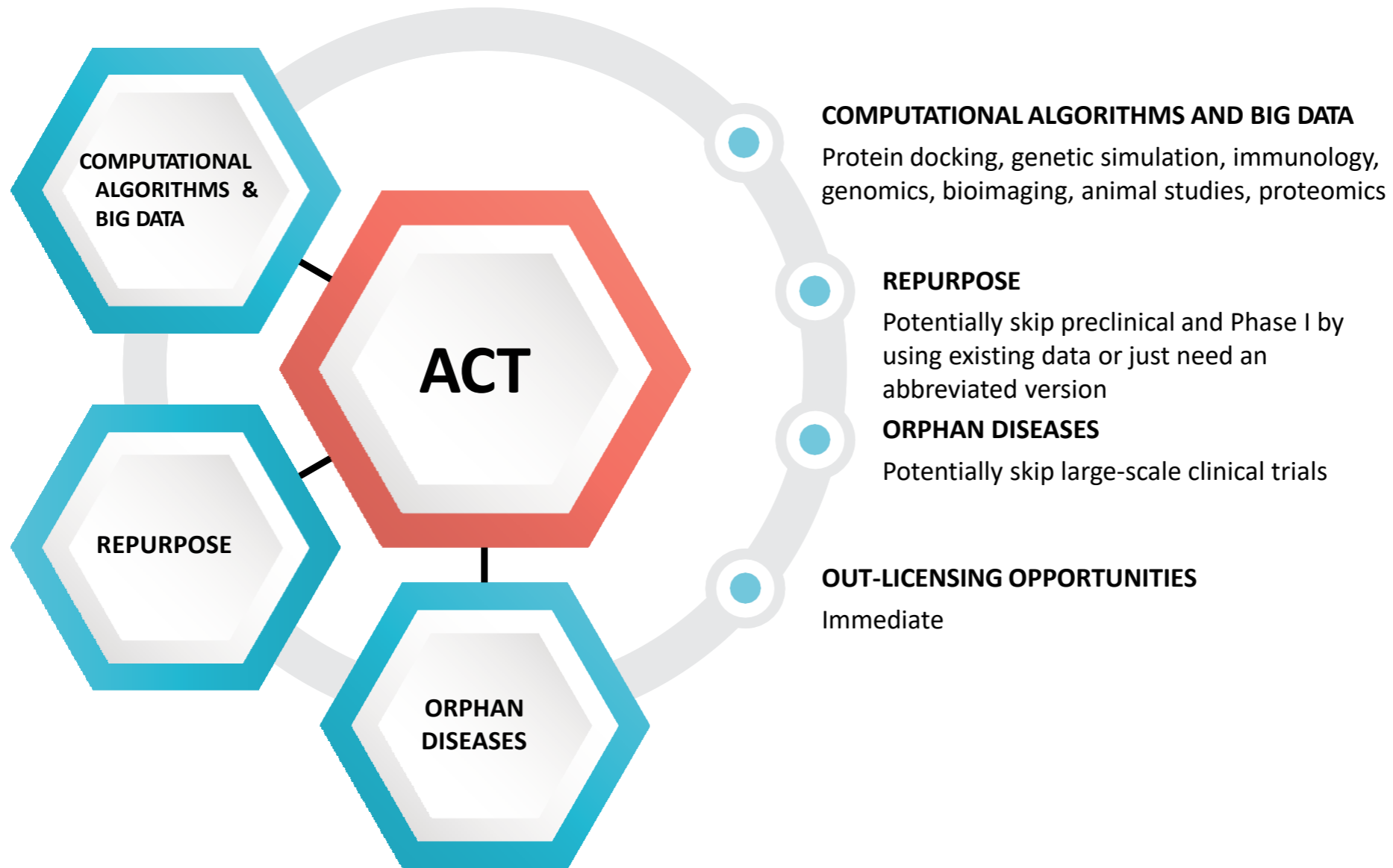
nearly 86.2%⁴ of drug candidates entering phase 1 trials fails to achieve drug approval

¹<https://www.apuit.com/ebook-drug-discovery>

²<https://www.sciencedirect.com/science/article/pii/S2452302X1600036X>

³<https://www.the-scientist.com/features/repurposing-existing-drugs-for-new-indications-32285>

⁴<https://academic.oup.com/biostatistics/article/20/2/273/4817524>



TRADITIONAL 3D & ACT 3D

	Traditional 3D - Problems	Act 3D - Solutions
Time (years)	10-17 years ¹ Drug Discovery: 3-10 years ² Preclinical Development: 1 year Phase I: Several months ³ Phase II to market: 5.4 years ⁴	5-6.5 years Drug Discovery: 1-1.5 year Preclinical Development: may not needed Phase I: May not needed Phase II to market: 3.9 years ⁴
Cost	US\$2.6 billion ⁵	US\$ 33 million ⁶
Probability	↓ Low hit rate from discovery to commercialisation	↑ Higher probability of success 30% approval rate for repurposed drugs ⁷



DEVELOPMENT TIME



DEVELOPMENT COST



PROBABILITY OF SUCCESS

1 <http://www.totalbiopharma.com/2012/07/04/4-key-benefits-drug-repositioning/>

2 Estimated based on the overall development time of 10-17 years

3 <https://www.fda.gov/forpatients/approvals/drugs/ucm405622.htm>

4 Source: Drug Discov Today. 2012;17(13-14):660-4.

5 <https://www.the-scientist.com/features/repurposing-existing-drugs-for-new-indications-32285>

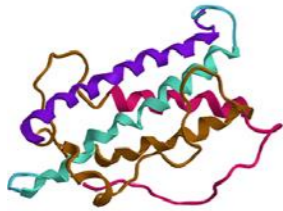
6 Source: Key cost drivers of pharmaceutical clinical trials in the United States (PDF), pg 5 (121), Oncology

<https://www.ncbi.nlm.nih.gov/pubmed/26908540>

7 <https://www.dcatvci.org/11-value-chain-insights/114-drug-repurposing-and-repositioning-making-new-out-of-old#>

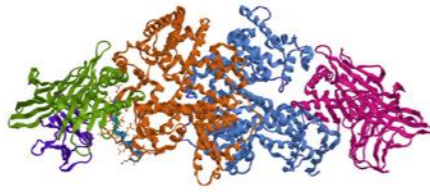
LIFE EXAMPLES: Neuroblastoma

TARGET A



14 drugs identified

TARGET B

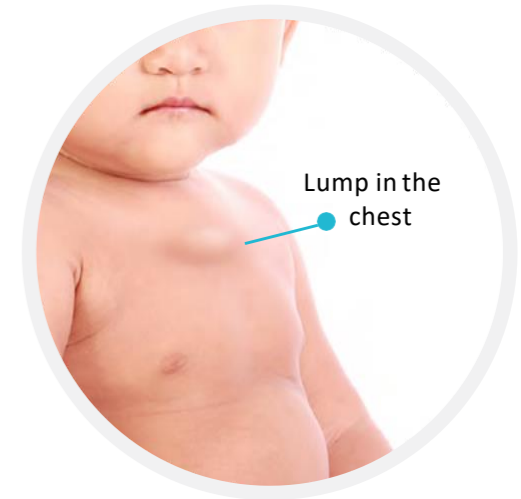
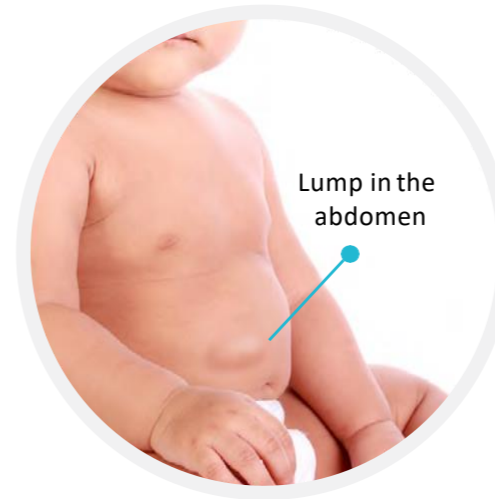


20 drugs identified

TARGET C



12 drugs identified



Wet Lab Validation	2019
Phase 3 Trial Done	2021
Regulatory Approval	2024
Commercialisation	2025
Total	6 years*



* Timeline is for illustrative purposes only. Actual timing and results may vary.

This slide merely shows an example of indications which the Smart-ACT may provide drug repurposing solutions. It is not a representation that we are actually developing a drug for this diseases and/or under the development timeline mentioned.

ACT- Accelerating the Commercialisation of Therapeutics



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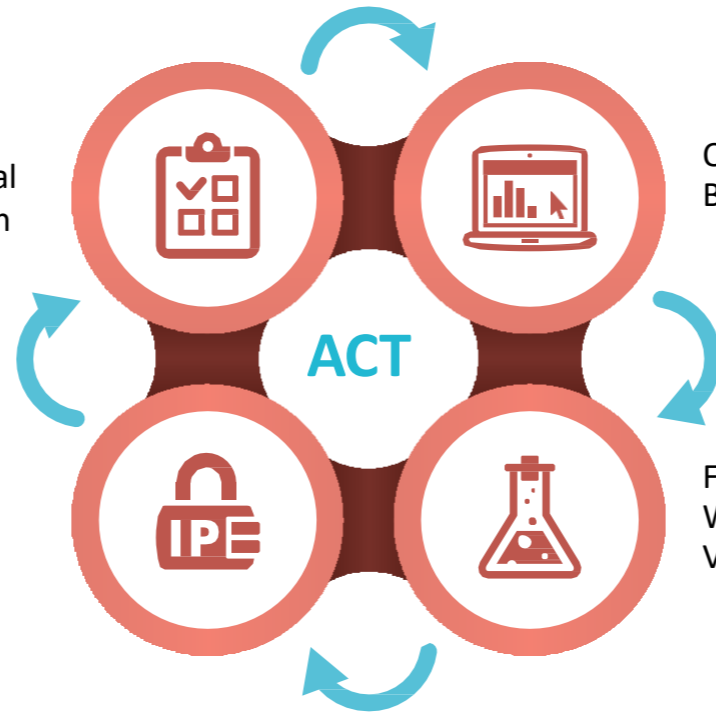


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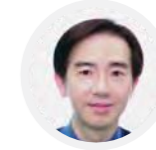
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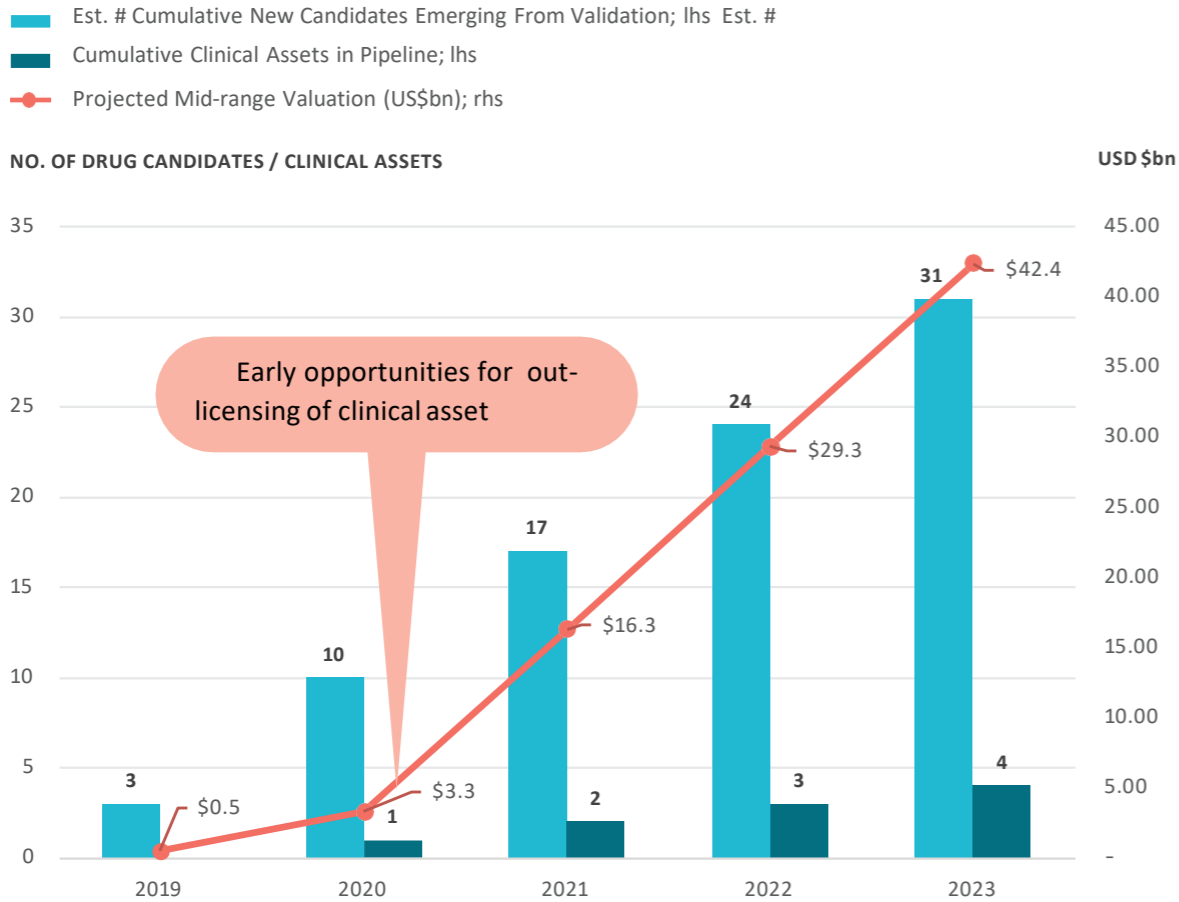
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ACT- Accelerating the Commercialisation of Therapeutics

ACT THERAPEUTIC PORTFOLIO VALUATION VERSUS PROJECTED CLINICAL ASSETS: Commercialisation + Out-Licensing Monetization Strategies



¹Smart Pharma internal estimates based on model assumptions. Details available upon request.

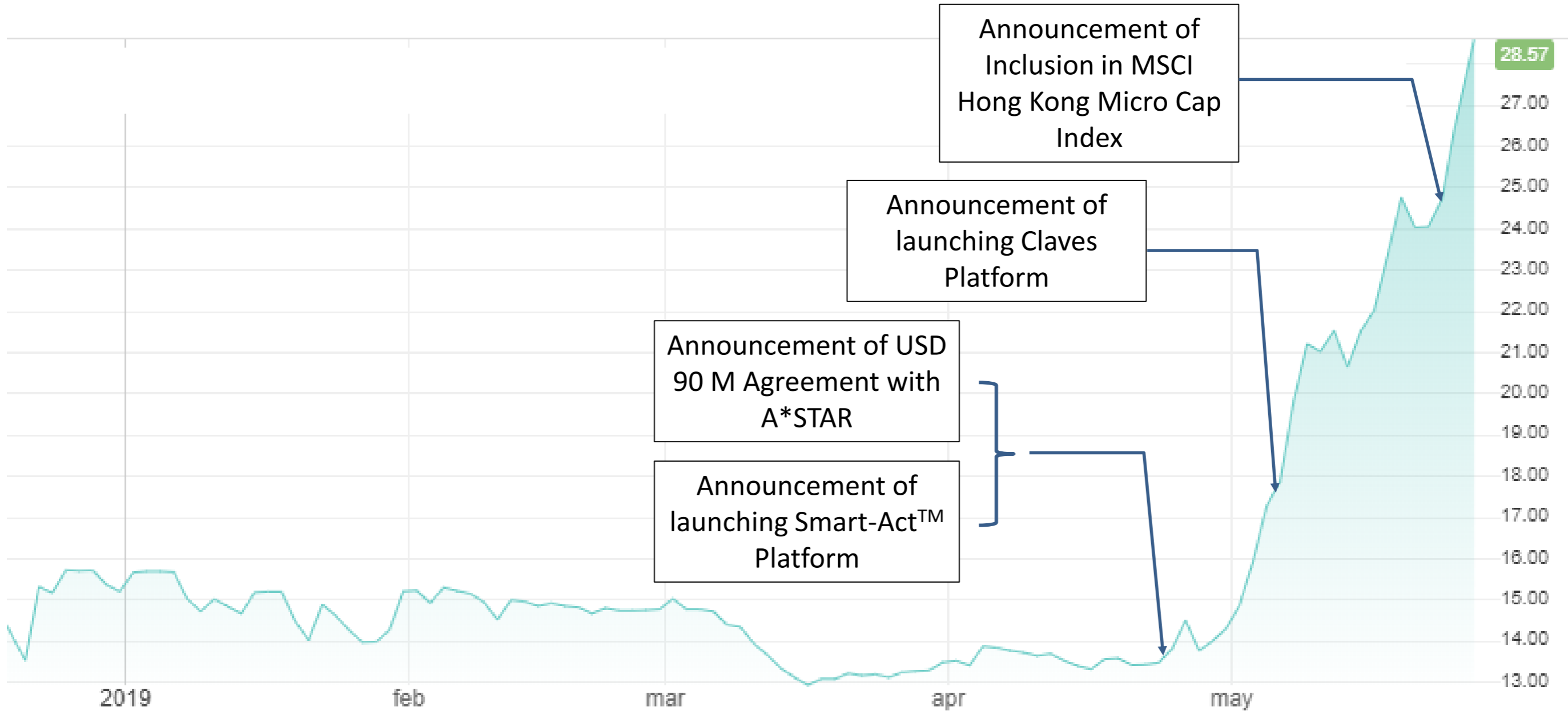
²<https://www.ncbi.nlm.nih.gov/pubmed/26908540>

Value projections are illustrative only. All estimates and forward-looking projections are based on modeled assumptions, which we believe to be reasonable, and evidence based where applicable. However, such assumptions are subject to change based on newly emerging data and/ or evidence, which could lead to changes in some or all projections presented in this presentation. We disclaim any responsibility to update these projections in the event of such changes at any time in the future.

Potential of ACT

Orphan Diseases	7000
Pipeline	<ul style="list-style-type: none"> • 5 – 10¹ candidates potentially enter clinical trials each year • Expect 1st clinical asset¹ in 2020 and cumulatively 4 clinical assets¹ by 2023
Potential Asset Pipeline Valuation	<ul style="list-style-type: none"> • Projected mid-range value at US\$42 billion¹ by 2023
Clinical Development Costs (Wet-lab, Phase 2, Phase 3)	<ul style="list-style-type: none"> • US\$ 33 million² per cancer drug • US\$ 120 million accumulated development costs by 2023
Return on Invested Capital	<ul style="list-style-type: none"> • Per drug candidate: 4x to 5x¹ (over 4 years) • Perpetual pipeline: Systematic pipeline of clinical assets targeting orphan diseases and unmet medical needs!

APM Stock Performance (as of 27/5/2019)



Stock chart extracted from <https://www.nasdaq.com/symbol/apm/interactive-chart>

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