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ASIA EDITION

Accelerating R&D in Biosciences Startups with AI and mRNA Therapeutics

May 3, 2023 | Opinion | By Wally Wang, Founding Partner, Scale Asia Ventures

Investing in R&D is critical for biotech startups, as it drives innovation and enables the adoption of cutting-edge technologies



The pharmaceutical industry has long been plagued by high R&D costs and long development timelines, often taking more than a decade and billions of dollars to bring a new drug to market. In recent years, artificial intelligence (AI) has emerged as a powerful tool that can address these challenges, transforming drug discovery and development processes. In this article, we will discuss the reasons why pharma companies should leverage AI to reduce R&D costs and accelerate innovation.

As the biotechnology and health science industries continue to evolve, the significance of research and development (R&D) spent in bioscience startups is increasingly evident. At Scale Asia Ventures, a Silicon Valley-based VC fund, we have been actively monitoring the trends and emerging technologies in the biotech space. In this article, we focus on two crucial aspects driving the growth of biosciences startups: artificial intelligence (AI) and the rapid advancements in mRNA therapeutics.

Investing in R&D is critical for biotech startups, as it drives innovation and enables the adoption of cutting-edge technologies. On average, biotech startups allocate 15-20 per cent of their total budget to R&D efforts. However, this percentage can be higher for startups focused on AI and mRNA therapeutics, given the potential for rapid advancements and returns on investment in these areas.

Artificial Intelligence (AI): Artificial intelligence is playing a pivotal role in revolutionising drug discovery, development, and clinical trials, enabling a faster, more efficient, and cost-effective approach to R&D. With the vast amounts of data generated from genomics, proteomics, and other omics approaches, AI has the potential to analyse and interpret these complex datasets, accelerating the identification of novel drug targets and biomarkers.

In drug development, AI-driven approaches like machine learning (ML) and deep learning (DL) can streamline the drug design process, optimising the selection of lead compounds and predicting their pharmacokinetics and pharmacodynamics. This allows for the development of more effective and safe drugs with fewer side effects.

Furthermore, AI is making a substantial impact on clinical trials. It can enhance patient recruitment by identifying suitable candidates based on genomic data and medical histories, reducing the time and cost of patient enrollment. Additionally, AI can analyse real-time data during trials, ensuring better monitoring of patient safety and enabling data-driven decision-making to optimise trial designs.

mRNA Therapeutics: The rapid advancements in mRNA therapeutics have made headlines globally, thanks to the success of mRNA-based COVID-19 vaccines. This technology holds immense potential to transform medicine by offering a flexible, scalable, and rapid approach to developing new treatments.

AI-Driven Drug Discovery: One notable case study is the collaboration between Silicon Valley-based startup Atomwise and pharmaceutical company Merck. Atomwise utilises AI-driven technology for drug discovery, focusing on deep learning to predict the bioactivity of small molecules. Their platform, AtomNet, has facilitated the identification of several drug candidates across various therapeutic areas.

As a VC fund, Scale Asia Ventures is excited by the potential of both AI and mRNA therapeutics to disrupt the biotech landscape. We believe that startups leveraging these technologies can significantly accelerate R&D efforts, translating to faster time-to-market and improved patient outcomes. We are committed to supporting such startups, ensuring they have the resources and guidance needed to bring their innovative solutions to the forefront of healthcare.

To capitalise on the opportunities offered by AI and mRNA therapeutics, it is crucial for biosciences startups to invest in R&D. This investment will drive innovation, enable the adoption of cutting-edge technologies, and ultimately contribute to the growth of the biotech industry in the Asia Pacific region.

In conclusion, AI and mRNA therapeutics represent transformative technologies that can propel biosciences startups to the forefront of innovation. By investing in R&D and embracing these advancements, startups can accelerate the development of life-saving treatments and drive the growth of the biotechnology and health science industries in the Asia Pacific region. We are excited to be part of this journey and look forward to fostering the success of these startups and the positive impact they will have on global health.

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