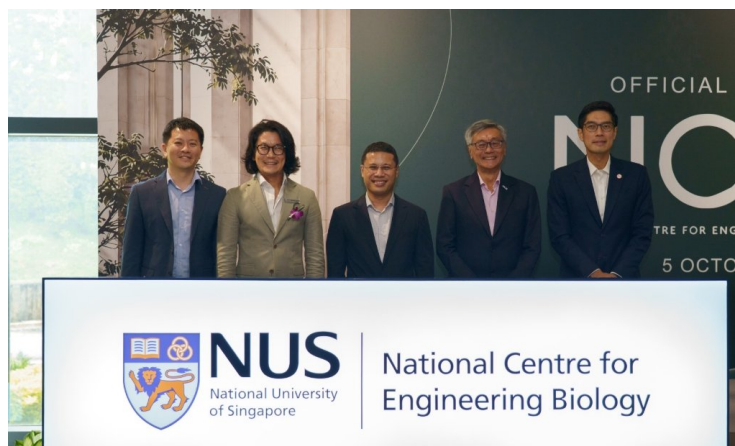


Singapore injects S\$50 M into National Centre for Engineering Biology

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To advance predictive biological design for manufacturing specialty chemicals



The National Centre for Engineering Biology (NCEB), hosted at the National University of Singapore (NUS), has been officially launched together with its new research facility.

Desmond Lee, Minister for Education and Minister-in-Charge of Social Services Integration, graced the occasion as Guest of Honour. The national-level centre will build foundational knowledge and technologies in engineering biology for the sustainable biomanufacturing of specialty chemicals, an important class of high-value products and materials.

Established in partnership with Nanyang Technological University, Singapore Institute of Technology, Temasek Polytechnic, Nanyang Polytechnic, and the Agency for Science, Technology and Research, NCEB enables new research discoveries, drives technological advancement and develops the talent needed to design and engineer living systems predictively.

This whole-of-nation platform strongly positions Singapore in the field internationally. Supported by the National Research Foundation (NRF) under the Research, Innovation and Enterprise 2025 (RIE2025) plan, the Centre was established through the NRF Mid-sized Grant of close to S\$50 million awarded over seven years from 2023.

A key research outcome for NCEB is to establish design rules and models that allow researchers to predict how engineered biological systems will behave before they are built. This addresses a central challenge in synthetic biology: living systems are powerful, but difficult to design because they are dynamic and adaptive.

NCEB's flagship project, led by NUS, focuses on AI-guided Engineering Biology for Sustainable Specialty Chemicals. Specialty chemicals are a diverse class of high-value molecules, including biosurfactants, specialty lipids, flavour and fragrance compounds, bioactive compounds, and building blocks for advanced materials. Many are difficult to make by conventional chemistry and rely on energy-intensive, fossil-derived processes.

Another highlight of NCEB is the Bioprocessing Innovation Platform (BIP) established in partnership with the Singapore Institute of Technology.

NCEB has also developed a digital backbone comprising the AI-Augmented Synthetic Biology Database (SynBioDB), a platform for standardising biological and experimental data; the Synthetic Biology AI Designer (SynDe), an AI platform for

biological design; and Enzyme Function Initiative Tools@NCEB (EFI@NCEB), a secure enzyme informatics platform.