

STRAIN ENGINEERING

DESIGNING MOLECULES FOR A BIG FUTURE

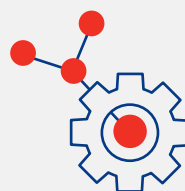
SIFBI's Strain Engineering capability group develops synthetic biology and metabolic engineering approaches which address challenges in sustainable biomanufacturing. We employ — along with the power of microorganisms — bioinformatics, cutting-edge synthetic biology tools, and automation such as our molecular robotics platform, to deliver high-value compounds for food, personal care and healthcare from low cost and sustainable carbon sources.

Our technology aids continual discovery of new and more efficient pathways for designing and synthesising target molecules, as well as rapidly assembling and screening biological pathways. Using our technology, we program microorganisms into "cell factories" to produce desired molecules at scale, translating these microbial factories into industrial applications.

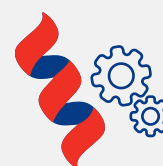
Capabilities



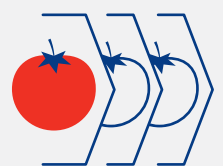
Synthetic Biology
for Strain
Engineering



Metabolic
Engineering



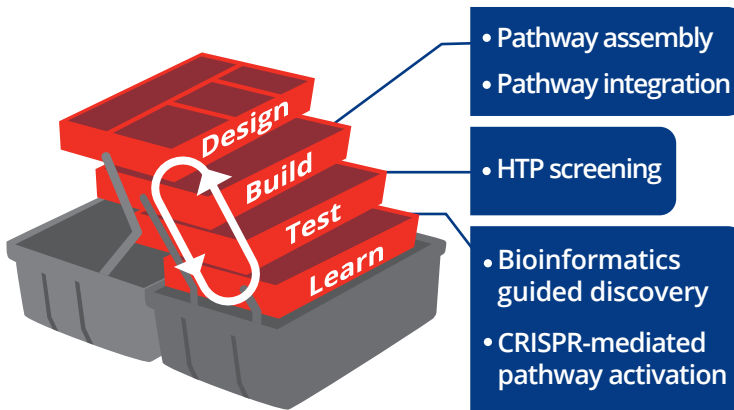
Protein
Engineering



Non-GMO
Natural Evolution

Our Differentiating Factor — Integrative Strain Engineering Capabilities

Toolbox Development



Platform Strain Engineering

Strain and bioprocess optimisation

Exemplar Products



Phytoene α -ionone β -ionone

Synbio toolbox for native producers



Overexpression of global or specific regulators Repressor inactivation Promoter replacements

Experiential Journey

From Bench to Fork

Novel strategies and toolboxes are paving the way for product-oriented industrial biotechnology. Surging demand for enhanced production of high-value compounds has led to the emergence of new approaches to design microbial strains for optimal, robust and higher expression of desired compounds. Coupled with SIFBI's Discovery and Biotransformation expertise, this allows higher biomass and bioproduction yields.



Research requires an environment with open-mindedness, trust and goodwill. Through our SYN BIO ECO research collaboration with SIFBI in synthetic biology and bioprocesses, I experienced scientific creativity and efficiency from bench to fork, as well as a multidisciplinary approach of translating high-level basic research, such as tailor-made enzymes, into applied research and the final product."

Dr Thomas Lautier, Adjunct Scientist, French National Centre for Scientific Research

Contact Us



Singapore Institute of Food and Biotechnology Innovation
31 Biopolis Way, #01-02 Nanos, Singapore 138669
www.a-star.edu.sg/sifbi
info@sifbi.a-star.edu.sg