



OPEN FUND- LARGE COLLABORATIVE GRANT (OF-LCG)

MAY 2019 GRANT CALL

APPLICATION GUIDE FOR LETTER OF INTENT (LOI)

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I. OPEN FUND- LARGE COLLABORATIVE GRANT

(A) AIM & FUNDING STRUCTURE

Aim

The Open Fund- Large Collaborative Grants (OF-LCGs) aim to support the best teams of researchers from public institutions to advance **human health and wellness**, and create **economic value** for Singapore and Singaporeans, through the pursuit of excellence in research and its applications. They represent a unique opportunity to bring together investigators from across all of Singapore with the clinician scientists and clinical investigators in the hospitals and Academic Medical Centres.

Key Elements

- Collaboration within as well as between the basic and clinical research communities is strongly encouraged. Interdisciplinary collaboration across institutions is important to integrate, coordinate and leverage on the full spectrum of research capabilities in Singapore from basic science to clinical research.
- LCG programmes should aim to make significant contributions to the advancement of study of therapeutic areas and help establish Singapore as a global leader.
- They should facilitate the discovery and application of basic science ideas relevant to the advancement of health (as well as the translation of clinical findings into practices and policies if any); and provide opportunities to support industry sectors integral to HBMS economic strategy, namely PharmBio, MedTech, Food & Nutrition and Personal Care. Pathway(s) to impact should be clearly articulated.

Research Themes

The OF-LCG is open to proposals of the highest quality across the breadth of disciplines relevant to its mission. To better realise the goals of Health and Biomedical Sciences (HBMS) in Singapore, the following **five therapeutic areas have been identified as national priorities**:

1. Diabetes Mellitus and Related Metabolic/Endocrine Disorders
2. Infectious Diseases
3. Cardiovascular Diseases
4. Neurological and Sense Disorders
5. Cancers

Themes in these therapeutic areas will be set to focus on issues of particular national interest.

For each grant call, themes will be set in specific therapeutic areas. The HBMS community is encouraged to address these themes. At the same time, proposals in other areas will also be considered. Particularly, the Committee will be keen to consider areas or research technologies that can be developed and applied in more than one disease area, and which can help Singapore advance human health and wellness and create economic value for us.

Grant Call Frequency

Once a year, starting from May 2016.

May 2019 OF-LCG Grant Call

With effect from the May 2018 grant call, there will be 2 tiers of funding for application:

- **Tier 1** : up to \$10mil inclusive of indirect cost over up to 5 years; and
- **Tier 2** : up to \$25mil inclusive of indirect cost over up to 5 years.

Indirect cost is provided at a fixed percentage of 20% of the project's qualifying direct cost.

For the May 2019 OF-LCG grant call, themes will be set in the following 4 therapeutic areas:

1. **Diabetes Mellitus and Related Metabolic/Endocrine Disorders**
2. **Infectious Diseases**
3. **Cardiovascular Diseases**
4. **Neurological and Sense Disorders**

The tables below list the details of the set themes.

1. DIABETES MELLITUS AND RELATED METABOLIC/ENDOCRINE DISORDERS

Set themes	Focus area and challenge statement
Primary Prevention of Diabetes.	<p>Focus area: To address the rising incidence of diabetes and the relatively large number of Singaporeans who have diabetes but are not aware of it.</p> <p>Challenge statement: To utilise basic, clinical, public health and translational research to develop an effective diabetes prevention programme. This is in support of national goals to reduce the incidence of diabetes by 20% by 2030, reduce the proportion of undiagnosed diabetes by 30% (currently 50%) by 2025 and reduce the progression of gestational diabetes to Type 2 Diabetes by 30% by 2025.</p>

2. INFECTIOUS DISEASES

Set themes	Focus area and challenge statement
Infectious Diseases including pandemic/ Emerging Infectious Diseases (EID) (e.g. Respiratory Tract Infection (RTI), Antimicrobial Resistance & healthcare-associated infection, Dengue & vector control)	<p>Focus area: Determining and breaking the development of transmission and/or resistance chain.</p> <p>Challenge statement: To utilise basic, clinical, public health and translational research to build capabilities to understand the factors influencing the transmission and to develop measures for early detection, prevention of transmission and control of the diseases. This will support the national goal in reducing the ID case counts and their associated socioeconomic costs for Singapore.</p>

3. CARDIOVASCULAR DISEASES

Set themes	Focus area and challenge statement
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<p>Macrovascular Diseases: Myocardial infarction and chronic coronary heart disease, Stroke or Aortic and Peripheral Arterial Disease</p>	<p>Focus area: To better understand, delay the onset and reduce complications of macrovascular diseases</p> <p>Challenge statement: To utilise basic, translational, clinical and implementation science approaches to improve the understanding of basic mechanisms that contribute to the origin and complications of macrovascular diseases as well as identify targets and ways to mitigate them. Due consideration should be given to the cost-effectiveness of the approaches, and the attractiveness of such approaches to industry.</p> <p>This is in support of long-term goals in</p> <p><u>Myocardial infarction and chronic coronary heart disease on</u></p> <ul style="list-style-type: none"> • delaying the average age of onset of acute coronary syndromes and acute heart failure events by 5 years within the next 5-10 years; • reducing 30-days post-MI mortality by 30% over the next 5 years and • doubling survival from Out-of-Hospital Cardiac Arrest over the next 5 years from 11% to 22%. <p><u>Stroke on</u></p> <p>reducing the incidence of stroke by 20% in 10 years;</p> <ul style="list-style-type: none"> • reducing mortality and morbidity from stroke by 20%. <p><u>Aortic and Peripheral Arterial Disease on</u></p> <ul style="list-style-type: none"> • delaying the average age of onset of aortic and peripheral artery disease by 5 years within the next 5-10 years; • reducing the number of surgical arterial interventions required for macrovascular disease by 20% within the next 10 years, and • establishing accurate documentation of the disease burden. <p>These goals are also aided by efforts from MOH and healthcare institutions to promote screening of CVD risk factors (e.g. hypertension, diabetes, BMI, sex, age, obesity, diet, lipids) from age 40 in Singapore.</p>
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4. NEUROLOGICAL AND SENSE DISORDERS

Set themes	Focus area and challenge statement
Age-related neurological and eye disorders (e.g. Vascular Dementia, Glaucoma)	<p>Focus area: To improve disease diagnosis, reduce incidence and progression and develop new therapies to enhance quality of life from age-related neurological and eye disorders</p> <p>Challenge statement: To utilise basic, translational, clinical and implementation science approaches to improve the understanding of basic mechanisms behind age-related neurological and eye disorders so as to improve disease diagnosis, reduce incidence and progression, and develop new therapies that enhance quality of life. Due consideration should be given to the cost-effectiveness of the approaches, and the attractiveness of such approaches to industry.</p> <p>This is in support of long-term goals of (i) reducing the disease burden and hospital readmission rate of age-related neurological disorders by 10-20% in 10 years; (ii) reducing the prevalence of age-related blindness and vision loss by 20% within 10 years in the national population, and reducing complications of eye diseases by 20% within 10 years in the at-risk population in Singapore.</p>

Other Areas

Besides the 4 therapeutic areas, proposals in other areas will also be considered. Particularly, the Committee will be keen to consider areas or research technologies that can be developed and applied in more than one disease area, and which can help Singapore to advance human health and wellness and create economic value for us.

(B) Definitions and Eligibility Criteria

Definitions

Overview: The research programme should comprise no more than 5 research themes, each led by one or more Theme Principal Investigators (PIs). All the Theme PIs should form the Leadership Team, and one of the Theme PIs should be nominated as the Corresponding PI.

Leadership Team: Comprises all Theme PIs. The leadership team share the responsibility in making the OF-LCG programme a success and is essential for implementing programme strategies and achieving desired outcomes.

Corresponding PI: The Theme PI who will coordinate the OF-LCG programme, serve as the main point of contact between NMRC and the OF-LCG Leadership Team, and is accountable to NMRC for the proper conduct of the whole programme. He/ She will work closely with the Theme PIs to resolve any issues which arise during the course of the programme, including the usage of funding, any variations to the scope of the programme etc. Limited to only 1 Corresponding PI per leadership team.

Theme PI: Theme PIs have the responsibility to direct each specific research theme being supported by the grant, and accountable for the proper conduct of the specific research theme. There is no limit on the no. of Theme PIs per theme but a cap of 5 themes applies. An individual can be a Theme PI for multiple themes.

Eligibility Criteria

- **Only one Corresponding Principal Investigator (PI) is allowed per application, and there is no cap placed on the number of Theme PIs per theme. However, a cap of 5 themes applies.**
- **The Corresponding PI and Theme PIs form the Leadership Team and are required to fulfil the following criteria at the point of application:**
 - i. Holds a primary appointment in a local publicly funded institution and salaried by the institution.
 - ii. Has PhD or MD/MBBS/BDS qualifications (exceptions would be made on a case-by-case basis).
 - iii. Is an independent PI with a demonstrated track record of research, as evidenced by the award of nationally competitive funding (international funding to be considered on a case by case basis), substantial publication record in the past 3 years, or PI status in research institutes.
 - iv. Has a laboratory or clinical research program that carries out research in Singapore.
 - v. Holds a minimum of 9 months employment (per calendar year) with local Singapore institution(s). Upon award, the PI must agree to fulfil at least 6 months of residency in Singapore for each calendar year over the duration of the grant award.
 - vi. Has no outstanding report from previous BMRC, NMRC grants, and other national grants.
 - vii. For proposals involving patients, the PI should be SMC registered; or should be able to demonstrate ability to access patients through SMC registered Co-Is or collaborators.

(C) Funding Quantum and Duration

Up to \$10mil (Tier 1) or \$25mil (Tier 2) per project over up to 5 years, amount is inclusive of indirect cost provided at a fixed percentage of 20% of the project's qualifying direct cost.

(D) Review Process

Overview

The OF-LCG comprises a 2-stage review process. In the first stage, interested applicants are required to submit a letter of Intent (LOI). The LOIs solicited will be put through an internal review process with the OF-LCG Review Panel (OF-LCGRP) that is made up of local and international clinicians and basic scientists, as well as industry experts appointed by NMRC. Based upon a review and selection of the most promising projects, a certain number of applicants will be invited to submit full proposals.

In the second stage, the full proposals will be evaluated by international domain experts followed by OF-LCG Review Panel (OF-LCGRP). Shortlisted applicants will be invited to submit a rebuttal to address the issues raised by the international reviewers, and will subsequently be interviewed by the OF-LCGRP. The OF-LCGRP will do a collective review/ranking of the proposals and make funding recommendations to the OSFC-select for endorsement. The number of awards given out for the grant call will depend on the quality of the proposals and the amount of funding available.

Selection Criteria

Selection of successful proposals would be based on the following evaluation criteria:

- i. High-quality scientific research spanning basic science to clinical translation.
- ii. Proposed research topic should address issues of national importance. These should typically be challenges that no single institution or discipline can solve and require collaborative and interdisciplinary approaches. Provided they are scientifically meritorious, proposals which address the set themes in the therapeutic areas would be given priority consideration.
- iii. Proposed research must be well-differentiated and highly competitive. It should demonstrate a high potential to be world class.
- iv. Demonstrate the potential to improve **health outcomes** and capture **economic value*** with a clear indication of pathway(s) to impact.

An **industry engagement plan will be required in the application, and applicants are encouraged to obtain **letters of support from the industry**.*

(E) Reporting Requirements

Reporting requirements are detailed in NMRC's Terms and Conditions and Guidelines for the Management of MOH/NMRC (Grantor) Funding Programmes (available on NMRC's website).

In addition, research programmes funded under the OF-LCG may be required to undergo an annual review of their progress by an NMRC-appointed Scientific Advisory Board (SAB) and mid-term reviews by an appointed Review Panel. More details will be shared with the grantees at the start of their research programme.

(F) Terms & Conditions

If awarded, all applicants would have read, understood and will abide to **NMRC's Terms and Conditions and Guidelines for the Management of MOH/NMRC (Grantor) Funding Programmes** (available on NMRC's website) upon their acceptance of the grant.

II. GENERAL INSTRUCTIONS

- Please complete all required sections in the IGMS application for the LOI application in **Table 1** below.
- Use **Arial font size 10** for all text and attachments. Please follow the instructions for each section closely.
- For identification purposes, please indicate the name of the Corresponding PI and host institution in the header of the respective templates.
- **The Corresponding PI and Theme PIs must fulfill the eligibility criteria specified in Section I of this application guide.** Please note that in IGMS, the Corresponding PI and Theme PIs will take on the role of “Lead PI” and “Team PIs”.
- **Each application is limited to only 1 Corresponding PI. No cap is placed on the number of Theme PIs allowable per theme. A Corresponding PI must be a Theme PI. An individual can be a Theme PI for more than 1 theme. A cap of 5 themes per application applies.**
- **Only the Corresponding PI and Theme PIs need submit their CVs for the LOI application, each limited to 3 pages.** Please indicate “NA” if the required information is not applicable and note that NMRC will not be responsible for any missing information not provided in the CV.
- **Co-Is¹ are required to hold at least an adjunct position at a local public institution. Researchers from overseas institutions or private companies can only participate as Collaborators².** The terms of collaboration with overseas research institutions and private companies must conform to NMRC’s existing policies.
- **Please note that resubmission attempts are capped at up to two times. Funding is not guaranteed for resubmitted proposals.**
Note: Resubmission should not be a re-written proposal from a new perspective. If more than 50% of the original proposal is to be revised, it should be submitted as a new application instead of a resubmission.
- Plagiarism (without permission from author or reference made to source) will be referred to Host Institution for investigation and may be subjected to disciplinary actions.

¹ **Co-I:** An individual involved in the scientific development and execution of the project. A co-Investigator typically devotes a higher percentage of effort to the project compared to a collaborator and is considered a key research personnel of the research team.

² **Collaborator:** An individual involved in the scientific development and execution of project. A collaborator typically devotes only a specific percentage of effort to the project.

TABLE 1. REQUIRED SECTIONS OF THE LOI APPLICATION

SECTION	DESCRIPTION																		
-	Summary Details																		
1	Research Proposal (page limit: 9)																		
2	Curriculum vitae of the Corresponding and Theme PIs (page limit: 3 per CV)																		
3	Peer reviewed funding received in the past 5 years as PI (CY2014 – present; from local and overseas funding agencies) <i>Note: Please attach the abstracts of all grants listed as Annex G. For the NMRC-funded projects, please also provide the latest Research Outcomes and KPIs achieved.</i>																		
4	Top 10 publications of Corresponding PI and Theme PIs in the last 10 years (CY2009 – present)																		
5	<p>Annexes</p> <table border="1"> <thead> <tr> <th>Annex</th><th>Description</th></tr> </thead> <tbody> <tr> <td>Annex A (max. 5 pages)</td><td>Additional documents for RENEWAL applications: i) Summary of achievements of the last funding and if they met the aims and objectives of the previous research programme. Explain unmet goals. ii) Brief description of plans laid out for the new tranche of funding and how it is a progression from the last funding.</td></tr> <tr> <td>Annex B</td><td>Additional documents for RENEWAL applications: iii) Final/ progress report</td></tr> <tr> <td>Annex C (max. 2 pages)</td><td>Additional documents for RESUBMISSION applications: i) Summary of how the revised proposal (i.e. the re-submission application) has addressed past reviewers'/panel's comments, and highlight new features and merits of the revised proposal</td></tr> <tr> <td>Annex D</td><td>Additional documents for RESUBMISSION applications: ii) Reviewers' report of previous unsuccessful application; Rebuttal to the external reviewers; Panel's comments (where applicable); and Response to the panel (where applicable)</td></tr> <tr> <td>Annex E</td><td><i>Not applicable for the LOI stage</i></td></tr> <tr> <td>Annex F</td><td><i>Not applicable for the LOI stage</i></td></tr> <tr> <td>Annex G</td><td>Scientific abstracts of all grants listed in Section 3; for NMRC funded projects, include latest research outcomes/ KPIs achieved</td></tr> <tr> <td>Annex H</td><td>Industry support letters (if any)</td></tr> </tbody> </table>	Annex	Description	Annex A (max. 5 pages)	Additional documents for RENEWAL applications: i) Summary of achievements of the last funding and if they met the aims and objectives of the previous research programme. Explain unmet goals. ii) Brief description of plans laid out for the new tranche of funding and how it is a progression from the last funding.	Annex B	Additional documents for RENEWAL applications: iii) Final/ progress report	Annex C (max. 2 pages)	Additional documents for RESUBMISSION applications: i) Summary of how the revised proposal (i.e. the re-submission application) has addressed past reviewers'/panel's comments, and highlight new features and merits of the revised proposal	Annex D	Additional documents for RESUBMISSION applications: ii) Reviewers' report of previous unsuccessful application; Rebuttal to the external reviewers; Panel's comments (where applicable); and Response to the panel (where applicable)	Annex E	<i>Not applicable for the LOI stage</i>	Annex F	<i>Not applicable for the LOI stage</i>	Annex G	Scientific abstracts of all grants listed in Section 3; for NMRC funded projects, include latest research outcomes/ KPIs achieved	Annex H	Industry support letters (if any)
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6	Declaration by Leadership Team and Host Institution Endorsement and submit scanned copy of the signatories as a separate document from the preceding sections 3-5.																		

III. **SUBMISSION OF APPLICATION**

- All applications must be submitted by the Corresponding PI and endorsed by the Corresponding PI's Host Institution through IGMS by **3 July 2019 (Wed), 5pm.**
- Internal Host Institution submission deadline may apply, please check with your Research Office for more information.
- The following will be rejected:
 - Incomplete applications e.g. missing documents such as re-submission materials required and missing progress/ final reports for renewal applications, missing signatures, sections left blank, missing CVs, etc.
 - Outdated/Wrong application templates.
 - Proposal or CV templates that exceed the stipulated page limits.
- No late submission or revision to the submitted application will be entertained after the closing date.
- For enquiries, please contact the NMRC OF-LCG secretariat at gillian_neo@moh.gov.sg or Rane_Tan@moh.gov.sg.