

EMHSeed Information Session

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EMHSeed Program

- Initiated in 2015, with goal of leveraging UofT's combination of world-class engineering and world-class medical research
- Provides seed funding for innovative research partnerships between Engineering, Medicine, and the TAHSN¹ Research Institutes

1 - Toronto Academic Health Sciences Network

EMHSeed Program

Engineering	Medicine
Engineering co-PI	Medicine/Hospital co-PI
\$15k /yr from Department/Institute	15k /yr from Department/Institute
\$15k /yr from the Faculty or TBEP (decided by the committee, after submission)	\$15k /yr from the Faculty or TBEP (decided by the committee, after submission)

EMHSeed Program - Criteria

2-page proposals + attachments (typically letters of cash support from departments/institutes) addressing:

- ✓ **A new opportunity.** Typically, PIs will not previously have collaborated. Priority will be given to research teams that include at least one coPI in her/his **first 10 years as a faculty member**.
- ✓ **A clear overarching goal.**
- ✓ **Excellence in research.** Solve an important, unsolved, problem at the engineering-medicine interface.
- ✓ **A clear plan on collaboration.**
- ✓ **A gateway to a major funded partnership.**
- ✓ **Compelling annual milestones.**

EMHSeed Program – Feedback from 2016

Feedback from last years' committee:

1. Applicants should clearly define role of each partner and pay special attention to the criteria section in the call for proposals and address each criterion explicitly and clearly.
2. One of the applicants should be a researcher within her or his first 10 years as a faculty member.
3. The project should be a true collaboration, not two related, parallel projects.
4. The applicants should not have collaborated before.
5. Applicants should clearly define student role, specific goals and methodology, and clear source and availability of data.
6. This is *seed* funding. The proposal should describe clearly and as specifically as possible how and where it will lead to a major grant application.

List of supporting letters received from Departments/Hospitals

Round 1		Round 2	
FASE Dept	FoM Dept/ Hospital	FASE Dept	FoM Dept/ Hospital
MIE	Anaesthesia / HSC	MIE	Bloorview
IBBME	Anesthesia / St. Michael's	ECE	CAMH
ECE	Biochemistry / CCBR	IBBME	HSC
MIE	Bloorview	IBBME	Lab Medicine and Path.
ECE	CCBR	IBBME	Lunenfeld
CHE	Immunology	MIE	Med Imaging
MIE	LMP/ MSH	ECE	Med Imaging
ECE	Medical Imaging / HSC	ECE	Medical Biophysics/Surgery/PMH
ECE	Medical Imaging / St. Michael's	MIE	Medicine/SMH
IBBME	Medical Imaging / Sunnybrook	IBBME	Medicine/Women's College
MIE	Medical Imaging / TGH	ECE	Psychiatry / CAMH
IBBME	Medicine / TGH	MIE	Psychiatry / St. Michael's
IBBME	Medicine / TWH	IBBME	Sunnybrook
CHE	Medicine / UHN	ECE	Sunnybrook
MIE	Medicine TGH/ Surgery - HSC	MIE	Sunnybrook
CHE	Microbiology / Sunnybrook	MIE	Surgery
IBBME	Molecular Genetics / CCBR	MIE	Surgery / HSC
MIE	Obstetrics and Gynecology / MSH	MIE	Surgery / TGHRI
IBBME	Physiology / UHN	ECE	Surgery/HSC
ECE	Psychiatry / CAMH	IBBME	TRI- UHN
MIE	Psychiatry / St. Michael's		
MIE	Surgery / HSC		
MSE	Surgery / Sunnybrook		
MIE	Surgery / TGH		
IBBME	Surgery / TWH		
MIE	Surgery /MSH		

EMHSeed Stats

	Round 1	Round 2
	(2015-16)	(2016-17)
Applications received	41	26
Applications awarded	11	9
Success rate	27%	35%
Projects sponsored by MbD	2	1
Projects sponsored by TBEP	2	2
No. of PIs involved in EMHSeed projects	24	19
No. of students involved	*26	*19
Total awarded funding	\$ 660,000	\$540,000

* obtained from proposal (typically each project would train and supervise two students)

EMHSeed Program - Criteria

- Submissions due to vdr@ecf.utoronto.ca by **5PM, Dec 8, 2017**
- No MRA submission required
- Questions?
- Open Discussion/Networking/Planning

Call for proposals to EMHSeed:
Seeding innovative research partnerships between
Engineering, Medicine, and the TAHSN Research Institutes

The **EMHSeed** program is welcoming proposals for new collaborative projects beginning as early as January 2018. Each project will bring together an Engineering coPI and a Medicine/Hospital coPI. A basic requirement for each coPI is that each be appointed such that they can hold, as PI, grants such as NSERC or CIHR.

Funding is available for at least 6 EMHSeed projects, and additional EMHSeed projects may be funded if they align directly with the research goals of the Ted Rogers Centre for Heart Research Translational Biology & Engineering Program (<http://TedRogersResearch.ca/for-researchers/funding/define-hff>).

Background. EMHSeed is motivated by the recognition that UofT has one of the world's leading Engineering faculties, and UofT/Toronto have world-class basic, pre-clinical, and clinical research in its Faculty of Medicine and its hospitals. There exists an urgent need – and for UofT and its affiliated hospitals, the remarkable opportunity – to develop innovative tools to advance the health sciences. Examples include:

- Molecular methods to aid in the rapid and specific diagnosis of disease based on nucleic acids, proteins, and small molecules found in the bloodstream. (*Example areas of interest include biomarkers, stem cell biology, nanotechnology, microfluidics, cell signaling, microfabrication, integrated circuit design, molecular synthesis, signal processing*);
- The systematic search for, and discovery of, novel genetic targets for advanced molecular therapies. (*Example areas of interest include: genomic and proteomic analysis, machine learning, artificial intelligence, management of large data sets, software architecture, heterogeneous computing.*)
- Materials, devices, and systems to aid in rehabilitative medicine, such as by forming machine: patient sensing and stimulus feedback loops. (*Example areas of interest include: neuroengineering, biomechanics, intelligent prostheses, electrical and biochemical sensing, systems control, signal processing, systems engineering.*)

EMHSeed develops a grassroots mechanism wherein a pair of coPIs from Engineering and Medicine/a Hospital Research Institute build a high-impact project that, in 2 years, generates results to enable applications for large-scale research funding.

Eligibility:

The budget for each EMHSeed project will be \$60,000 CAD/year for 2 years. In exceptional cases a no-cost extension for an additional year will be considered. The \$60,000 CAD/year amount is the sum total of cash invested by each of the two Faculties and each of two units (e.g. department, institute, hospital) for each project. **2-page proposals are due by email to vdr@ecf.utoronto.ca by close of business Dec 8, 2017, and should address the criteria below.**

Criteria to be addressed in each EMHSeed proposal. We recommend 2-page proposals + attachments (typically letters of cash support from departments/institutes). Proposals must demonstrate:

- 1) A new opportunity.** Typically, PIs will not previously have collaborated – EMHSeed seeks to attract new researchers that have not previously partnered across engineering-medicine domains. For example, engineering researchers may wish to apply their capabilities (micro/nanofabrication, signal processing, big data analytics, electromagnetism, computational algorithms, etc.) to solve important health sciences problems (specific diagnostics, therapeutics, image analysis, etc. challenges.). Priority will be given to research teams that include at least one coPI in her/his first 10 years as a faculty member and those who have not received funding from EMHSeed previously.
- 2) A clear overarching goal.** The project should have a clear end goal, such as a key finding, a compelling prototype, or a persuasive data set that paves the way for larger funded projects.
- 3) Excellence in research.** The researchers should provide evidence of established or emerging leadership in their area(s); and should show how their expertise will compellingly be united to solve an important, unsolved, problem at the engineering-medicine interface.

- 4) **A clear plan on collaboration.** How will the coPIs ensure that the graduate students work closely together? How will they define goals and milestones for the students that intertwine activities and ensure meaningful partnership? How will research planning, use of space, use of infrastructure, and supervision all be shared and harmonized across the collaborating teams?
- 5) **A gateway to a major funded partnership.** Winning proposals will demonstrate that the EMHSeed support paves the way to major externally sponsored research. For example, the coPIs can show how the anticipated results of the project will provide the basis of at least 3 grant applications, to be submitted before the 2nd year anniversary of their EMHSeed project start, to agencies such as Genome Canada, ORF-Research Excellence, CIHR Team Grant, CIHR Project Scheme, CIHR POP, NSERC-CIHR CHRP (Collaborative Health Research Project), NIH technology development grants. coPIs should specify the dates of competitions they intend to apply to.
- 6) **Compelling annual milestones.** The project will offer compelling milestones that are the basis for renewal for a 2nd year and, if exceptional performance / stretch goals are met, possibly renewal for a 3rd year.

Budget:

Each project will receive:

\$15k CAD/year from the Faculty of Applied Science and Engineering (this will be committed following a positive decision from the EMHSeed adjudication process)

\$15k CAD/year from the Faculty of Medicine (this will be committed following a positive decision from the EMHSeed adjudication process)

\$15k CAD/year from a Department or Institute within Engineering. This must be committed via a letter from the Department Chair/Institute Director attached to the EMHSeed application.

\$15k CAD/year from a Faculty of Medicine or Academic Department or TAHSN Research Institute. An analogous commitment letter must be attached to the EMHSeed application.

The above-mentioned contributions are cash contributions, i.e. the contributors must all explicitly agree to transfer the funds in support of the project into the PI account. The department contributions can be conditioned on success in the EMHSeed process. In addition, in-kind support may also be expressed in letters and will be taken into consideration in the adjudication process.

Receipt of funding for the second year is contingent upon on a satisfactory progress report. A final report will be due at the end of the second year of the project.

Use of funds. EMHSeed will prioritize the use of funds to support typically two collaborating graduate students, one earning a graduate degree in an Engineering unit, the other in a Medicine/Hospital unit. The graduate students will join together on a project at the engineering-health sciences interface. They will be jointly advised by the coPIs and will work on an important problem whose solution will unlock a large w partnership or innovation opportunity.

Submission process. Please email applications (~ 2-pager + attachments) to 2-page proposals are due by email to vdr@ecf.utoronto.ca by close of business Dec 8, 2017. They should include the term EMHSeed in the subject line. All documents including cash commitments must be received by the Dec 8, 2017 deadline.

Adjudication process. A 5-person committee of Engineering, Medicine, and TAHSN senior researchers has been constituted. The committee will review proposals received by Dec 8 against program criteria. Decisions will be reported in early 2018.