



News Release

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For immediate reporting

**Call for Proposals: Temasek Foundation Innovates Announces the
Launch of the 8th Grant Call for the SMF Research Grant Programme**

To spur the development of practical solutions in niche research areas, the Foundation is providing funding to support research projects through an annual open grant call.

Temasek Foundation Innovates announced today a new call for proposals for research projects in niche research areas as part of its annual grant call under the Singapore Millennium Foundation Research Grant Programme (SMF Research Grant Programme).

2. The SMF Research Grant Programme, which came under the management of Temasek Foundation Innovates this year, aims to fund and support projects in niche research areas, as well as encourage multi-disciplinary programmes and inter-agency collaboration for collective capabilities. The research focus areas centre on three major themes of Learning & Pedagogy, Palliative Care and Food Supply Resiliency & Bio-Mimetics.

3. Since the annual call for projects under the SMF Research Grant Programme was launched in 2011, some 43 research projects have been funded. Successful funded projects from the most recent 7th grant call include the development of a wearable tool that will aid language learning in children with dyslexia; exploring novel models of care needed to expand access to palliative care without requiring significantly more specialist palliative care manpower; and improving the taste of leafy vegetables grown in soilless culture through the introduction of

microbials. Please see **Annex** for full details of the seven projects funded from the 7th Grant call which ended earlier this year.

4. Professor Leo Tan, Chairman of Temasek Foundation Innovates, said: “The SMF Research Grant Programme is a targeted call to invite proposals that address niche areas of research. We want to encourage more ideas and solutions that can help to address challenges we face in our community. This year, we have introduced a booster grant which will support additional work which may be required, including collaborations between research institutes and private sector companies, to enable the translation of research findings into solutions which can be deployed. This will bring us closer to developing solutions for a better life”.

5. For complete guidelines and eligibility requirements, along with information regarding the application process, please visit www.temasekfoundation-innovates.org.sg.

6. Selected projects will be funded up to a total amount of S\$750,000 for a maximum period of three years. In addition, booster grants to support an additional year of work will also be available. The due date for submitting proposals is 31 January 2018.

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About Temasek Foundation Innovates

Temasek Foundation Innovates is a Singapore-based non-profit philanthropic organisation that funds and supports programmes focusing on developing practical solutions for a better life through research and innovation. Established in 2016, it aims to strengthen research capabilities by nurturing talents, as well as encouraging multi-disciplinary programmes and inter-agency collaboration for collective capabilities.

The Foundation manages the Singapore Millennium Foundation (SMF) Research Grant Programme, under which competitive grant calls have taken place annually since 2011. The Foundation also supports the Temasek Life Sciences Laboratory.

Temasek Foundation Innovates is a member of the Temasek family of foundations, which was established by Temasek to better serve the evolving needs of the wider community, reinforcing its approach to sustainable giving. Since its inception in 1974, Temasek has established 17 endowments, which focus on building people, building communities, building capabilities and rebuilding lives.

For more information on the Temasek family of foundations, please visit

www.temasekfoundation.org.sg.

For more information on Temasek Foundation Innovates, please visit www.temasekfoundation-innovates.org.sg.

For media queries, please contact:

Temasek Foundation Innovates

Diana Lee

Manager, Communications and Partnerships

Tel: 6828 6737 (Office) / 9652 0569 (Mobile)

Email: dianalee@temasekfoundation.org.sg

Annex

Awarded Projects under SMF Research Grant Programme 7th Grant Call

S/N	Title	Principal Investigator (PI), Co-PIs and Collaborators
1	It takes a village: Igniting the scientist in Normal Stream Students	<u>PI:</u> Prof David Hung / Nanyang Technological University <u>Co-PIs:</u> Nanyang Technological University, Saint Joseph's Institution International
2	Design and Develop a Tool to Support In-situ Language Learning for Children with Dyslexia	<u>PI:</u> A/Prof Suranga Nanayakkara / Singapore University of Technology and Design <u>Co-PIs:</u> Singapore University of Technology and Design
3	Effectiveness of the Supportive and Palliative Care Review Kit (SPARK) for cancer patients in the acute hospital	<u>PI:</u> Dr Grace Yang / National Cancer Centre Singapore
4	Improving sleep continuity through mindfulness training for better cognitive ageing	<u>PI:</u> Dr. Kinjal Doshi / Singapore General Hospital Co-PI: Duke-NUS Medical School
5	Prognosticating Advanced COPD and Identifying high Needs Group (The PACING Study)	<u>PI:</u> Dr Neo Han Yee / Tan Tock Seng Hospital
6	Revive Acetone-Butanol-Ethanol (ABE) Fermentation through Metabolic Engineering of Clostridia	<u>PI:</u> Assoc Prof Yang Kun-Lin / National University of Singapore <u>Co-PI:</u> National University of Singapore
7	An Innovative nutrient medium to improve taste of leafy vegetables in soilless cultivation	<u>PI:</u> Dr Diana Chan / Temasek Polytechnic

1	<p>Principal Investigator: Professor David Hung Associate Dean, Office of Education Research National Institute of Education</p>
	<p>Project title: It takes a village: Igniting the scientist in Normal Stream Students</p> <p><u>Project details:</u> It is often said that "It takes a village to raise a child". In the area of Inquiry Based Learning (IBL) in schools, participation from the community can help to sustain these efforts for normal stream students. This study focuses on the area of science IBL, and aims to understand the productive connections between 'after school' programmes (coding or programming and other tinkering opportunities as afforded by makerspace, organised by schools) and IBL lessons conducted during curriculum time with a focus on potential behavioural and affective needs beyond schooling concerns. The study will also explore how community partnerships can complement the teaching and learning and how all aspects can work in tandem to foster cultures of innovation in schools.</p>
2	<p>Principal Investigator: A/P Suranga Nanayakkara Engineering Product Development (EPD) Singapore University of Technology and Design</p>
	<p>Project title: Design and Develop a Tool to Support In-situ Language Learning for Children with Dyslexia</p> <p><u>Project details:</u> Dyslexia is a learning disability that is neurobiological in origin. In Singapore more than 20,000 primary and secondary school students are diagnosed with dyslexia.¹ Children with this learning disability often become emotionally frustrated when they are unable to learn as quickly as their peers. This project aims to develop a wearable tool that will provide a foundation for language learning in children with dyslexia. A holistic approach will be employed to understand the language learning process of children with dyslexia, and discover the current user desires and requirements by working with students who have been diagnosed with dyslexia and their teachers. The effectiveness of the tool will be evaluated based on the combination of behavioural, performance and physiological data.</p>
3	<p>Principal Investigator: Dr Grace Yang Consultant, Palliative Medicine National Cancer Centre Singapore</p>
	<p>Project title: Effectiveness of the Supportive and Palliative Care Review Kit (SPARK) for cancer patients in the acute hospital</p> <p><u>Project details:</u> There is a rising need for palliative care services in Singapore due to a rapidly ageing population and an increasing incidence of cancer. Current resources are inadequate – novel models of care are needed to expand access to palliative care without requiring significantly more specialist palliative care manpower. The study aims to study the Supportive and Palliative care Review Kit (SPARK) – a novel integrated model of care in which the palliative care team co-rounds with the medical oncology</p>

¹ <https://sg.theasianparent.com/plans-for-dyslexic-special-school/>

	team. This will be done through cluster randomised trial with step wedged design to compare SPARK co-rounding to the current consult model for cancer inpatients.
4	<p>Principal Investigator: Dr Kinjal Doshi, PhD Principal Clinical Psychologist. Neurology Singapore General Hospital</p>
	<p>Project title: Improving sleep continuity through mindfulness training for better cognitive ageing</p> <p><u>Project details:</u> Poor sleep quality is a known risk factor for cognitive decline in the elderly. The project aims to test mindfulness-based training (MBT) as an intervention to improve sleep quality by reducing sleep fragmentation. MBT consists of a suite of techniques aimed at enhancing awareness and acceptance of one's internal (e.g., thoughts and feelings) and external experiences in the present moment. Learning these techniques has been shown to improve sleep quality in patients with primary insomnia, and in other conditions associated with sleep disturbance. There is also increasing evidence that mindfulness training enhances multiple facets of cognition, including components of attention.</p>
5	<p>Principal Investigator: Dr Neo Han Yee Consultant, Palliative Medicine Tan Tock Seng Hospital</p>
	<p>Project title: Prognosticating Advanced COPD and Identifying high Needs Group (The PACING Study)</p> <p><u>Project details:</u> Patients suffering from Chronic Obstructive Pulmonary Disease (COPD) are often referred for palliative care only when imminently dying. An accurate tool that predicts survival, and identifies patients with poorer quality of life, higher psychological distress and greater care-giver burden will assist physicians in identifying patients for timely referrals to palliative medicine, and in initiating advance care planning discussions. The project aims to develop a novel prognostication index that can accurately predict short-term mortality for patients with advanced COPD. The secondary objectives include evaluating the association between this index with disease-specific quality of life (QoL), anxiety, depression, care-giver burden and frequency of hospitalisations for exacerbations.</p>
6	<p>Principal Investigator: A/P Yang Kun-Lin Chemical and Biomolecular Engineering National University of Singapore</p>
	<p>Project title: Revive Acetone-Butanol-Ethanol (ABE) Fermentation through Metabolic Engineering of Clostridia</p> <p><u>Project details:</u> <i>Clostridium</i> fermentation was first used during World War I to produce acetone from biomass, because this microorganism naturally converts glucose into acetone, butanol and ethanol (ABE) under anaerobic conditions. This process was commercially operated until the petroleum era, when acetone can be derived from fossil resources more economically. In the past two decades, due to pressure from climate</p>

	<p>change and the need for sustainable economy, this classic fermentation process has attracted attention from the academy and industry, with a focus on production of butanol from biomass. This is because butanol is a better fuel molecule than ethanol, due to its higher energy density and hydrophobicity. However, butanol has high toxicity to cells, which prevents intensification of this process and thus makes the process economically non-viable. This project aims to look into converting butanol into butyl acetate that can be easily fractionated out from aqueous phase, using a metabolic engineering based approach.</p>
7	<p>Principal Investigator: Dr Diana Chan Head, Centre for Aquaculture and Veterinary Science Temasek Polytechnic</p>
	<p>Project title: An Innovative nutrient medium to improve taste of leafy vegetables in soilless cultivation</p> <p><u>Project details:</u> Soilless cultivation could be the future way of farming in Singapore as there is limited good topsoil for growing vegetables. Local farmers have tested growing leafy greens using substrate culture (peat moss as growing media and fertilized by nutrient solution) where yields and vegetable growth were good but the taste was bland. This project aims to improve the taste of leafy vegetables grown in soilless culture by developing a microbial infused novel medium for supporting leafy vegetable propagation.</p>