SingHealth DukeNUS ACADEMIC MEDICAL CENTRE

ACP PROGRAMME GRANTS

RESEARCH SUPPORT

Nurturing Clinician Researcher Scheme (NCRS)

APPLICATION REQUIREMENTS & EVALUATION CRITERIA

Objective:

To nurture young clinicians to become successful clinician-researchers of the SingHealth Duke-NUS Academic Medical Centre (AMC), by supporting them with resources, including funding and protected time, to optimise their research competencies & experience, thus their competitiveness for external research grants and readiness to embark on a sustainable research career.

Introduction:

Under the Nurturing Clinician Researcher Scheme (NCRS), nominations may be made for three categories of clinician-researcher, based on their research interest, current career trajectory plan and readiness for external grant application:

	Nurturing Clinician-Scientist Award (NCSA)	Nurturing Clinician-Innovator Award (NCIA)	Clinician-Investigator Development Award (CIVDA)
Research interests	Translational and Clinical Research (TCR)	Device & technology development	All categories which the applicant can further grow the research platform / team / focus in their institution, ACP or SDDC.
	Health Services Research (HSR)	Data Science	
Maximum funding quantum & tenure	Up to $200,000 over a tenure of up to 3 years.	Up to $150,000 over a tenure of up to 3 years.	- Up to $75,000 over a tenure of up to 2 years - Up to $100,000 over a tenure of up to 3 years.

Guidance on the definitions of and expectations for the categories may be found in the guidelines below.

1) Each NCRS application must be applied using:
   (a) ACP Programme Grants Application Form (For NCRS only) – to be completed by the ACP
   (b) NCRS Nomination Form – to be completed by Clinical Head of Department and Research Director / Head of SDDC (if applicable)
   (c) NCRS Research Mentor Form – to be completed by Research Mentor
   (d) NCRS Research Write-Up and Applicant CV – to be completed by NCRS applicant in discussion with Research Mentor

If ACP has more than one nomination, ***each nominee should submit one set of documents as indicated above.***

2) In the **ACP Programme Grants Application Form (to be completed by the ACP)**:
   (a) The ACP shall outline how the ACP can support the NCRS candidate.
   (b) The ACP shall provide a list of existing NCRS award recipients in the ACP (if any) in **Section H(a)**.
   (c) An ACP may nominate more than one candidate in any category. When there is more than one candidate in a category, the ACP shall rank the candidates in accordance with their expected potential to succeed in that category of clinician-researcher in **Section H(b)**;

3) In each **Nomination Form (to be completed by the Clinical Head of Department and Research Director / Head of SDDC, if applicable)**, the following information shall be provided:
   1. Profile of candidate
   2. Description of candidate
   3. Departmental plan for candidate's research trajectory / plan
   4. Departmental NCSS Records
   5. Departmental plan to support candidate's research endeavours if he / she is awarded the NCRS grant.
   6. Endorsement by Clinical Head of Department and Research Director / Head of SDDC, if applicable

4) In each **Research Mentor Form (to be completed by the Research Mentor)**, the following information shall be provided:
   1. Details of the appointment Research Mentor
   2. Description on how the mentor will be able to nurture the candidate in his / her career development.
   3. Endorsement by Research Mentor

5) In each **Research Write-Up and Applicant CV Form (to be completed by candidate <u>in discussion with Research Mentor</u>)**, the following information shall be provided:
   1. Details of the research project, including NCRS applicant's roles, responsibilities and contribution(s) in this research project
   2. CV and Career Development Plan
   3. Endorsement by ACP Academic Chair

6) For each **NCSA** application, a research proposal is to be provided by the candidate using **Section 4-I (Research Write-Up)**.

7) For each NCIA application, specific guidelines for **Section 4-II (Research Write-Up)** are as below:

(a) Abstract

(b) Background & Preclinical/Clinical Need

- *Background and significance of the preclinical / clinical need / gap identified.*
- *Current treatment / solutions and their shortcomings.*
- *What is needed to address the problem and / or treatment gap identified?*
- *Who is / are the target patients? What are the incidence and / or prevalence? What is the total amount spent per year to address the problem faced by these target patients?*

(c) Description of Solution

Give a concise description of the proposed Solution covering the following areas:

- *The need and rationale of developing the Solution*
- *The methods / approach and components of the Solution, and how it works.*
- *The alternatives that have been or can be considered (if any)*
- *PI's/Industry's preliminary studies (if any) or any other information that will help to establish the importance of the project.*

(d) Uniqueness & Competitive Analysis of Solution

How is the proposed Solution better than existing/emerging competing technologies / product / service?

(e) Collaborations

Does the project have any associated agreements, such as Collaboration Agreements, Material Transfer Agreements (MTAs) or Non-Disclosure Agreements (NDAs)?

(f) Impact and Translation Pathway
(Public health impact, patient-related outcomes, value proposition)

Please describe:

- *Clinical importance and impact*
- *Where project outcomes have potential to be implemented / adopted into workflow, change clinical practice, health care policy*
- *Cost/ other efficiencies, advantages or benefits – quantitated, if possible)*

(g) Intellectual Property Management

- *Briefly describe potential intellectual property / trade secret / copyright generated from the Solution and how it will be handled*

(h) Follow-on Development and Commercialisation Plan

- *Describe potential future funding sources beyond this phase such as AM-NHIC MedTech Grant, NHIC I2D Grant, SMART Innovation Grant and NRF Central Gap fund and / or steps to develop the technology*
- *Plans for licensing, commercialization and / or healthcare adoption into healthcare policy or practice.*

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8) For each **CIVDA** application, the Research Write-Up shall include:

    1. Overall research focus and nature of research (e.g. Clinical Research, Health Services Research, Innovation etc).
    2. Plan(s) for financial sustainability beyond grant
    3. 1-3 projects under particular research theme (need not be a single project)

9) Proposal for NCRS submission should encompass elements to support the transition of the candidate to become a proficient clinician researcher (i.e. to be able to initiate and direct his or her own line of research).

10) For shortlisted candidates, a short interview with the review panel may be required. Details concerning the interview will be disseminated once it is finalised.

11) All application(s) must be completed using the prescribed templates. Failure to comply with requirements in any of the templates and / or an incomplete application will be disqualified and will not be reviewed.

12) These documents and data therein will be used for the purpose to review, evaluate, recommend, and approve the NCRS award. The data shall also be used for the purpose to facilitate administration, talent management and development within the SingHealth Duke-NUS Academic Medical Centre.

13) In this grant call, newer ACPs and ACPs which have fewer NCRS (previously known as NCSS) awardees are especially encouraged to apply. Strong tangible support in the applicant's preparation by a well-established Clinician Researcher of the appropriate field, who should also mentor the applicant, in the submission is strongly advised.

14) Applicants are encouraged to refer to the available resources from the SingHealth Duke-NUS AMC for guidance on preparing their Research Write-Up – please see Appendix 1 for more details.

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Guidelines:

1. The long term objective of awarding NCSA and NCIA is to support the career development of clinician-scientists of various categories, as laid out and described by NMRC. (https://www.nmrc.gov.sg/grants/talent-development)

Category	***Intent***
Clinician Scientist in Translational and Clinical Research	• Supports clinicians with the intent and the potential to become **career clinician scientists in the areas of translational and clinical research (TCR)**; who will eventually spend a significant proportion of their time in research, typically **> 50% FTE** (with salary support provided by the NMRC Clinician Scientist Award, CSA) in order to remain **academically competitive**.
HPHSR Clinician Scientist	• Supports clinicians with the intent and the potential to become **career clinician scientists in the areas of Health Promotion, Preventive Health, Population Health and Health Services Research (HPHSR),** who will eventually spend a significant proportion of their time in research, typically **> 50% FTE** (with salary support provided by the NMRC HPHSR Clinician Scientist Award, HCSA) to remain **academically competitive**.
Clinician Scientist in Innovation	• Supports clinicians with the intent and the potential to become **career clinician innovators** to approach unmet clinical needs with **healthcare innovation ideas such as in disease diagnosis, medical treatment, and/or improvement of human health and quality of lives**. with meaningful, lasting solutions, **leverage on medtech / bioengineering and / or digital technology** and who**,** in the long run, **spend up to 30% FTE** (with salary support provided by the NMRC Clinician Innovator Award, CIA) in clinical innovation / research, developing innovative solutions / devices to be eventually translated to frontline clinical care in collaboration with industries and / or external funding agencies.

2. The deliverables of the NCRS award categories are:

Category	***Deliverables***
*Nurturing Clinician-Scientist Award (**NCSA**)*	• The awardee **is expected** to apply for a **NMRC grant, preferably a Talent Development Award, such as a *NMRC TA*,** within the duration of the NCRS support, with the view of working towards a CSA / HCSA eventually. The awardees should continue in his / her effort to secure a national grant throughout the whole NCRS grant period, and beyond, if necessary.

*Nurturing Clinician-Innovator Award (**NCIA**)*	• For NCSA, the NMRC NIG may be considered as an intermediate deliverable. • The awardee **is expected** to apply for a **NMRC grant, preferably a Talent Development Award, such as a *NMRC TA*,** within the duration of the NCRS support, with the view of working towards a CIA eventually. The awardees should continue in his / her effort to secure a national grant throughout the whole NCRS grant period, and beyond, if necessary. • For NCIA, the NMRC NIG, NHIC Innovation to Develop (I2D) Grant, SMART Innovation Grant, A*STAR Biomedical Engineering Programme (BEP) and NRF Central Gap Fund etc. may be considered as intermediate deliverables. • The NCIA awardee should demonstrate potential of their project in securing subsequent financial support from industries and sustained effort, throughout the whole duration of the NCRS award and beyond, to develop their project to create a physical device, solution or medical technology etc., with the potential to implement across the AMC and optimally across other healthcare institutions and / or commercialization.
*Clinician-Investigator Development Award (**CIVDA**)*	• The awardee is expected to **secure further funding to develop a supported research platform for the specific research focus, such as any competitive national grants, including NIG.** At the end of the grant period, the applicant should aim to be have sustainable support as PI or Co-PI of a variety of public (e.g. NMRC or NHIC grants) and / or private (e.g. industry or charitable foundations) research grant funding, as well as clinical trial funding, where appropriate.

3. Prospective candidates, who are interested to take the CS / CIN / CIV paths, may approach the respective Leads for advice and guidance regarding career paths for these categories.

   CS Lead: Assoc. Prof Darren Lim Wan-Teck (email: darren.lim.w.t@singhealth.com.sg)
   CIN Lead: Assoc. Prof Derrick Chan (email: derrick.chan.w.s@singhealth.com.sg)
   CIV Lead: Assoc. Prof Deidre Anne De Silva (email: deidre.desilva@singhealth.com.sg)

4. The Review Panel may determine the quantum and tenure of any individual award and may also impose specific condition(s) on the potential candidate to undertake. The quantum and tenure of award and / or specific conditions shall have to be accepted by the candidate and the ACP concerned as a pre-requisite for the Review Panel to recommend the candidate to the award committee for an NCRS award. The sum awarded shall be inclusive of all related costs, including miscellaneous expenses imposed by the candidate's host institution or relevant agencies. Fund disbursements shall be on an annual basis.

5. **Each NCRS awardee must enrol into Duke-NUS CCS⁺D's (Centre for Clinician Scientist⁺ Development) Individual Development Plan (IDP), with the aim of preparing for a national grant application by the end of their NCRS award period.** They may be further advised to join the Khoo

Scholars Programme and / or the ACE in Grants Programme that are run by CCS+D, as deemed appropriate by their CCS+D mentors.

6. **Each awardee, with endorsement and support of his / her HOD, is expected to have at least 20% protected time** set aside for research. While the awardee is in the IDP / Khoo Scholars Programme, requirements of the programme(s) shall apply. For an awardee who is a Resident with PhD, ACGME residency guidelines shall then apply.

7. The ACP Vice Chair (Research) and Academic Chair are responsible for all deliverables required of the ACP under the NCRS.

8. Successful NCRS awardees will be scheduled for a mid-term review within the grant duration.

9. Upon successfully attainment of the NCRS main deliverable (i.e. awarded NMRC or other national / external grants as indicated in pages 5-6), the degree of overlap between the research projects proposed for NCRS and the national / external grant and NCRS grant utilisation will be reviewed. Any double-dipping of funds is discouraged and JOAM will work with the awardee and ACP on the next steps on a case-by-case basis after he / she has garnered a national / external grant. No NCRS grant extension period will be considered upon receipt of any NMRC Award.

   The possible actions include:
   (a) Cessation of NCRS funding if there is high degree of overlap between research projects proposed for NCRS and the national / external grant; or
   (b) Continuation of NCRS funding with reduction in quantum to prevent double-dipping; and / or
   (c) Withdrawal of institution-funded FTE support if already provided by NMRC

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Eligibility Criteria for the Candidate: *(at the point of application)*

1. The NCRS candidate should be a qualified medical doctor / dental specialist registered with the Singapore Medical Council (SMC) / Dental Specialist Accreditation Board (DSAB) respectively, and employed to perform clinical duties in a SingHealth institution (hereinafter referred to collectively as "clinicians"). Additional SMC or DSAB certified qualifications, such as PhD, MCI or equivalent, are preferred.

2. With the aim of supporting residents who are on a research trajectory to start their research career as soon as they exit from residency, residents who are in their **final year of residency** and **have a MD-PhD / MBBS-PhD background (including A*STAR MD-PhD Scholars / Duke-NUS MD-PhD graduates) and SingHealth CS-Residents in final year of residency** are eligible to apply for this talent development funding support if the following 2 criteria are met: ***revised**

   (i) Expected to be employed by one of the SingHealth Institutions after official exit from Residency before / by grant start date of 1 October 2024 (FY2024 Cycle 2)
   (ii) Expected to become an Associate Consultant shortly after joining the SingHealth Institution

   The candidate must be **supported by the potential employing institution and the ACP with which the nominee will be associated, upon their successful exit from their Residency Training Programmes**.

   **Kindly note that the applicant is only eligible for the funding support if he / she meets criteria (i) and (ii). Residents are encouraged to prepare and apply no more than 6 – 12 months before the official exit from Residency.*

3. A nursing or allied-health practitioner with a relevant PhD qualification, who performs clinical duties and aspires to become a clinician-researcher, working on human clinical research that has potential health impact, may be considered. **Such a nominee must be strongly supported by the ACP with which the nominee is associated**.

4. The nominee must not be a scientist or staff with non-medical degree and whose primary career commitment is to perform research.

5. The nominee must not be past recipient of a NCSS / NCRS award.

6. **After receiving the NCRS grant**, the applicant **must not have received <u>internal funding</u>** (e.g. institution funding, SingHealth Duke-NUS AMC funding) to conduct their own research project as

PI which **cumulatively exceeds S$300,000,** and **must not have received internal and external funding** (e.g. industry, external funding agencies) to conduct their own research project as PI which **cumulatively exceeds S$500,000**. This is to ensure financial prudence and that the applicant can fulfil the eligibility criteria for NMRC CS-IRG-NIG application, in the event that the NCRS awardee is unable to secure a TA or CSA-INV award.

7. *For a clinician (with MBBS / MD / BDS) applying for NCSA / NCIA, the **maximum number of years after exiting from specialist training should not exceed 5 years**; and for a PhD holder who is applying on an exception basis, the **maximum number of years of post-doctoral experience is 5 years post PhD**. [This is to align with NMRC's eligibility criteria of ≤8 years post specialist exit / post PhD for TA application].*

8. A CIVDA candidate should demonstrate **prior research experience** such as past / current participation in research, with **at least 3 publications**.

9. All candidates must include a Career Development Plan endorsed by the ACP Academic Chair, which briefly outlines steps to be taken over the immediate next 5 years to put the nominee on track to becoming a clinician researcher.

10. The ACP must commit to set aside at least 20% protected time for the awardee to perform the research (Khoo Scholars programme in terms of protected time will apply where applicable). The associated cost shall be borne by the awardee's host institution.

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Appendix 1

RESOURCES ON GRANT / RESEARCH PROPOSAL WRITING

There are available resources from the SingHealth Duke-NUS AMC on grant / research proposal writing that applicants can refer to for guidance on preparing their Research Write-Up.

Resources on writing grant proposals from the **SingHealth Researcher Handbook** (prepared by the SingHealth Office of Research):

1. Technology Enhanced Learning (TEL), Duke-NUS contains online learning courses delivered by world-class experts, including the acclaimed Prof John Rush. The tutorials can be found under the tab VAP Resources (Voice Annotated Presentations):
   i. Writing a Research Proposal – Aims and Significance (*e.g., Aims and hypothesis – How are they related; Developing a research grant proposal; Top 10 reasons for why grants are not approved*)
   ii. Writing a Research Proposal - Methods and Analysis (*e.g., Introduction to study design*)

2. Free available papers and slide decks on Grantsmanship:
   i. Considerations in Supporting & Developing Health Technologies. Teo Cher Hwa (Director, NHIC). This slide deck is an especially useful primer for healthcare innovation grants and understanding the landscape – from a funding 'insider'.
   ii. The Science of Scientific Writing. George D. Gopen and Judith A. Swan (American Scientist, Volume 78) This is the original seminal paper by Gopen and Swan
   iii. Fundamental principles of writing a successful grant proposal. Chung CK, Shauver MJ. (J Hand Surg. 2008;33A:566 - 572)
   iv. Why Academics Have a Hard Time Writing Good Grant Proposals. Robert Porter. (Journal of Research Administration; Fall 2007; 38, 2; ABI/INFORM Global pg. 37)
   v. Writing a Successful NIH Mentored Career Development Grant (K Award). Malcolm V. Brock and Michael Bouvet (Ann Surg. 2010 Jun; 251(6): 1013–1017) This is particularly useful for talent development type awards where some of the focus is on the individual candidate.

3. Paper available through subscription on Grantsmanship:
   i. An Evidence-Based Guide to Writing Grant Proposals for Clinical Research. Inouye and Fiellin. (Ann Intern Med 2005; 142: 274 - 282)

Other resources:

4. The **Clinician Investigator Development Programme (CIVDP) from the Appointments and Development Department (ADD), Duke-NUS** has catered its programmes for clinicians to learn the methodologies and application of research, relevant to their clinical practices.

   Recordings of the **Research for Emerging Academic Clinicians in Healthcare (REACH)** Seminars on topics relating to grants landscape & support programmes, scientific writing, statistical support, etc are available on the REACH website.