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A*STAR and NUS launch joint lab to accelerate translation of synthetic biology into real-world applications

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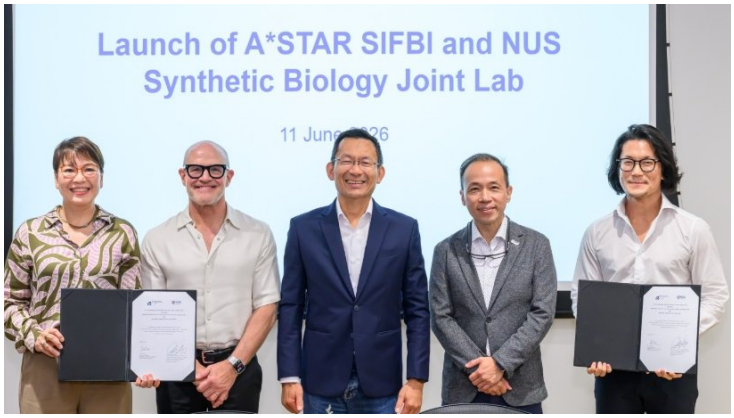
Launch comes as global demand for such bio-based alternatives accelerates



As industries seek more sustainable ways to produce ingredients, chemicals and materials, synthetic biology is opening up new routes to make useful compounds by engineering biological systems such as microbes and enzymes. The Agency for Science, Technology and Research (A*STAR) and the National University of Singapore (NUS) have launched a joint laboratory to help turn these research advances into commercially viable products.

The launch comes as global demand for such bio-based alternatives accelerates. The bioeconomy is projected to contribute up to $4 trillion annually within the next decade, driven by a broad shift away from petrochemical-based production.

The new A*STAR SIFBI-NUS Synthetic Biology Joint Lab is established by the A*STAR Singapore Institute of Food and Biotechnology Innovation (A*STAR SIFBI) and the NUS Synthetic Biology for Clinical and Technological innovation (NUS SynCTI). It will support efforts to strengthen translation in emerging technologies and grow the bioeconomy.

The joint laboratory brings together A*STAR SIFBI's capabilities in bioprocess development and scale-up, and NUS' strengths in fundamental science, interdisciplinary research and talent development. Its initial focus will be on nutrition and consumer care, with broader applications spanning advanced materials and health. It will support companies in co-developing testing and validating sustainable, synthetic alternatives to conventional chemical manufacturing.

Beyond research and industry engagement, the lab will serve as a training ground for Singapore's future scientists and engineers in areas such as synthetic biology, metabolic engineering, AI-guided biological design, and industrial biomanufacturing.

Over time, the lab aims to catalyse technology licensing, startup formation and new partnerships to build a pipeline of talent and ideas that will support the long-term growth of Singapore's bio-based innovation ecosystem.