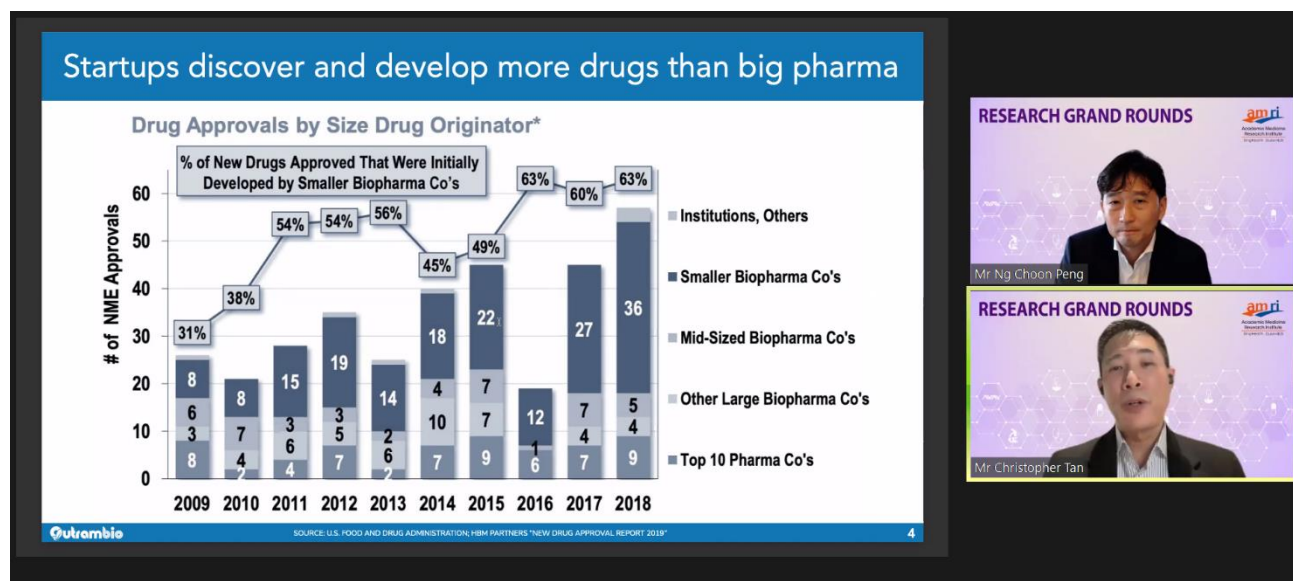


Research e-Bulletin

Practical Steps Towards Commercialising Research

In our second Research Grand Rounds (RGR) for 2023 held on 19 April, participants gained insights on how we can take practical steps towards commercialising research. Our speakers, Mr. Ng Choon Peng (CEO & Co-Founder, ImmunoScape and Partner, Outram Bio) and Mr. Christopher Tan (Partner, Outram Bio and Advisor, ImmunoScape) discussed three key ingredients to start a company, and the obstacles that can arise along the way. They also shared their respective experiences in entrepreneurship and venture capital, and how it led them to form Outram Bio.

The commercialisation of biotech research is a long and challenging journey—translating research from the lab to the clinic requires a significant investment of time, resources, and expertise—but the rewards can be substantial.



Mr. Tan began by providing an overview of Outram Bio. Headquartered in Singapore and founded by Singaporeans, Outram Bio is a venture capital firm focused on seed- and early-stage investments in healthcare and life sciences. Mr. Ng and Mr. Tan collectively have decades of international commercial experience—Mr. Ng has been a senior executive at major pharmaceutical companies like GSK, Janssen and LEO Pharma, while Mr. Tan worked at Goldman Sachs Capital Partners and led the healthcare investment practice at FTV Capital before returning to Singapore.

Mr. Tan presented a chart from HBM Partners that highlighted how biotech startups (rather than publicly-traded pharmaceutical companies) have been responsible for the majority of new drug approvals by the U.S. Food and Drug Administration. This percentage has increased from 31% in 2009 to 63% in 2018. While the data is a few years old, the overall trend is positive, so researchers who are looking to commercialize research and start their own companies should take heart!

Mr. Tan noted that successfully commercialising research requires three key ingredients: science, team, and capital. He then shared a chart from the FDA's Center of Drug Evaluation and Research showing the number of first-in-class drugs approved versus total new drugs approved by the FDA from 2017 to 2021. While new drug approvals have remained consistent over the years, the percentage of drugs approved that are first-in-class has increased. Alternatively, if a new drug is not first-in-class, then it becomes imperative to show therapeutic superiority, improved safety, ease of administration and/or lowered burden of treatment to be considered best-in-class. If a new drug is neither first-in-class nor best-in-class, the chances of successful commercialisation are slim. Mr. Tan also highlighted the importance of thinking about competitive differentiation, not just against drugs currently available on the market, but also versus other startups and grant-funded programmes around the world pursuing the same objective.

Mr. Tan then shared a chart from ZS highlighting that the amount of investment required to bring a new drug to market depends on how much it addresses a perceived unmet need and/or advances the current standard of care. A "game-changer" new drug, which has a large addressable market and significantly improves current standard of care is far more likely to attract investor dollars and lower barriers to adoption in the clinic.

Moving on to the "team" ingredient, Mr. Ng spoke about ImmunoScape's inception—how it started with Evan Newell's ground-breaking research while at A*STAR's Singapore Immunology Network (SIgN), and the founding team of Dr. Alessandra Nardin, Dr. Michael Fehlings, Dr. Newell and Mr. Ng came together to spin off the intellectual property into a company. Whereas Dr. Newell continued to stay in academia as the scientific co-founder, the other three quit their jobs at A*STAR to work on ImmunoScape full-time. Teamwork was particularly important in the early stages of company formation, and thankfully, the working dynamic at ImmunoScape was excellent.

Mr. Ng continued by sharing the challenges ImmunoScape faced in finding investors during the early years. The University of Tokyo Edge Corporation (UTEC) was the initial investor in ImmunoScape, followed by Anzu Partners, a San Diego, California VC firm. Subsequently, EDB Investments and Amgen Ventures invested in the company; ImmunoScape has now raised over US\$40 million

cumulatively. Mr. Ng also explained how his diverse experiences studying in the U.K. and U.S. and working with international companies played a vital role in his ability to raise funds and partner with academic institutions and pharmaceutical companies around the world.

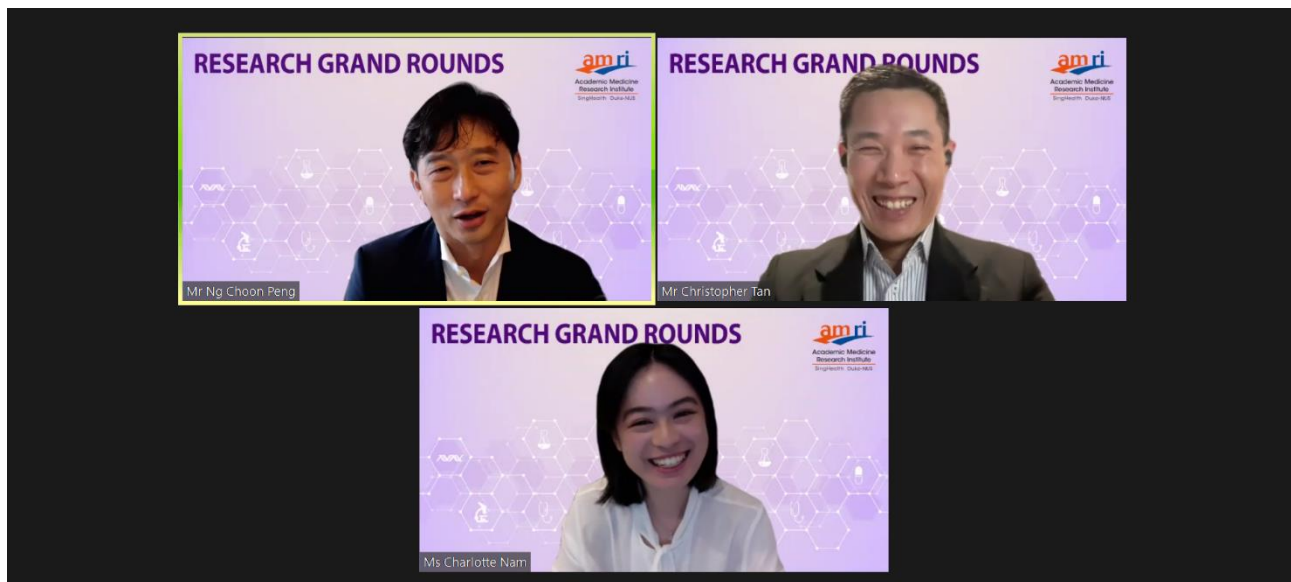
The image displays a presentation slide and two video thumbnails. The slide, titled "Commercialization requires three key ingredients", features a Venn diagram with three overlapping circles: "Science" (green), "Team" (blue), and "Capital" (orange). The intersection of all three circles is shaded brown. The slide footer includes the Outram Bio logo and the text "OUTRAM BIO FUND IS MANAGED BY GORDIAN CAPITAL SINGAPORE PTE. LTD." and the number "5". To the right are two video thumbnails for "RESEARCH GRAND ROUNDS" by amri, featuring Mr. Ng Choon Peng and Mr. Christopher Tan.

Finally, Mr. Ng went on to discuss Outram Bio's first investment in Albatroz Therapeutics as an example of the successful intersection of science, team, and capital. Albatroz is a pre-clinical stage biotechnology company that develops therapeutic antibodies to combat extracellular matrix (ECM) degradation, with the ultimate goal being to treat solid tumors and arthritic disorders. The company was founded in 2020 by Frederic Bard, Guy Heathers, Wang Cheng-I and Kristina Rutkute, and is based on research conducted by Fred and his team while at A*STAR IMCB. Outram Bio led the seed financing round, and SEEDS Capital (the investment arm of Enterprise Singapore) co-invested in the round.

In his concluding remarks, Mr. Tan shared the quote, "You miss 100% of the shots you don't take," and emphasised the importance of not being afraid to take calculated risks. He encouraged the audience to be willing to take shots and keep trying. Both Mr. Tan and Mr. Ng also provided their contact information to the audience, for those interested in potential opportunities and collaborations with Outram Bio.

At the end of the presentation, a half-hour was reserved for Q&A. Many questions were asked about the different stages of entrepreneurship, when to consider spinning off and starting a company, how to constitute the "right" founding team, and how to attract investor interest. There were over 200

participants, and the lively Q&A session demonstrated excitement in Singapore’s biotech ecosystem, keen interest in entrepreneurship, and the pursuit of innovation.



Ms. Charlotte Nam facilitated the Q&A session, with several key takeaways:

- One important tip for researchers seeking to fundraise from venture capitalists is to have a well-prepared pitch deck that effectively communicates both the scientific and commercial aspects of their technology or product. It is also crucial to seek feedback from friendly and trusted individuals as a starting point, in order to hone the pitch prior to engaging with larger institutional. A pitch deck is not a static presentation, but rather, researchers should incorporate feedback on a regular basis in order to fine-tune the message and the company strategy. Additionally, a commitment to networking and building relationships with potential investors early on increases the chances of securing funding. Finally, having a strong team that brings different skillsets to the table, while sharing the same vision, is a key factor in attracting investors.
- Do not be afraid of dealing with conflicts of interest, as they are a natural part of the commercialisation process. However, it is essential to handle them with transparency and integrity. Researchers should be upfront about any potential conflicts and communicate them to relevant stakeholders early on. By proactively managing conflicts of interest, researchers can build the trust of various stakeholders, thereby increasing the likelihood of successful commercialisation.
- Scientific credibility is particularly important in the biotech industry—publications are one way to enhance credibility, but other ways include establishing a Scientific Advisory Board and/or

engaging in collaborations with other research institutions internationally. Investors who are interested in your research will always scrutinize your data to ensure your claims are credible.

- Once you have raised funds to commercialise research and are running a company backed by outside investors, speed-to-market is a critical factor. Building the right team that shares a sense of urgency, and making sure that the founders are aligned with investors on both outcomes and timelines is critically important. Also, most VCs will require at least one or more people to commit to working full-time at the company in order to drive towards commercialisation.

We would like to thank Mr. Ng, Mr. Tan and Ms. Nam for sharing their perspectives on entrepreneurship and venture capital, and for sharing their experiences that led them to establish Outram Bio.

If you have further enquiries or are interested to collaborate with our presenters, feel free to write to:

- Mr. Ng Choon Peng (choonpeng.ng@outrambio.com), or
- Mr. Christopher Tan (chris.tan@outrambio.com), or
- Ms. Charlotte Nam (charlotte.nam@outrambio.com).

About Research Grand Rounds (RGR)

Held every two months over lunchtime, RGR showcases the achievements of researchers from the SingHealth Duke-NUS Academic Medical Centre (AMC), serving as a knowledge exchange and community engagement platform.

About Academic Medicine Research Institute (AMRI)

The SingHealth Duke-NUS Academic Medical Centre (AMC) is driven by 3 key pillars: clinical delivery, education and research; with the aim to discover new treatments and enhanced diagnostic tools to improve care for our patients. As one of the largest academic healthcare cluster in Singapore, basic scientists and clinical researchers within the AMC work together to address disease areas that most affect our population. Academic Medicine Research Institute (AMRI) is the AMC's one-stop research enabler that provides support in administration and scientific techniques to the research community in the AMC. These research support functions reside within SingHealth and its member institutions, and Duke-NUS Medical School.



For more information, visit <https://www.singhealthdukenus.com.sg/research> or scan QR code to explore our AMC Research website!

This bulletin is brought to you by SingHealth Office of Research, a member of AMRI
To submit your research highlights or research events for listing, please email office.research@singhealth.com.sg

