COMPETITIVE RESEARCH PROGRAMME (CRP) FUNDING SCHEME

Information Sheet

31st CRP Call-for-Proposals

1. Objectives

1.1 The National Research Foundation (NRF) Competitive Research Programme (CRP) Funding Scheme seeks to foster the formation of multi-disciplinary teams in Singapore to conduct cutting-edge research of relevance to Singapore. This allows a coordinated, integrated and sustained way of bringing together complementary research groups in Singapore to conduct high-impact research.

1.2 The CRP scheme funds use-inspired basic research[1] in all areas of science and technology[2]. Research ideas at the intersection of multiple disciplines are encouraged. The theme of the proposed research programme must be motivated by an important need or problem to be solved, rather than being solely curiosity-driven.

1.3 The CRP scheme offers funding support for programmes of varying sizes between a period of 3 to 5 years. The proposed budget and duration should correspond to the scope of the work to be accomplished.

2. Eligibility

2.1 Principal Investigators (PIs) from institutions/organisations which fulfil the following criteria will be eligible to participate as Lead PI/Team PI:

- Registered as a public Institute of Higher Learning (IHL), public healthcare institution, A*STAR Research Institute, CREATE research entities, or research institutes affiliated with the Autonomous Universities (AUs)/A*STAR;
- Has adequate research infrastructure to support research activities; and
- Has the ability to take up the responsibilities of a Host Institution.

2.2 Private sector and other entities can participate as collaborators.

[1] In this context, 'use-inspired' is defined as research that is (i) inspired principally by the quest to advance fundamental scientific knowledge and understanding; and (ii) motivated by an unmet need or the desire to address a practical problem, gap in capability or application. The research need not necessarily lead to immediate translation or commercialisation within the duration of the requested funding.

[2] The CRP scheme is not intended for (i) epidemiological and behavioural studies; (ii) observational studies (including cohort, longitudinal, case-control studies, etc.); (iii) clinical and drug trials; (iv) health services research/operations research; (v) infrastructure/facilities set-up; and (vi) market/drugs/product development. Such elements can be incorporated in CRP proposals to support the basic science research but should not form the sole or main objectives of the proposal. The CRP should be primarily driven by basic scientific discovery and advancement of scientific knowledge.

2.3 Lead PI and Team PI(s) must fulfil the following requirements at the point of application and throughout the project duration:

- Hold a primary and/or joint appointment(s) at eligible institution(s)/organisations(s), with a minimum time commitment of 9 months (per calendar year) in Singapore; and
- Be an accomplished PI with a track record of leadership ability in coordinating research program(s) and providing mentorship to research teams(s), as well as having productive research outcomes.

3. Selection Process and Evaluation Criteria

3.1 Proposals are selected through a two-stage process based on scientific excellence and merit:

- Stage 1 - Letter-of-Intent (Video + Slides): Shortlisting of Letters-of-Intent (LOI), in video presentation format with slides, would be done by the CRP Evaluation Panel (EP) and would be assisted (if necessary) by International Peer Reviewers.

- Stage 2 - Full Proposal: Evaluation of Full Proposals by International Peer Reviewers and the CRP Evaluation Panel (EP). Applicants will be shortlisted for a final interview with the CRP EP.

3.2 For the 31st Call, applicants must submit both the LOI and Full Proposal together. This is to facilitate a shorter review cycle. However, please note that the Stage 1 Shortlisting will only be based on the LOI. Full proposals of the shortlisted applications will immediately be sent for the Stage 2 Review.

3.3 The proposals will be evaluated based on:

- Letter-of-Intent: (i) significance of research and its potential impact; (ii) potential for scientific/engineering breakthroughs/disruptive innovation; (iii) multi-disciplinarity of the project.

- Full Proposal: (i) significance of research and its potential impact; (ii) potential for scientific/engineering breakthroughs/disruptive innovation; (iii) multi-disciplinarity of the project, (iv) programme management and budget; and (v) technical competencies of research team.

3.4 Lead PI and Team PIs are expected to commit a proportionate amount of their time in ensuring the success of the project. The time commitment of each team member dedicated to the project will be assessed as part of the evaluation criteria.

4. Submission of Application

4.1 All interested applicants must apply via the Integrated Grant Management System (IGMS) (URL: https://www.researchgrant.gov.sg). The system will be opened to accept submissions from **05 March 2024 (Tuesday), 0900hrs**.

4.2 All applications must be submitted by the Lead PI and endorsed by the Host Institution's Director of Research (DOR) via the IGMS by **23 April 2024 (Tuesday), 1600hrs**. Applicants are encouraged to submit the complete application early, in order to allow the DOR to endorse the proposal on IGMS in a timely manner. Please refer to **Appendix A** on pointers for writing good proposals.

4.3 **Prior to the submission**, the Lead PI is required to have a registered IGMS account as a Business User to submit the application on behalf of the Host Institution. Each Team PI is also required to have a registered IGMS account as a Business User to be added as team members in the application. For new applicants **without** an IGMS account, please refer to the flowchart below for the steps to register for an IGMS account and log in to IGMS.

4.4 Please note that the online IGMS application form will require each applicant to have an authorised ORCID ID on their IGMS User Profile Page to create an application as a Lead PI or be listed in an application as a Team PI.

4.5 Applicants must complete the online IGMS application form and upload the LOI and Full Proposal Application Forms (please use the templates in **Attachments 1 to 3**) and all mandatory Annexes under the *Research Proposal* section of the IGMS application.

5. Details of Research Proposal Documents

This section provides the details of the main documents related to the Research Proposal. Please note that there are additional submission requirements. Please refer to Paragraph 6.5 for the complete list.

5.1 Letter-of-Intent (Video):

(a) A video recording of your presentation of your Research Proposal. This will serve as your Letter-of-Intent (LOI).
(b) The Video LOI should cover the following content: Research Objectives, Competitive Scan, Approach, and Outcomes and Deliverables. Please see **Attachment 1** (Application Form for LOI).
(c) Video must not exceed **10 minutes**, or your application may be rejected without review.
(d) Video file format should be compatible with Windows Media Player (e.g. MP4 video file, QuickTime movie file, etc). Microsoft PowerPoint format can also be used.
(e) Video must be uploaded to a cloud storage with a generatable link, made accessible and downloadable by external parties, and have at least 6-months validity. The link must be provided in Attachment 1. *Broken or inaccessible links may lead to application being rejected without review*.

5.2 Letter-of-Intent (Slides)

(a) A copy of the presentation slides used in the Video LOI (guiding template in **Attachment 2**).
(b) The slides must be converted to PDF format and uploaded in the *Research Proposal* Section of IGMS.
(c) Slides cannot exceed **10 pages** (excluding the Cover slide). Use at least Arial Font Size 12 for all text and figures, and standard slide sizes. [Note: there is no cap on the number of slides in the Video presentation. If the total slide number in the Video exceeds 10, the copy of the presentation slides must be shortened/summarized to meet the 10-slides limit with no additional information]. Please ensure the final PDF file does not exceed 4 MB.
(d) All supplementary information, limited to figures, tables, charts or diagrams ONLY, and referenced in the LOI (Video + Slides), must be appended to the **Annex** (see Paragraph 6.5) and uploaded to IGMS as a separate document.
(e) Please note that the content in the Slides is only meant to facilitate the EP's review of the Video.

5.3 Full Proposal

(a) The Full Proposal is required together with the LOI for Stage 1. Failure to upload this may result in your proposal being rejected without review.
(b) The Full Proposal should address the adapted Heilmeier's questions (**Appendix A**). Please use **Attachment 3** (Full Proposal Template) to develop your Full Proposal.
(c) The contents of the Full Proposal must not exceed **15 pages** (excluding cover sheet and annexes) and be written in Arial font size 12 with single line, normal spacing and normal margins. All figures, charts and tables should be consistently labelled.
(d) References and the Gantt Chart to the Full Proposal are mandatory and must be included in the **Annex** (see Paragraph 6.5), along with any supplementary information (limited to figures, tables, diagrams and charts ONLY; and must be referenced in the Full Proposal). The Gantt Chart should contain details of the key research activities and go/no-go and measurable key deliverables and their timelines.

6. Steps to follow in the Integrated Grant Management System (IGMS)

6.1 Please complete the application by navigating to *Grants > Open Grant Calls > 31st Competitive Research Programme Call > Apply*.

6.2 All sections in the IGMS application form should be filled up completely as it will serve as the official summary of the proposal being submitted for consideration.

6.3 Please refer to the **IGMS Training Guide for Potential Applicants** (under "Help" section in IGMS home page) for guidance on the application process.

Section 1 – Research Details

6.4 This section of the IGMS application form includes the following:
a. Project duration (months) *(note: maximum duration: 60 months);*
b. Title of Research Project *(note: maximum 2000 characters);*
c. Institution;
d. Keywords of proposal *(note: up to 6 keywords, separated by semicolon ";")*;
e. Main research area;
f. Potential application/exploitation of research *(Note: please be concise and keep to 100 words);*
g. HRCS Coding *(note: only applicable to proposals which are in the Health and Biomedical Sciences research area)*;
h. Scientific Abstract *(Note: please be concise and keep to 300 words)*;
i. Lay Abstract *(Note: please be concise and keep to 300 words)*; and
j. Research Proposal *(note: The Full Proposal and its Annexes should be uploaded at this section. Please refer to Paragraph 6.5 for details.)*

Research Proposal

6.5 The following attachments in PDF format should be uploaded at this section of the IGMS application form **using the filenames as listed in blue**:

Table 1. Documents Related to Stage 1

Document	Remarks for Submission Requirement	Format of Filename	Description
Letter-of-Intent	Mandatory	01 CRP31 LOI *<Input Lead PI Name>*	Please use the template and follow the instructions in **Attachment 1**. Please read Paragraph 5.1. Note: Video Link must be inserted into the application form (Attachment 1).
Presentation Slides	Mandatory	02 Presentation Slides	Presentation Slides from the Video LOI. Please use the template in **Attachment 2**. This must be converted to PDF format before uploading. Please read Paragraph 5.2. **Limited to 10 slides excluding cover page. Use at least Arial Font 12 for all text and figures, and standard slide sizes.**
Annex	Mandatory for a), b) and c). Optional for d).	03 Annex to LOI a) References b) Response to Feedback (Resubmission) c) Write-up on Related Grant(s) d) Figures, Charts, Diagrams or Tables only (optional)	*This is one continuous document attached as a single file.* **Please use clear Headings for Sub-Sections a) to d). Final file size must not exceed 4 MB.** **(a) References:** a listing of all references cited in the LOI. **Please include the full titles and DOI numbers of the publications listed.** *[Note: Hyperlinks not necessary].* **(b) Response to Feedback** Mandatory for resubmitted applications only. **Maximum 2 pages for responses**, not inclusive of rebuttal questions: • Include the Proposal ID and Title of the original application. • Summary stating the differences and improvements from past submission(s); and • A point-to-point rebuttal to address reviewers' comments from past submission(s).

Document	Remarks for Submission Requirement	Format of Filename	Description
			(c) <u>Write-up on Related Grant(s)</u> Describe the research funded by currently held grant(s), and how the objective and research differ from that in the CRP application. Please refer to **Attachment 1** for the format of reporting. **(d) <u>Any other figures, charts, diagrams or tables (including Gantt Chart) only.</u> They should be clearly labelled and appropriately referenced in the LOI video/slides.**

<u>Table 2. Documents Related to Stage 2</u>

Document	Remarks for Submission Requirement	Format of Filename	Description
Full Proposal	Mandatory	04 CRP31 Full Proposal *<Input Lead PI Name>*	Please use the template and follow the instructions in **Attachment 3**. <u>Please read Paragraph 5.3</u>.
Annex	Mandatory for (a) and (b). Optional for (c).	05 Annex to Full Proposal (a) References (b) Gantt Chart (c) Figures, Charts, Diagrams or Tables only (optional)	*This is one continuous document attached as a single file.* **Please use clear Headings for Sub-Sections a) to c). Final file size must not exceed 4 MB.** **(a) <u>References</u>:** a listing of all references listed in the Full Proposal application. **Please include the full titles and DOI numbers of the publications listed. Do not forget to reference your own key publications related to the proposal (if any).** *[Note: Hyperlinks <u>not</u> necessary].* <u>Note</u>: This is a separate attachment to the References used for the LOI. **(b) Gantt Chart** Provide a Gantt Chart (appropriately referenced in the Full Proposal) with details on the key research activities and go/no-go

Document	Remarks for Submission Requirement	Format of Filename	Description
			and measurable key deliverables and their timelines. Note: This should be a more detailed Gantt Chart and separate to the version that may be included for the LOI stage (under Annex). **(c) <u>Any other figures, charts, diagrams or tables only</u>. They should be clearly labelled and appropriately referenced in the Full Proposal.**
Curriculum Vitae	Mandatory	06 CRP31 CV Lead PI <Insert Lead PI Name> 06 CRP31 CV Team PI <Insert Team PI Name> 06 CRP31 CV Collaborator <Insert Collaborator Name>	Each CV must be uploaded as a separate file with the correct filename. Please follow the format in Appendix B. Lead PI and Team PI CVs must be uploaded into the *Research Team, Collaborators, Referees* Section in IGMS. Collaborator CVs can be uploaded in the *Other Attachments* Section in IGMS.

Note: Annexes will not count towards the limit of 10 slides for Presentation Slides (LOI) or 15 pages for the Full Proposal.

<u>Section 2 – Research Team, Collaborators, Referees</u>

6.6 This section is to update the relevant information for all team members (**Lead PI, Team PIs and Collaborators**) participating in the research. These should be the same team members reflected in the cover sheet of the Research Proposal.

6.7 The Lead PI can search the Team PI(s) by using Name / E-mail / ORCID. (**Note: only the role 'Team PI' should be used, and the role 'Co-Investigator' should not be used for the CRP application**).

6.8 Please ensure that the "% effort within this project" for all team members (Lead PI, Team PIs and Collaborators) adds up to 100%.

6.9 Applicants must provide the CVs of all the team members (Lead PI, Team PIs and Collaborators). Please use the format in **Appendix B** and name the files using the filenames in blue below:

06 CRP31 CV Lead PI *<Insert Lead PI Name>*
06 CRP31 CV Team PI *<Insert Team PI Name>*
06 CRP31 CV Collaborator *<Insert Collaborator Name>*

6.10 For Lead PI and Team PIs, please upload the CVs as individual attachments under *Research Team, Collaborators, Referees* section of the IGMS application. For collaborators, please upload the CVs under *Other Attachments* section of the IGMS application.

Section 3: Research Milestones

6.11 The team should provide relevant research milestones and their proposed duration at this section. These milestones should be key technical milestones and should be as quantitative as possible as measures of success at mid-term and completion.

Section 4: Budget

6.12 The total requested budget should reflect a realistic estimation of the project needs and be fully justified. The overall level of the grant offered will be determined on the basis of the needs and judged by the peer reviewers and Evaluation Panel against the requested budget.

6.13 The budget categories applicable for CRP are: (i) Expenditure on manpower (EOM); (ii) Other operating expenses (OOE); (iii) Equipment (EQP); (iv) Overseas travel (OT); and (v) Research scholarship (RS). *Note: RS category is not eligible for indirect costs.*

6.14 The team may also refer to the Budget Checklist (**Appendix C**) and Non-fundable Direct Costs list (**Appendix D**) for a guide on budgeting.

Section 5: Funding Support

6.15 Details of all grants currently held or being applied for by the Lead PI and all Team PIs who are expected to receive funding from NRF under the proposed programme, in related areas of work, must be declared in this section.

Section 6: Reviewers

6.16 Each Full Proposal submission may include recommendations of international peer reviewers (local reviewers should not be listed), who could potentially be requested to evaluate the Full Proposal. In submitting recommendations for international peer reviewers, the team must ensure that the recommended reviewers:

a. Are experts in the subject matter and capable of offering unbiased expert opinions on the scientific merit of the proposed programme;

b. Have broad knowledge of the field that will enable them to evaluate the broader multi-disciplinary, educational and societal impact (including economic and other benefits) of the proposed programme;

c. Have good knowledge of global developments in the field to be able to evaluate the international competitiveness of the proposed programme; and

d. Have no relationship, direct or otherwise, with any of the team members that would create a real or apparent conflict of interest[3].

6.17 The team may also suggest reviewers who should not be invited to review the proposal.

Section 7: Declaration of Ethics Approval

6.18 The team should declare the requirements of ethics accordingly at this section, if applicable.

Section 8: Other Attachments

6.19 This section may be used to attach supporting documents other than those listed in Section 1: Research Details > Research Proposal.

Section 9: Undertaking

6.20 The Submission should contain all relevant information required for a proper and complete evaluation of their merits without the need to go back to applicants for additional information. Relevant privileged or confidential information should be disclosed if necessary, to help convey a better understanding of the proposed project. However, such information should be clearly marked in the proposal.

6.21 Upon completion of the application, the Lead PI should select the acknowledgement button to submit the application to your Host Institution's Office of Research for verification. Please ensure that your application is endorsed by the DOR by **23 April 2024 (Tuesday), 1600hrs**.

7. Completeness Check

[3] In particular, a reviewer is not permitted to take part in the review of a proposal that originates from his/her home institution (i.e., if the Lead PI or Team PIs of the proposals are from his/her home institution); or if any of the proposal's personnel are closely related to the reviewer, e.g., household family members, partners or professional associates including thesis advisor/advisees; or if the reviewer has a financial interest in the proposing institution, e.g. ownership of stock or securities, employment or arrangements for employment; or if the reviewer or his/her professional associates (e.g., from his/her home institution) have submitted substantially similar proposals for the same grant call.

7.1 The Lead PI's Host Institution's Office of Research should perform a completeness check when verifying the submission on IGMS. Please refer to **Appendix F** for a non-exhaustive guiding checklist for completeness check. NRF will perform basic level of completeness checks on eligibility and will not be liable for incomplete submissions. The following will be rejected without review:

- Duplicates of proposal submitted to any other public funding agencies for simultaneous consideration
- Missing or wrong version of LOI (Video + Slides)
- Inappropriate format (e.g. small font size and tight para spacing) or incomplete applications (e.g. sections left blank, missing CVs, etc.)
- Late submission or endorsement on IGMS by the respective Director of Research
- Revisions made after closing date
- Resubmitted LOIs with minimal or no revision
- Proposal not within scope of CRP (Appendix D)
- Ineligibility of Lead PI and/or Team PIs
- Single investigator-led proposals

7.2 Please refer to **Appendix G** for Frequently Asked Questions on the CRP scheme.

7.3 Additional attachments are provided for reference. Please refer to **Attachment 4** for **CRP IGMS Application Guide** for a quick guidance on the IGMS application process.

8. Resubmission of Proposals

8.1 Resubmission of LOIs is allowed only once (with substantial changes), except for the following cases: i) the LOI is invited to be resubmitted, ii) the LOI is resubmitted based on a full proposal stage application, which was not selected for award in an earlier CRP grant call. Those LOIs with minimal or no revision will be rejected without review.

8. Contact Information

8.1 For further enquiries related to the CRP, please contact the CRP secretariat at NRF_CRP@nrf.gov.sg.

8.2 For technical enquiries related to IGMS, please contact the Helpdesk at Helpdesk@researchgrant.gov.sg.

Enclosed for Reference

a) Attachment 1: 31st CRP Call Application Form for LOI
b) Attachment 2: Presentation Slides (LOI) Template
c) Attachment 3: 31st CRP Full Proposal Template
d) Attachment 4: CRP IGMS Application Guide

Overview of the Review Process and Requirements

APPENDIX A

Pointers for Writing Good Proposals

Good ideas are often undermined by missteps in proposal preparation. Most winning proposals have been polished repeatedly. Allow time to write and rewrite the proposal. Read the instructions and understand the evaluation criteria. Touch all the bases, and not just the ones you are comfortable with. Each section of the forms must be filled up carefully, as evaluations are based on how well the guiding questions are answered. Don't make work for the reviewers. Make it easy for the reviewers to get to your main points.

Pay heed to these general pointers:

i) Define the problem statement and build a compelling case for need upfront. However, please do not dedicate too much time/space on prosaic background information. Elaborate more on important experimental details.

ii) Use clear, accessible language. Avoid insider jargon and acronyms. Use direct statement and active voice.

iii) Different parts of the projects need to be pulled together. Explain the basis for each sub-project and their linkages in fulfilling the overall programme objectives.

iv) Show that you have an understanding of the existing competition. This should include performing a competitive scan and comprehensive literature search of ongoing efforts in the proposed topics and having an awareness of existing products/solutions or developments by the industry.

v) Do not inflate the budget. Ask for a budget that realistically reflects the scope of work that will be accomplished. Where possible, existing equipment/facilities should be leveraged.

vi) Clearly articulate the impact of your research and how you would achieve it. This should not be confused with KPI outputs (e.g. no. of paper publications, no. of postdocs recruited etc.). Be specific and quantitative with benchmarked technical specifications, if possible.

vii) Root out inconsistencies in format, typos, misspellings, mislabelling of diagrams, grammar, etc. Get another person to proof-read.

When writing your Full Proposals, try to answer these questions adapted from Heilmeier's Catechism:

1. What are you trying to do? Articulate your objectives using absolutely no jargon. What is the problem? Why is it hard?
2. How is it done today, and what are the limits of current practice?
3. What's new in your approach and why do you think it will be successful?
4. Who cares?
5. If you're successful, what difference will it make? What impact (esp. economical & societal) will the success have?
6. What are the risks and the payoffs?
7. How much will it cost? (giving strong justifications for request exceeding S$5mil)
8. How long will it take?
9. What are the midterm and final "exams" to check for success? How will success be measured?
10. Other components of proposal to be highlighted, e.g. synergies of projects within proposed programme, team composition, collaboration with academia/industry, programme management (e.g. gantt chart, project involvement structure), relevance to Singapore etc.

APPENDIX B

Format of Curriculum Vitae

NOTE: You may also download this as a template under *Research Team, Collaborators, Referees* section of the IGMS application.

For Lead PI and Team PIs: Please upload each CV using the format described below, as individual attachments under the *Research Team, Collaborators, Referees* section of the IGMS application.

For Collaborators: Please upload the CVs either under *Research Proposal* section or *Other Attachments* section of the IGMS application.

The CVs of all members (**Lead PI, all Team PIs and Collaborators**) listed on the cover page must be provided. **Each CV must start on a fresh page and be limited to 2 pages (Arial font size 12, single line spacing)**. Please indicate "N.A." beside the label field if the required information is not applicable. NRF will not be responsible for any missing information not provided in the CVs. Please note to only provide information listed below. Do not include any additional fields or extraneous information.

- Name
- Title
- Office mailing address
- Email
- Contact number
- Current position (please provide full details, e.g. primary appointment, joint appointments; other academic appointments including those outside of Singapore).
- Percentage of time spent in Singapore every year for the current position (if applicable)
- Employment history
- Academic qualifications (indicate institution's name and year degree awarded)
- Research interests
- List of **up to 5** **(maximum**) most relevant publications (including 'in-press' publications, regardless of acceptance/published date of the publications) [include authors, full title, journal name, volume, issue, page numbers]
- Patents held (related or unrelated to the study), and/or Scientific Awards, if any.

APPENDIX C

CHECKLIST FOR PREPARATION OF A RESEARCH BUDGET

Before you Begin

1. Read NRF's Instructions for Submission of Full Proposal for the Competitive Research Programme (CRP) funding scheme carefully.

2. Review the instructions and guidelines to ensure that the proposed items are eligible and in concordance to your Host Institution's policies.

3. When in doubt, always seek assistance from your Office of Research or NRF before you begin.

Preparing the Budget

4. Be realistic and do not over-inflate the budget. Budget should be reasonable and appropriate for the proposed research plan. For multi-year projects, consider time constraints and get advice on whether you will be able to spend the proposed budget within the duration of the project.

5. Be detailed and specific. List all items on a separate worksheet that clearly shows the calculations and keep this detailed list to remind yourself how the numbers were derived. This will be useful during the budget scrubbing stage (upon awarding) and for future monitoring and reporting.

6. Anticipate reviewers' views and plan ahead to ensure that detailed description and justification on the need of all items listed in the budget are written clearly.

7. Direct costs refer to costs which can be directly attributed to the project. Indirect costs are Institution overhead costs that benefit and support research.

8. Please use the checklist below to assist you with preparation of the research budget.

S/N	Item	Description	
1.	Manpower Cost (EOM)	Are the positions of all individuals working on this project listed?	☐
2.		Is the proposed manpower headcount sufficient and reasonable to meet the project objectives and deliverables?	☐
3.		Is the EOM per pax in agreement with the salary package stipulated by your Host Institution's HR policy?	☐
4.		Have you budgeted the EOM according to the man-months required of each manpower headcount within the project duration?	☐
5.		Have you sufficiently justified the role for each manpower headcount and the need to recruit him/her to meet the project objectives?	☐
6.	Equipment	Have you explored alternative sources for using existing equipment without the need to purchase new equipment?	☐
7.		Can you use the equipment in shared facilities and utilise CRP fund to pay for service fees instead?	☐
8.		Do you have sufficient space for the new equipment? What is the usage frequency of the new equipment? Does the equipment require high maintenance cost?	☐
9.		Have you factored in taxes, exchange rate (if applicable) and freight charges (if applicable) for the proposed equipment item?	☐
10.	Consumables Costs (OOE)	Have you listed all the supplies and materials required?	☐
11.	Research Scholarship	Are the tuition fees and stipend rates budgeted according to the MOE prevailing rates?	☐
12.	Overall Budget	Does the amount of all line items of each vote tally?	☐
13.		Does the total amount of all votes tally with the final proposed budget?	☐

APPENDIX D

I. AREAS OUT OF CRP SCOPE

The CRP Scheme is not intended for the following areas:

a) Epidemiological and behavioural studies;

b) Observational studies (including cohort, longitudinal, case-control studies, etc.);

c) Clinical and drug trials;

d) Health services research/operations research;

e) Infrastructure/facilities set-up; and

f) Market/drugs/product development.

II. NON-FUNDABLE DIRECT COSTS

Types of Expenses	Description
Salaries of Lead PI / Investigators / Project Leads	Not allowable, to ensure no double funding of salaries and related costs, as the salaries are already supported from other sources (e.g. faculty salaries are supported separately by the IHLs as it is in support of the IHLs' core mission).
Salaries of Teaching staff / Teaching subsitutes	Not allowable, as this is being supported from capitation grants.
Undergraduate tuition support	Not allowable, as this should be supported under the respective scholarship grants and bursury schemes.
Salaries of general administrative staff	Not allowable, as this is an indirect cost*.
Costs related to general administration and management	Not allowable, as this is an indirect cost*. This includes common office equipment, such as furniture and fittings, office software, photocopiers, scanners and office supplies.
Costs of office or laboratory space	Not allowable, as this is an indirect cost*. This includes renovation/outfitting costs, rent, depreciation of buildings and equipment, and related expenditures such as water, electricity, general waste disposal and building/facilities maintenance charges.
Personal productivity tools & communication expenses	Not allowable, unless the use of mobile phones and other form of smart devices were indicated in the methodology for the Research. All other cost under this expense type is an indirect cost*.
Entertainment	Not allowable, as this is an indirect cost*.
Refreshment	Not allowable, unless this is related to a hosted conference or workshop for the Research. All other cost under this expense type is an indirect cost*.

Audit fees (Internal and external audit) and Legal fees Fines and Penalties Professional Membership Fees Staff retreat and team-building activities	Not allowable, as this is an indirect cost*.
Patent Application	Not allowable, as this should be supported from overheads given to I&E Office (IEO)*. This includes patent application filing, maintenance and other related cost.

**Note: Indirect costs should be funded from overheads or other funding sources.*

APPENDIX E

SUMMARY OF POTENTIAL IMPACT

A summary of potential impact of the proposed CRP programme is intended to inform the NRF and its reviewers that the team has scoped its research programme based on the understanding of how it would impact the beneficiaries and/ or users, if the programme succeeds. An impact summary should include a clear description of the problem that the project is addressing, significance and expected outcomes of the research, and address the following two questions: who might benefit from the research and why it matters.

Impact of research may be described as academic or economic/societal impact. Academic impact refers to making scientific advancements or breakthroughs that could result in a better understanding of an unknown space that could benefit mankind. Economic/societal impact refers to making advancements that could benefit the society and Singapore's economy at large. Impact should not be confused with outputs. Number of publications, patents and students trained are seen as outputs. These outputs can become outcomes; for e.g. building competence, adding to the knowledge base for a particular research field or product development. The impact summary should be written in lay non-technical language, be as specific as possible and provide information that will help the NRF and external reviewers in assessing the potential impact of the proposed programme.

As an example, some forms that the impact of research may take are listed below:

- Transformation of an existing manufacturing process.
- A novel solution/technology/product that could address existing gaps that could not be met by existing solution/technology/product.
- Generation of new knowledge that could establish better understanding of existing / new phenomenon that would benefit mankind.

PATHWAY TO IMPACT

A clearly thought through and acceptable Pathway to Impact is an essential component of a research proposal and a condition of funding. This describes the activities that contribute to achieving the impact(s) as depicted in the impact summary. It should contain details of what will be done in the proposed research to engage the beneficiaries and users to maximise the impact(s).

A clearly thought through and acceptable Pathway to Impact should:

- be project-specific and not generalised;
- be flexible and focus on potential outcomes;

PIs are encouraged to:

- identify and actively engage relevant users of research and stakeholders at appropriate stages;
- articulate a clear understanding of the context and needs of users and consider ways for the proposed research to meet these needs or impact upon understanding of these needs;
- outline the planning and management of associated activities including timing, personnel, skills, budget, deliverables and feasibility; and
- include evidence of any existing engagement with relevant end users.

APPENDIX F

GUIDING CHECKLIST FOR COMPETITIVE RESEARCH PROGRAMME (CRP) COMPLETENESS CHECKS

This is a non-exhaustive list for PIs to take reference to ensure completeness of the submissions, and for the Office of Research to take reference when verifying the submissions.

S/N	Document	Section	Item to Check
1	Letter of Intent Application Form	Overall	• Lead and Team PIs fulfil the eligibility criteria. NRF will defer to the institution's assessment on whether Lead PIs and Team PIs are qualified. • Proposal fits the CRP scope.
2		Section II: Main LOI contents (Video)	• Link to Video has been inserted into the application form. • Video Link is functional, accessible, downloadable; and does not exceed 10 minutes. • Video contains relevant information (research objectives, competitive scan, approach, outcomes & deliverables) • Application Form is maintained in Word Format to keep hyperlinks.
3		Section III: Declaration by Grant Applications	• The Lead PI, all Team PIs and Collaborators (if any) have signed the document. • The dates of signatures fall within the grant call launch period.
4	Presentation Slides	Presentation Slides	• Presentation Slide Cover Page contains Proposal ID, title, budget (with direct costs) that match with the IGMS online application. • Presence of ORCID for Lead and Team PIs • Presentation Slides contain all relevant sections (research objectives, assessment on current development, proposed approach, outcomes, and deliverables) and

			are within the 10-slides limit (excluding Cover Page). • Presentation slides are in pdf format (no larger than 4 MB) and must be uploaded into Research Proposal Section of IGMS. • Presentation slides use at least Arial font size 12 for all text and figures.
5	Full Proposal	Section I: Cover Page	• Proposal ID, title, budget (with direct costs) match with the IGMS online application. • Presence of ORCID for Lead and Team PIs.
		Section II: Research Proposal	• Full Proposal is within 15-page limit. • All sub-sections (research objectives, assessment on current development, proposed approach, programme plan, role of team members, outcomes from previous grants, and outcomes and deliverables) are addressed and are within the 15-page limit. • This section in written in Arial font size 12, single spacing, normal margins.
6	For resubmissions		• The proposal has not been resubmitted more than once.
7	Annex to LOI and Annex to Full Proposal		• Each Annex is a continuous document uploaded as a single file. • Headings are used for each sub-section. • Full titles, DOI numbers and hyperlinks are included for all references. • Response to Feedback contains the Proposal ID and title of the original submission, a summary stating differences and improvements from past submission and a rebuttal to address past comments. • File Names are correct (refer to Paragraph 6.5, Table 1 and 2).

		• For optional section (d), only figures, charts, diagrams or tables are allowed with clearly labelled headings and appropriately referenced in the LOI or Full Proposal respectively.
8	CVs	• All team members (Lead PI, Team PIs and collaborators) should each provide a CV. • A maximum of 5 publications are listed. • The CV should follow the requested format and extra sections/information should be removed. • CV does not exceed 2 pages per PI. • File names are correctly formatted (refer to Paragraph 6.9 of Information Sheet).

APPENDIX G

Frequently Asked Questions

General

S/N	Question	Response
Application		
1	What is "use-inspired basic research"?	The research undertaken is inspired by the quest to advance fundamental scientific knowledge and understanding that is motivated by an unmet need or to address a practical problem. The research need not necessarily lead to immediate translation or commercialisation within the duration of the project.
2	Does CRP fund blue-sky or curiosity-driven research?	CRP does not fund research that is solely blue-sky or curiosity driven. The research objective should be motivated or inspired by a problem to be solved or a potential use.
3	How important is industrial participation for the different CRP categories? Is it mandatory to include industrial partner(s)?	Industry partnership is not a requirement for CRP. It is not mandatory to include industrial partner(s). If industrial partner(s) are involved, they should provide letters of support with details of their contribution and/or commitment to the project.
4	Is stakeholder agency consultation required prior to submission?	This is not a mandatory requirement.
5	Can a PI submit multiple proposals under the same CRP category as the Lead PI at the same time?	Yes, if the proposals are substantially different and there are no overlaps in the scope of the work to be funded.
6	Can the Lead and Team PI be from the same group?	Yes.
7	If a PI has submitted a proposal in another funding scheme which is pending review, can he/she still apply for CRP?	The PI should not submit the same proposal (which is pending review in another funding scheme) to CRP. He/she can submit a different proposal (with no overlaps in scope) to CRP.
8	Can the CRP scheme accept proposals with humanities or social sciences elements?	Yes, humanities and social sciences elements can be included in the proposals. However, the proposals should have a STEM (Science, Technology, Engineering, Mathematics) focus.
9	Is there a limit for CRP resubmission?	Proposals that have not been shortlisted for award are generally permitted only one resubmission in future grant calls, with amendments to address review feedback.
Eligibility Criteria		
10	Are early career scientists (e.g. post-docs) eligible to be Lead or Team PIs? How do we determine if a PI meets the criteria of a Lead or Team PI?	We will leave it to the Institutions to endorse your qualification as either a Lead or Team PI, as there are institutional differences in designations, ranks, roles and responsibilities. Institutions should read the Eligibility Criteria and ensure applicants meet the requirements.

11	Can a Team PI come from industry or overseas?	The Industry or Overseas PI must hold an adjunct position with a publicly funded institution in Singapore and serve residency in Singapore for at least 9 calendar months per year. PIs who do not fulfil eligibility criteria as Team PI can participate as collaborators.
Assessment		
12	What is the expected TRL of CRP projects at completion?	The CRP scheme supports basic research which typically starts at TRL 1-3 and may end at TRL 3-5 upon completion.
13	What are the outcomes or Key Performance Indicators (KPIs) expected of CRP projects?	CRP projects will be assessed on the extent they have achieved their scientific deliverables (stated in their proposal) and how they have advanced fundamental scientific knowledge. A good metric of successful research outcomes is the continuity of the research, and whether teams go on to secure larger grant funding, or contribute to establishing peaks of research excellence in Singapore. As part of annual progress reports, NRF may request projects to report indicators such as publications, technical disclosures or patents etc for tracking purposes, but projects are <u>not</u> expected to provide targets for these indicators and will not be assessed solely based on these.
14	What kind of feedback will be given for non-shortlisted proposals?	A comprehensive reviewer report will be provided for reference, for each non-shortlisted proposal. For proposals that are rejected without review, NRF will provide reasons for rejection (e.g. if the proposed research falls outside the scope of CRP).
Budget		
15	Can international collaborators receive funding for some elements of the research?	Applicants may propose OOE budget lines for Visiting Professors/Experts, which can cover honorarium, travel and accommodation expenses. Visiting Professors/Experts should be clearly identified in the proposal, or to NRF, with justifications for visits provided.
16	Does all the funding have to be spent within Singapore?	RIE funding is intended to fund research activity conducted by the Team (Lead PI and Team PIs) within Singapore. Applicants may propose budget items under Overseas travel, e.g. attending overseas conferences or to access equipment/facilities overseas with justifications provided, excluding the conduct of R&D activity.
17	Can the CRP grant support: a) Salaries of Lead and Team PIs? b) Hiring of management support officers (MSO)? c) Hiring of Project/Programme Manager?	(a) No, as Lead and Team PIs are already salaried by the Institution. (b) CRP does not support salaries of administrative staff, including MSOs. (c) Yes, if the Programme Manager's role is related to the Research, and not purely administrative.

	d) Subscription of GPU and cloud services?	(d) Yes, applicants may propose OOE budget lines to support facilities usage, and subscription of services such as GPU and cloud usage. Please refer to the list of nun-fundable direct costs in the Guidelines for the Management of Research Grants that is issued to the Host Institutions.
18	Do all CRP categories provide indirect costs?	Yes, the indirect cost is 30% of the direct cost.
Areas out of scope for CRP		
19	It is stated in the Grant Call information sheet that CRP is not intended to support research in the following areas: (i) epidemiological and behavioural studies; (ii) observational studies (including cohort, longitudinal, case-control studies, etc.); (iii) clinical and drug trials; (iv) health services research/operations research; (v) infrastructure/facilities set-up; and (vi) market/drugs/product development. Can elements of the above be incorporated in CRP proposals?	Proposals with a research focus in the areas listed should be submitted to other more appropriate funding schemes in Singapore, for funding consideration. CRP proposals should be primarily driven by basic scientific discovery and advancement of scientific knowledge that is use-inspired, and should have a STEM (Science, Technology, Engineering, Mathematics) focus. Some elements of research in the areas listed can still be incorporated in CRP proposals but should not form the sole or main objectives of the proposal, and their inclusion will need to be well justified.
Others		
20	Where can the list of past awarded projects be found?	Please refer to the NRF CRP website: https://www.nrf.gov.sg/grants/crp/

CRP Application

S/N	Question	Response
21	Is CRP intended to only fund large scale programmes?	The CRP supports programmes of varying sizes between a period of 3 to 5 years. It can fund small-scale programmes submitted by a smaller group of PIs, with a correspondingly smaller funding quantum that corresponds to the scope of the work to be accomplished. The proposals will be evaluated based on scientific merit.
22	For stage 1 review, will only the LOI (video & slides) be evaluated, and not the full proposal?	Yes, only the LOI (video & slides) will be evaluated at Stage 1.
23	Is there any action required from the team if a proposal is shortlisted to stage 2? Can the team amend/improve the full proposal if it is shortlisted to stage 2?	No action is required from the applicants. Eligible CRP Full Proposals will be sent for review, following the announcement of the LOI shortlisting outcome. Applicants are not allowed to amend the Full Proposal after submission. NRF may consider exceptions on a case-by-case basis if there are strong justifications.

24	How much preliminary data is expected for a CRP proposal?	Inclusion of preliminary data is encouraged but is not mandatory for a CRP proposal submission.
25	How will CRP proposals be reviewed? Will there be nominated external reviewers?	CRP proposals will be reviewed by a CRP Evaluation Panel comprised of international researchers/ academics. Reviews may be supplemented by independent reviewers who possess relevant subject-matter expertise.

Note: The full list of FAQs is posted on the NRF CRP Website (https://www.nrf.gov.sg/grants/crp/)