

MTC IAF-PP GRANT CALL

MTC IAF-PP Food Manufacturing Grant

Submission Period : 1 January-15 May 2024

MTC IAF-PP Implementing Agency

Singapore Food Manufacturing Industry Transformation Map 2025

A trusted food & nutrition leader, and the preferred launchpad into Asia for quality brands

A Groom local champions through internationalisation and innovation

- Scale exports through market access initiatives and contract manufacturing
- Expand partner networks to support continuous innovation
- Grow quality foodtech startups with transformative technologies



B Elevate Singapore's attractiveness as regional food hub

- Strengthen R&D capabilities and cross-border partnerships to attract global investments
- Lead in Asian consumer insights and promote Singapore as Asia's launchpad for new products
- Build capacity for high value manufacturing in novel food



C Build resilient and sustainable companies

- Strengthen supply chains, diversify sales channels and develop business continuity capabilities
- Drive sustainable practices and products



D Step up jobs & skills transformation and create quality jobs for locals

- Grow talent through quality internships, training programmes and leadership development initiatives
- Accelerate job redesign through automation and digitalisation



Enterprise
Singapore

New grant call is part of RIE2025 Food Manufacturing plan to build industry-ready capabilities in foodtech and sustainability



MTC IAF-PP Food Manufacturing Grant Call

- Productisation in stratified nutrition
- Food side stream valorisation
- Sustainable food packaging

- \$5M-\$8M over 3 years
- Proposal submission: 1 January to 15 May 2024

Open only to researchers from Singapore publicly funded research or tertiary institutions

MTC IAF-PP Food Manufacturing Grant Call: Objective and Overview

The MTC IAF-PP Food Manufacturing Grant Call **seeks R&D solutions** to **enhance the competitiveness** of Singapore's food manufacturers, by developing capabilities to differentiate their products via **nutritional properties, packaging type** or **sustainability value proposition**:

1 Productisation in Stratified Nutrition



Develop products focused on target consumer segments in Asia

- Children Nutrition (2-7 years old)
- Elderly Nutrition (55+ years old)
- Food Gut Microbiome

2 Food Side Stream Valorisation



Maximise commercial value of homogeneous food manufacturing by-products from side stream processes through upcycling technologies

3 Sustainable Food Packaging



Develop sustainable food packaging to help companies adapt to increasing consumer sustainability consciousness and circumvent potential regulatory and trade barriers

Theme 1: Productisation in Stratified Nutrition

Diet plays a key part in health and wellness, with different groups requiring different needs at different life stages. The development of new products targeted at groups of individuals with shared characteristics provides opportunities for improved public health outcomes, as well as economic outcomes due increased consumer willingness to spend on stratified food products. Approaches are sought to speed up the development and commercialization of new products in three areas:



Child Nutrition (ages 2 – 7)

- **R&D Scope:** Formulation of functional food for brain development and mental health support, discovery of natural (organic) ingredients and reformulation into final food products for 'clean label'.
- **Desired Outcomes:** Enhanced health effects and immune fitness for children, through developed complete food formats to promote healthy early life development.



Elderly Nutrition (ages 55+)

- **R&D Scope:** Complete food structures with enhanced bioavailability of nutrients and improved organoleptic properties (including texture), formulation of fortified food such as bioactives for healthier aging, and to target elderly medical issues like dysphagia.
- **Desired Outcomes:** Improved bioavailability of nutrients for elderly with sensorial properties, to promote wellness and reduce risk of age-related diseases



Food Gut Microbiome

- **R&D Scope:** Discovery and formulation of prebiotics, probiotics, postbiotics and symbiotics products, including fermentation techniques, cost-effective novel delivery systems such as encapsulation and/or coating materials for food formats, and microbiome associated interventions including biotherapeutics.
- **Desired Outcomes:** Development of novel functional food products through efficient production methods, and delivery methods that would improve nutritional uptake by groups.

Theme 2: Food Side Stream Valorisation

Throughout complex food production processes, potentially valuable products are often discarded as waste. Valorising food production side streams to obtain new food ingredients or products presents a viable means to reduce waste disposal costs and generate new profits. This will help to unlock new green opportunities as the industry pursues sustainable, circular economy models in relation to the food production value chain. Approaches are sought to speed up the development and commercialization of new technologies or processes:



Green Extractions

- **R&D Scope:** Discovery of novel green solvents for extraction of bioactive compounds, cost-effective and sustainable extraction technologies (e.g. enzyme-assisted, solvent-free).
- **Desired Outcomes:** Improved efficiency and effectiveness in the extraction of high-value, bioactive compounds (food and non-food) that can be incorporated into products/materials or exported as it is.



Biomass Processing Techniques

- **R&D Scope:** Innovations in fermentation technologies to improve biomass conversion processes, enable the synthesis of bioactives/chemicals, nanotechnology for entrapment and release of biomass waste.
- **Desired Outcomes:** New processing pathways and alternatives for side streams into a wider variety of value-added products (e.g. upcycled food with improved nutrition, taste and sensorial properties), which can be subsequently commercialized for sale.

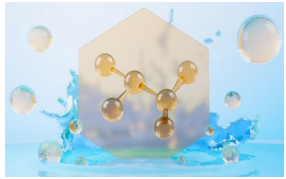


Systems Design

- **R&D Scope:** Development of biocatalytic membrane systems, pre-processing/separation systems for homogenous food waste, prevention of spoilage to enable development of food-grade side streams at source.
- **Desired Outcomes:** Optimisation of inputs and resources required to process side streams, with overall reduction of waste from food manufacturing processes.

Theme 3: Sustainable Food Packaging

Given the global effort to reduce the amount of packaging waste generated, there is a need for cost-effective, viable food-contact packaging solutions that are reusable, recyclable and compostable. Such solutions need to be manufactured with minimal environmental impact, for implementation by the food manufacturing industry. Approaches are sought to speed up the development and commercialization of new solutions in these areas:



Novel Biopolymers/Nanomaterials

- **R&D Scope:** Discovery of novel circular polymer materials (e.g. natural polysaccharides and derivatives) as well as bio-based composites and nanocomposites, development of manufacturing technologies that improve the physicochemical properties of biopolymer-based films
- **Desired Outcomes:** High performance sustainable food packaging materials with high barrier properties, film flexibility, thermal stability and good processability.



Coatings/Green Additives for Plastics

- **R&D Scope:** Development in cellulose-based polymers, polyesters, water-based coating materials, biodegradable-based additives, food-grade fillers etc.
- **Desired Outcomes:** Viable, alternative food-contact plastic packaging solutions which are robust enough for industry use.



Performance Improvement of Sustainable Materials

- **R&D Scope:** Enhanced mechanical and barrier properties of sustainable packaging (e.g. improved oxygen and water barrier properties), controlled degradation of materials, exploration of new sustainable wood/non-wood fibres, optimization of novel impulse drying techniques, development of fibre preparations and processing techniques.
- **Desired Outcomes:** Improved material performance enabling commercial adoption, cost-effective manufacturing processes involving lower energy usage, materials with enhanced biodegradability enabling recyclability or conversion into other high-value products (e.g. chemicals, fuels).

The following topics are out of scope for this grant call:

- Proposals on production of Future Foods processing, food safety and waste-to-resource (e.g. towards production of feed) should refer to Singapore Food Story (SFS) grants.
- Proposals that are geared towards more human health centric outcomes should be directed to the HHP domain (e.g., population health studies, clinic trials).
- Waste valorisation proposals for the purpose of waste reduction without clear outcomes in terms of generating higher value food grade products or ingredients (for human consumption) will not be considered.
- Packing materials (and corresponding processes) that are focused on broader applications should demonstrate relevance for food manufacturing to be considered under the programme.
- Research that only builds capability & infrastructure without solving a problem.
- Open-ended research in a technical area should not be proposed, i.e. research ideas that are not directed to solving a current problem facing the food manufacturing sector.
- Incremental research approaches that merely build upon known solutions that are already demonstrated (e.g. 20% improvement in metric X).
- Engineering only solutions with no high-risk research unknowns.
- Supplements to active research already underway.
- Research with only academic goals, with KPIs such as number of students trained, number of publications, number of research citations, etc.

Key Points to Note

- Applicants may participate in more than one proposal whether as Lead PI or Co-I.
- Applicants may submit proposals to one, two or all three themes.
- Proposals should be scoped for \$5M – \$8M over 3 years (inclusive of 30% indirect costs).
- **Official project start date will be 1 October 2024.**
- Late submissions or submissions without endorsement from the Host Institution will not be accepted.

Application Process

- This call for proposals has a one-stage review process, applicants do not need to submit a Letter of Intent (LOI)
- Applicants are required to include at least 3 Letters of Support from potential industry collaboration
- Interested applicants may visit the A*STAR funding opportunities webpage (<https://www.a-star.edu.sg/Research/funding-opportunities/mtc-iaf-pp-fmg>) from 1 December 2023 to download the relevant materials, information sheet and application package.
- The Lead PI is required to submit the full proposal and required supporting documents **via email to the MTC IAF-PP Implementing Agency (IAF_PP_MTC@hq.a-star.edu.sg) between 1 January to 15 May 2024.**
- Applications must be endorsed by the Research Office of the Programme Lead's Institution.

Please ensure that applications are complete with all the necessary supporting documentation before submission, to avoid delays or

Eligibility and Evaluation Criteria

Lead Principal Investigator (PI) should:

- hold at least 0.7 FTE primary appointment in a Singapore publicly funded research or tertiary education
- run a laboratory or research programme that carries out research in Singapore
- have a track record of leadership ability in coordinating research programmes and providing mentorship to research team, as well as having productive research outcomes.

Programmes are expected to lead to industry investments within 3-5 years and fulfil the following criteria

- Potential for industry development and economic impact
- Alignment of programme to MTC Food Manufacturing domain strategic outcomes and ability to deliver RIE2025 outcomes (Details at <https://www.nrf.gov.sg/rie2025-plan>)
- Pre-positioning for value creation and value capture in Singapore
- Potential to attract industry R&D spending (IRS) and investments (e.g. joint lab, co-development of project, creation of high-quality jobs)
- Differentiation and competitiveness at regional or global level

Key Performance Indicators (KPIs)

KPI	Definition
Amount of industry spending on R&D (IRS)	The investment that a company from the MTC sector commits to spend in Singapore on R&D activities as a result of projects funded by MTC IAF-PP in RIE2025. It comprises cash and/or in-kind contributions.
No of industry projects	Total number of R&D projects (excluding services projects) undertaken by companies from MTC sector as a result of projects funded by MTC IAF-PP in RIE2025

Tracking Indicators (TIs)

KPI	Definition
Amt of industry cash funding	Cash funding received from private sector industry sources for R&D projects as a result of projects funded by MTC in RIE2025.
No. of patent applications	Number of complete patent applications that have entered national phase (in MTC fields) filed by public research performers as a result of projects funded by MTC IAF-PP in RIE2025.

Industry R&D Spending (IRS) : Admissible in-kind contributions: Manpower, Equipment, Technical Software (purchased from 3rd party) & Consumables

Timeline

Item	Dates	Remarks
Grant Call Opens	1 January 2024	Full proposal submission via email to MTC IAF-PP Implementing Agency (IAF_PP_MTC@hq.a-star.edu.sg)
MTC IAF-PP Food Manufacturing Grant (FMG) Workshop	8.30am to 1.30pm Friday 19 January 2024	MPH2 @ Innovis Level 1 Tower A 2 Fusionopolis Way Singapore 138634 Registration link https://forms.office.com/r/W8h9sEmbVi
Grant Call Closes	15 May 2024	
Presentation to MTC IAF-PP Review Panel	End Jul/Early August 2024	Applicants to be available to present their proposals to the panel
Funding Decision	Mid/late August 2024	Applicants will be informed of the panel's decision
Letter of Award	September 2024	For successful proposals
Start of Project	1 October 2024	

MTC IAF-PP Food Manufacturing Grant Workshop

Date: Friday, 19 January 2024

Time: 8.30am to 1.30pm

Venue: MPH2 @ Innovis, Level 1 Tower A, 2 Fusionopolis Way, Singapore 138634

Interested applicants are strongly encouraged to register for the workshop by 15 December 2023.

Scan the QR code



Website: <https://www.a-star.edu.sg/Research/funding-opportunities/mtc-iaf-pp-fmg>

Points of Contact:

Gayathri Dorairaju and Joanna Goh

MTC IAF-PP Implementing Agency

Email: Gayathri_Dorairaju@hq.a-star.edu.sg and Joanna_Goh@hq.a-star.edu.sg

THANK YOU