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SINGAPORE’S DRUG DEVELOPMENT EFFORTS GIVEN ADDITIONAL MOMENTUM WITH NATIONAL PLATFORMS

Singapore – The nation’s drug development efforts have been given additional momentum with the introduction of two new platforms, and a grant scheme for drug discovery and development.

These national platforms aim to bridge the ‘valley of death’ between basic science research and pharmaceutical enterprises. They will also serve to catalyse collaboration across industry, research institutes, academia, and the hospitals; as well as nurture a strong pool of scientific talent for Singapore's biomedical ecosystem.

These announcements were made during the opening ceremony of the Experimental Drug Development Centre (EDDC) in Biopolis, officiated by Mr Heng Swee Keat, Deputy Prime Minister and Minister for Finance, and Chairman of the National Research Foundation (NRF).

EDDC is a national platform for drug discovery and development to channel high potential drug candidates toward realising commercial outcomes for Singapore, as well as clinical outcomes that will benefit Singaporeans. EDDC integrates A*STAR’s Experimental Therapeutics Centre (ETC), the clinical development unit known as Drug Discovery and Development (D3), and the Experimental Biotherapeutics Centre (EBC). EDDC will leverage Singapore’s competitive advantage in melding biomedical sciences, clinical medicine and engineering, to bring early drug targets to first-in-man clinical trials. With a growing Asian market and a predominantly ethnic-Asian population in Singapore, there are opportunities for Singapore to differentiate ourselves by focusing on novel therapeutics for Asian-prevalent diseases.

Also launched today, the Target Translation Consortium (TTC) brings together A*STAR, Duke-NUS Medical School, Lee Kong Chian School of Medicine, Nanyang Technological University, National Healthcare Group, National University of Singapore, National University Health System, and SingHealth. Helmed by EDDC, this new TTC coordinates early-stage drug discovery efforts across academia, healthcare institutions, and government agencies. This collaborative approach is an important competitive edge for Singapore's biomedical ecosystem amidst an increasingly sophisticated drug discovery and development space.

To complement these two new platforms, the Singapore Therapeutics Development Review (STDR) grant scheme was also announced. STDR consolidates three separate schemes by A*STAR, the National Health Innovation Centre Singapore (NHIC), as well as the Singapore–MIT Alliance for Research and Technology (SMART); into a new grant that funds early-stage projects up to S$750,000. It combines the expertise and resources of all three organisations, streamlining the assessment and feedback process for promising drug discovery and development projects. This ensures that projects with high potential are adequately funded without undue delay, which strengthens the pipeline of home-grown drug candidates.
Singapore’s investments in biomedical sciences have been making steady progress, with made-in-Singapore cancer drug candidates now moving into clinical trials and commercialisation. The biomedical sciences sector has also seen positive growth trajectory of home-grown biomedical companies. Singapore now has close to 100 local biotech companies, which collectively contributed more than US$350 million in deal flows in 2018 alone. In 2017, Singapore’s three largest biotech companies were reported to have an estimated collective valuation of more than US$1 billion. Singapore now has a rich mix of biomedical talent, knowledge and capabilities, an increasingly vibrant business environment, and an ecosystem that fosters innovation and the sharing of new ideas.

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ANNEX A

More Information about the Experimental Drug Development Centre (EDDC)

The Experimental Drug Development Centre (EDDC) is a national platform for drug discovery and development. EDDC channels Singapore’s pipeline of high potential drug candidates toward commercial and clinical outcomes.

The EDDC is an integration of A*STAR's drug discovery and development units: the Experimental Therapeutics Centre (ETC), Drug, Discovery and Development (D3), and Experimental Biotherapeutics Centre (EBC). Together, these units have forged partnerships with more than 70 academic institutions, as well as 25 local and international companies; with close to 20 licensing deals executed.

As the EDDC continues to champion public-private partnerships in the drug development industry, it will also allow for closer coordination and a further optimisation of public sector resources, to boost Singapore’s chances of translating early drug discoveries into new medicines.

EDDC has a comprehensive range of drug discovery capabilities, including assay development, high throughput screening, antibody cloning, medicinal chemistry and ADME/toxicology. These allow the centre to develop drug hits and lead them to the pre-clinical candidate stage in-house. In addition, EDDC supports candidates through First-in-Human/Patient Phase 1 and Proof-of-Concept studies.

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1 Cell Research Corporation (S$700M); Tessa Therapeutics (S$650M); Aslan Pharmaceutical (S$400M) (Based on publicly available media articles)
ANNEX B

More Information about the Target Translation Consortium (TTC)

The Target Translation Consortium (TTC) coordinates and facilitates early-stage drug discovery efforts across public sector institutions. It is a network of public research performers in Singapore that aims to improve the chances of success in the drug development process.

The TTC intends to:
- Enable early discussions of promising early stage drug discovery project proposals from members, with involvement from relevant experts across organisational boundaries where needed.
- Establish agreed processes, methods, and robust criteria for the evaluation and progression of therapeutic projects in the translation process, from target discovery to target validation.
- Coordinate the optimal use of innovative platforms and resources for drug discovery and development, and create synergies through collaboration.

Quotes from Members of the Target Translation Consortium (TTC)

“A significant milestone has been achieved for Singapore with EDDC’s launch as a national drug development platform, leading the formation of a consortium of key players in Singapore’s drug discovery and development ecosystem. We look forward to working with our partners on the next phase of growth in drug development, and leveraging great science to make great medicines for patients.”
– Dr Damian O’Connell, CEO EDDC, A*STAR

“We are pleased to participate in the Target Translation Consortium, both by proposing Duke-NUS projects that may benefit from TTC review and by reviewing project proposals from other Consortium members. Through bringing our respective resources and expertise to bear in our target validation and early stage drug discovery programmes, we may take advantage of synergies that can arise through collaboration, with the objective of increasing the chances of generating successful outcomes for patients and for Singapore.”
– Ms Cheryl McCaffery, Director, Centre for Technology and Development (CTeD), Duke-NUS Medical School

“LKCMedicine is very pleased to join the newly launched Target Translation Consortium (TTC). As a member of the TTC, LKCMedicine will contribute to early-stage drug discovery, co-ordinating our efforts with partners across Singapore. LKCMedicine has excellent capability in a range of relevant technologies and a strong research team, focussed on opportunities for translation of their laboratory findings.”
– Professor James Best, Dean, Lee Kong Chian School of Medicine, NTU Singapore

“We are delighted to be part of the Target Translation Consortium (TTC), the formation of which is an important step forward in the eventual commercialisation of drug-related assets developed in the Singapore ecosystem, and hence the delivery of societal impact from Singaporean biomedical research. As a recent entrant in the drug discovery space with a small but growing portfolio of biomedical assets, NTU will be able to leverage TTC’s combined expertise in drug discovery and development, and
vice versa. This will provide Singapore biomedical researchers the right guidance for successful commercialisation.”
– Dr Lim Jui, CEO, NTUitive

“Drug discovery is important to advance medical treatment. Through sharing knowledge, capabilities and resources, we look forward to contributing to the TTC and collaborating with our partners to tap on innovative platforms to drive drug discovery and development. This is aligned with NHG’s vision of adding years of healthy life to the population we serve”
– Assoc Prof Lim Su Chi, Clinical Director, Clinical Research Unit; and Senior Consultant, General Medicine, Khoo Teck Puat Hospital, NHG

“The journey in formulating a drug for an identified target is long and arduous. Universities have the capabilities to kick-start the journey through pre-clinical studies. However, drug development involves substantial support and expertise at different phases going forward. The establishment of the Target Translation Consortium (TTC) is timely as it will boost NUS’ efforts in translating scientific discoveries in our labs into viable and therapeutically useful new drug candidates to address unmet medical needs. The TTC will also facilitate greater interaction within the research community here and expand learning opportunities across the different drug discovery and development phases.”
– Ms Tricia Chong, Acting Director, National University of Singapore (NUS) Industry Liaison Office

“The National University Health System is pleased to be a partner in EDDC’s Target Translation Consortium, in providing early clinical insights for drug development. The collective know-how accessible through the TTC as well as the rigorous guidance and feedback processes, will further enhance Singapore’s drug development ecosystem, and the value of Singapore’s pipeline of drug candidates.”
– Professor Chng Wee Joo, Group Director of the NUHS Research Office

“The drug discovery and development process is a complex one that requires a multi-disciplinary and multi-agency approach. The Target Translation Consortium will bring together key players from the biomedical research and healthcare industries to find new therapies for patients.”
– Assoc Prof Tan Say Beng, Group Director, Research, SingHealth
ANNEX C

More Information about Singapore Therapeutics Development Review (STDR)

The Singapore Therapeutics Development Review (STDR) grant scheme aims to fund and support early-stage drug discovery and development projects. It is initiated by the Agency for Science, Technology and Research (A*STAR), National Health Innovation Centre Singapore (NHIC), and Singapore – MIT Alliance for Research and Technology (SMART).

This scheme consolidates three previously separate ones into a new grant that would provide up to S$750,000 in funding per project.

With STDR, all promising projects originating from public research institutes, hospitals or Institutes of Higher Learning (IHLs) in Singapore, will be assessed by a team of multi-disciplinary experts.

This will help ensure that drug discovery and development projects with high potential are adequately funded and supported, strengthening the pipeline of promising drug candidates originating from Singapore.

Quotes from Members of Singapore Therapeutics Development Review (STDR)

“Making new drugs is a high stakes enterprise. By working together more closely, and by establishing a national drug development centre run by professionals from the pharmaceutical industry, we enhance our chances of success. I don’t think we have to wait long to reap the dividends from these investments, as well as to see more made-in-Singapore drugs in the clinic.”
– Dr Benjamin Seet, Executive Director of A*STAR’s Biomedical Research Council

“We are delighted to partner with A*STAR BMRC and SMART to combine our funding resources and guidance support, to enable development of new life-saving therapeutics by Singapore clinicians and researchers for global markets. This new joint funding program will streamline strategic efforts to promote novel therapeutics development, and ensure that good therapeutics research projects are given the appropriate support. In this manner, it will help to accelerate healthcare innovation in Singapore, leading to improved delivery of healthcare solutions and better patient care.”
– A/Prof Tina Wong, Executive Director NHIC

“At SMART, we believe innovations bring the most positive social impacts. We are therefore excited to be a part of the STDR grant scheme, where we will be able to leverage our world-renowned MIT process of identifying promising breakthrough technologies and accelerating them to commercialisation and real-world applications, for the betterment of medical care in Singapore and the world.”
– Professor Eugene Fitzgerald, CEO and Director, SMART
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**About the Agency for Science, Technology and Research (A*STAR)**

The Agency for Science, Technology and Research (A*STAR) is Singapore’s lead public sector agency that spearheads economic oriented research to advance scientific discovery and develop innovative technology. Through open innovation, we collaborate with our partners in both the public and private sectors to benefit society.

As a Science and Technology Organisation, A*STAR bridges the gap between academia and industry. Our research creates economic growth and jobs for Singapore, and enhances lives by contributing to societal benefits such as improving outcomes in healthcare, urban living, and sustainability.

We play a key role in nurturing and developing a diversity of talent and leaders in our Agency and research entities, the wider research community and industry. A*STAR’s R&D activities span biomedical sciences and physical sciences and engineering, with research entities primarily located in Biopolis and Fusionopolis. For ongoing news, visit [www.a-star.edu.sg](http://www.a-star.edu.sg).