

Singapore Institute of Food and Biotechnology Innovation (SIFBI)

No.	Department	A*STAR Supervisor's Name	Designation	Email	Project Title	Project Description	Degree Awarded By Upon Graduation	Website Link (if any)
1		Dr Simon, ZHANG Congqiang	Research scientist	congqiang_zhang@biotrans.a-star.edu.sg	Metabolic rewiring of yeasts for food applications	Metabolic engineering and synthetic biology approach to produce natural products for food and consumer goods	NUS	<a href="https://scholar.google.com/citations?user=SDgIKwIAAAAJ&amp;hl=en">https://scholar.google.com/citations?user=SDgIKwIAAAAJ&amp;hl=en</a>
2		Dr Chen Xixian	Research Scientist	xixian_chen@biotrans.a-star.edu.sg	Metabolic engineering and enzyme engineering for apocarotenoids production		NUS	
3		Dr Kumar Selvarajoo	Senior Research Scientist	Kumar_Selvarajoo@biotrans.a-star.edu.sg	A systems biology platform to integrate dynamic metabolomics and fluxomics data into a computational model	The student will curate metabolomics and fluxomics data, both inhouse and across databases, to develop a kinetic model. The model will be subsequently used to simulate metabolic pathways of engineering microbes (E.coli and Yeast)	NUS	

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4		Dr Kumar Selvarajoo	Senior Research Scientist	Kumar_Selvarajoo@biotrans.a-star.edu.sg	Artificial Intelligence for Biological Pathway Discovery	The student will develop Machine Learning (ML) algorithms to train transcriptomics, proteomics and/or metabolomics data to finally develop a ML model that will accurately predict proteomics/metabolomics data from transcriptomics data, for example, to predict mutant microbe's metabolomics response based on transcriptomics data	NUS	
5		Dr Ng Siew Bee	Senior PI	ngsb@bii.a-star.edu.sg	Discovery and mode-of-action study of bioactive compounds; biosynthesis of secondary metabolites.		NTU	

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6		Dr Yoganathan Kanagasundaram	PI	yoganathank@bii.a-star.edu.sg	1) Nutrimentalomics, Metabolomics, Purification and structure elucidation of bioactive nutritional and novel compounds 2) Determination of chemical contaminant profiles in fresh produces	1) This project will identify and characterize new and known bioactive nutritional compounds from edible food (plants, edible fungi and other) through a metabolomics-based workflow. 2) To develop analytical capabilities and standards to support the measurement needs of the fresh produces measurement	NTU, NUS	<a href="https://www.a-star.edu.sg/bii/research/trd/npc">https://www.a-star.edu.sg/bii/research/trd/npc</a>
7	Discovery and Metabolic Engineering	Prakash Arumugam	PI	<a href="mailto:parumugam@sifbi.a-star.edu.sg">parumugam@sifbi.a-star.edu.sg</a>	Genome scale CRISPR screens to unravel Mode-of-action of nutraceuticals	It has become increasingly clear that nature of food consumed affects the health and disease risks of the consumer. But precisely how nutrients affect cellular processes and cause their beneficial health effects are unknown. The objective of this project is to use genome-scale CRISPR screens in mammalian cells to understand the mechanism of nutraceuticals and dietary supplements.	NTU	

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8	Discovery and Metabolic Engineering	Prakash Arumugam	PI	<a href="mailto:parumugam@sifbi.a-star.edu.sg">parumugam@sifbi.a-star.edu.sg</a>	Functional Proteins in Food industry	Proteins under specific conditions can form three-dimensional cross-linked networks trapping water inside. These structures are referred to as gels. Gelling proteins have been extensively used in the food industry to impart texture to products such as jams, jellies, meat, yogurt etc. Currently, gelling agents are sourced from animals and plants and there is an urgent need to find alternative gelling proteins that are sustainable and economically valuable. The goal of this project is to combine experiments with structural modelling to identify sequence features that promote gelling and use this knowledge to identify novel-gelling proteins	NTU	
9	Discovery and Metabolic Engineering	Prakash Arumugam	PI	<a href="mailto:parumugam@sifbi.a-star.edu.sg">parumugam@sifbi.a-star.edu.sg</a>	Microbial production of natural sunscreens	Ultraviolet rays from the sun can have serious damaging effects on our health such as cancer, premature ageing and inflammation. Current solutions to this problem in the form of sunscreens such as TiO <sub>2</sub> and avobenzone are unhealthy and not eco-friendly. The objective of this project is to produce natural sunscreen compounds known as mycosporines in microbial systems in large amounts to attract industrial interest.	NTU	
10	Shared Analytics Platform_SIFBI	Yoganathan Kanagasundaram	Senior Principal Investigator	<a href="mailto:yoganathank@sifbi.a-star.edu.sg">yoganathank@sifbi.a-star.edu.sg</a>	1) Nutrimentalomics, Metabolomics, Purification and structure elucidation of bioactive nutritional and novel compounds 2) Determination of chemical contaminant profiles in fresh produces	1) This project will identify and characterize new and known bioactive nutritional compounds from edible food (plants, edible fungi and other) through a metabolomics-based workflow. 2) To develop analytical capabilities and standards to support the measurement needs of the fresh produces measurement	NUS/NTU/SUTD	<a href="https://www.a-star.edu.sg/bii/research/trd/npc">https://www.a-star.edu.sg/bii/research/trd/npc</a>
11	Nutrition	Maria N. Antipina	Senior Scientist I	<a href="mailto:Maria_Antipina@sifbi.a-star.edu.sg">Maria_Antipina@sifbi.a-star.edu.sg</a>	Development of micron-sized carrier-systems for essential micronutrients	The project will develop microencapsulating systems for essential micronutrients such as functional proteins, flavonoids, vitamins, etc. for enhanced protection from gastric and/or oxidative degradation. Each system will be specifically developed and tuned for the best encapsulation efficacy, loading capacity, and capsules' performance.	NUS/NTU/SUTD	