

THSTI Early Career Medical Research Awards

1. Goal

The goal of the ECMRA is to strengthen and expand the pool of physician scientists in the country. THSTI has created these awards to nurture outstanding young physicians who have a strong aptitude towards research and a desire to grow into independent principal investigators.

2. Areas of research

The mandate will be to bridge epidemiology and biomedical research to develop robust interventions and solutions for **maternal and child health**.

3. Research Plan

3.1 Overall Aim: The aim will be to provide rigorous, high quality training for doing hypothesis driven research to the ECMR awardees (ECMRa). The physicians granted the award will be expected to generate new hypothesis driven innovative (intellectually challenging) research ideas in the area of **maternal and child health** and learn to drive a research process.

3.2 Specific Plan:

3.2.1 Generate New Innovative Research Ideas

The ECMRa will be expected to develop at least *two-three new research questions* after extensive reading of literature and intensive brain storming discussion with the mentors (details on the research mentors is elaborated below). Some examples of the relevant domains would be (i) discovery research linking classical epidemiology with molecular mechanisms for clinical benefits, (ii) systems biology approach to solving important clinical and public health problems (iii) observational studies that would help in expanding on epidemiology of diseases, standardizing case definitions and identifying significant clinical, environmental and social determinants, (iii) intervention studies to identify effective diagnostics or preventive or therapeutic interventions, (iv) expanding knowledge in implementation science, and novel technology around interventions

3.2.2 Prepare *Letter of Intent*

The ECMRa will be asked to prepare a three (maximum four) page *Letter of Intent* (LOI) for each of their research question that would need to include the following:

- i. Hypothesis driven/ discovery based substantive question about biological processes or disease mechanisms, diagnosis or treatment that can be tested experimentally
- ii. Scientific and medical importance of the question
- iii. Experimental model and why it was chosen
- iv. A very clear **PICOT** should be outlined wherever applicable
- v. Data analysis plan and quantitation methods if applicable

3.2.3 Review of LOI

The ECMRAa will be provided an opportunity to present these LOI to a *Panel of Mentors* who score the LOI and facilitate a filtration of the research ideas to identify the final research program.

3.2.4 Develop and Execute the Research Plan

The ECMRa will be guided to develop a full proposal and seek extra mural grants. They will be expected to expand on the four areas identified in the LOI, elaborate in detail about the study/ experimental design, the expected sample size and the plan of analysis.

Ideas generated by the Awardees that crystalize into specific projects will be credited in the form of some core funding support, publications and other credits as decided by the institution. They will be provided technical guidance to conduct the study. The ECMRa will be encouraged to seek extra mural grants through a competitive process.

THSTI has established long standing collaborations with the nearby district hospital at Gurgaon and effective inter-institutional alliances with other medical, engineering, biology centres across the country & overseas (details provided on the website). The research process initiated by the ECMRa will be facilitated through these collaborations.

More specifically PBC has established a cohort of pregnant women at the Gurgaon district hospital who are being followed from early pregnancy, before 20 completed weeks of gestation until delivery to capture their exposure to important environmental, clinical and biological factors and to assess associations of these factors with preterm birth. A bio bank of longitudinally collected varied bio specimens of these pregnant women with well characterized information on environmental, clinical, social and epidemiological determinants at different time points in pregnancy has been established. We envisage that this cohort with its repository of bio specimens and ultrasound images will provide a platform to the ECMRa to develop their new hypothesis driven studies.

4. Mentoring and Training

4.1 Primary Mentor

Each EMCRA will be attached to a primary mentor who will be principally responsible for providing high quality mentorship to the ECMRa. The mentor will conduct brain storming sessions with the ECMRa to help them learn the process of idea generation. He/she will be responsible for facilitating the process of writing a LOI and then a full proposal. The mentor will also ensure that the ECMRa completes all his/her training program.

4.2 Panel of Mentors

A panel of mentors will be available for seeking advice by the candidate in addition to the primary mentor. They will be experts from the fields of pediatrics, gynecology, community medicine, medicine, biostatistics, epidemiology, public health, cell biology, microbiology, immunology, geneticists, microbiology. The ECMRAa will be expected to present their LOI to this *Panel of Mentors* who will facilitate a filtration of the research ideas to identify the final research program. The *Panel of Mentors* will also function as “auditor guides” where their role will be to provide critical feedback to the research program initiated by the ECMRA at regular intervals.

4.3 Training

Extensive opportunities will be provided to learn clinical research methodology, big-data management and lab research methods. This will be facilitated through focused workshops, scientific meetings, teaching symposiums and faculty lectures as described below.

- i. The ECMRA will be expected to participate in the following scientific meetings/workshops:
 - Three INCRED workshops (coordinated by the COE-CDSA consortium) in a year
 - Three week *laboratory immersion workshop* (coordinated by THSTI) to enhance lab based skills
 - Scientific meetings at THSTI to interact on their research ideas with the *Panel of Mentors* and other experts
 - Participate in at least one national/international meeting to present their research work before their term is over
 - Other relevant domain workshops/symposiums that are considered to be important learning opportunities for developing their careers
 - Scientific talks by leading physician scientists and biologists
- ii. An opportunity to join the THSTI-JNU Ph.D. program will be available but will not be mandated. If the EMRAa join the Ph.D. program they will have the option of attending some of the structured Ph.D. course work that includes courses in laboratory experimental biological methods, clinical research methods, advanced epidemiology, biostatistics, immunology, and infectious disease epidemiology to name a few.
- iii. The EMRAa will be expected to learn the data management processes at the Data Management Centre at THSTI. There will be opportunities to learn big data management such as the large genomics and proteomics data emerging from the clinical studies using Web Application Programming Interface, and Visual Basic for Application for database development.

5. Selection process

The applicants to this program will interact with some of the members from the *Panel of Mentors* as part of the selection process. An ideal candidate should hold a MD degree (preferably in Medicine, Pediatrics, Gynecology, Community Medicine).

The selection committee will assess domain knowledge but more importantly the capacity to think independently, the aptitude to clinical research and the enthusiasm to pursue a career in research.

6. Matrix of success

The matrix of success will be evaluated on the following:

- i. LOI at the end of first 3 months by the Principal Mentor and the Panel of Mentors
- ii. Development of full proposal by the Principal Mentor and the Panel of Mentors by the end of 6 months
- iii. Extra mural grants generated by the end of 12-18 months
- iv. Learning of research methods
- v. Conduct of the study and analysis of results
- vi. Publications

7. ECMRA Web Page

A webpage will be created for the ECMRA program that will provide a structure of the program, the potential mentors and their CVs, a summary of research programs that are ongoing (directly or through links that connect to the relevant pages) and the advisory group.

It will also provide easy to understand examples of what the endpoint and intermediate outcomes of the program are.

8. Administrative terms and conditions

The award shall normally be for the duration of three years which may be extended by two more years, subject to satisfactory progress, based on a review by the committee of experts and their recommendations. The award carries a consolidated stipend of Rs. 75,000/- per month.

Mrs. Vidhya Krishnamoorthy, Professional Expert at the External Relations and Institutional Development (ERID) office of THSTI will be the nodal person for this program.