REQUEST FOR PROPOSALS
MING HSIEH INSTITUTE FOR RESEARCH ON ENGINEERING-MEDICINE

APPLICATION DEADLINE: 5 pm, Monday, January 24, 2022

PURPOSE
The Ming Hsieh Institute for Research on Engineering-Medicine for Cancer (MHI) aims to make USC an international leader in translational research that bridges basic science, engineering, computing, and medicine. The MHI was established in 2010 through a generous gift from Ming Hsieh, a graduate of the USC Viterbi School of Engineering, founder of Cogent Systems and Fulgent Genetics, USC Trustee, and a member of the National Academy of Engineering and the National Academy of Inventors. The central goal of the institute is integrated interdisciplinary translational research that speeds discovery and creates pathways to rapidly improving lives of patients. The MHI is strongly committed to supporting new and creative approaches and breakthrough interdisciplinary ideas that turn advances in engineering, computing, and science into treatments and cures.

AREAS OF INTEREST
To encourage innovative and impactful research, the MHI recognizes the importance of supporting a broad research portfolio of targeted diseases within this solicitation, encompassing approaches that bridge science, engineering, computing, and medicine. To fulfill this aim, we seek proposals with novel therapeutic or diagnostic approaches to detect or treat disease. We seek proposals that will initiate multi-disciplinary research teams that partner engineering, computing, AI/machine learning, computational biology, physics, and/or chemistry with clinicians and biomedical researchers.

TOPICS ELIGIBLE FOR FUNDING
The Ming Hsieh Institute supports:

- **Track 1 - Pre-clinical work:** we seek proposals led by engineering, computing, AI/machine learning, computational biology, physics, and/or chemistry, where a clinical perspective informs and guides research toward medical solutions.

- **Track 2 – Clinical/late stage translational work:** we seek proposals that bring together already developed technologies or therapies with clinical patient populations for human testing, pre-clinical animal testing, or proof-of-concept projects toward a specific commercialization goal.

Previous awardees can be found here: [https://mhicancer.usc.edu/research/](https://mhicancer.usc.edu/research/)
ELIGIBILITY REQUIREMENTS

Each proposal must have a team of two or more USC faculty principal investigators. The team of PIs/co-PIs must hold primary faculty appointments in at least two different USC schools.

- **Track 1:** Teams must include a lead PI from engineering, computing, AI/machine learning, computational biology, physics and/or chemistry, partnered with biomedical researchers that may also include pharmacy and dentistry. Teams must include at least one physician (MD), as a co-PI or in an advisory/collaborator role, and whose current clinical practice includes serving patients in the area of the specific disease for which the research is proposed.

- **Track 2:** We seek multi-disciplinary research teams that partner clinicians and biomedical researchers with engineering, computing, AI/machine learning, computational biology, physics, and/or chemistry. Teams must include at least one co-PI who is a physician (MD), whose current clinical practice includes serving patients in the area of the specific disease for which the research is proposed.

*Faculty Rank:* Applicants must be full-time faculty at USC at the start of the award period. Tenure track, non-tenure track, and research faculty are all eligible. Adjunct or visiting faculty are not eligible to apply. Recipients must be faculty of USC during the entire award period.

A prior MHI grant recipient may apply for a second and final year of funding under this program but must demonstrate that promising results have been achieved and that an effort is underway to seek additional external funds. Requests for a second year of funding must be submitted as a full proposal and will be reviewed with other proposals received for the award cycle.

TYPES OF SUPPORT

Ming Hsieh Research Awards provide up to $150,000 (Track 1) and up to $350,000 (Track 2).

Permissible expenses include:

- Research materials, small equipment, and supplies, and other direct project costs that are necessary to carry out the proposed research, including computers, software, lab materials, etc., (up to $60,000).

- Salary support for post docs, graduate student RAs, undergraduate researchers, and other student wages.

- Salary support for USC staff technicians/study coordinators.

- Research expenses related to data acquisition, as well as the use of core or shared resource facilities.

GRANT CONDITIONS

- Awardees have discretion in the budgeting and re-budgeting of funds to meet their research needs within the guidelines of the fund and the terms of the proposal. However, funds may not be transferred to another project or to other researchers or institutions.

- Awards include fringe benefits but are not assessed facilities & administration costs (indirect costs); sub-contracts are not permitted under this program.
• Recipients have 12 months from the date funds are received to complete projects. Funds not expended by that time are returned to support other Ming Hsieh grants.

• Awards do not fund faculty salary.

• Awards do not fund student tuition and other student fees (such as health insurance).

• Awards do not pay for consultants/contractors.

• The Ming Hsieh Research Award is not intended to duplicate currently funded efforts or to provide interim bridge funding.

• Permanent equipment required for the conduct of a research project, and purchased with MHI funds, becomes the property of the University.

• All USC rules with respect to conflict of interest, human subject research, animal research, etc., apply to projects funded under this program. Funding will only be provided following confirmation that all pertinent reviews have been submitted for approval by relevant committees (e.g.: IRB, IACUC).

• All faculty, staff, and students employed under an MHI grant must complete assignment of USC created intellectual property through the IP-ACT system.

• Federally-sponsored faculty are required to take a newly developed invention disclosure training course (The Basics of Bayh-Dole) found at http://trojanlearn.csod.com/. Funding will only be provided following confirmation of course completion (if applicable). The course takes 12 minutes to complete and informs USC researchers on how and why to disclose inventions. Contact Donaldson Santos or Ruben Flores-Saaiib with any questions.

RESEARCH PROPOSAL EVALUATIONS

Research proposals submitted to the MHI are evaluated by interdisciplinary panels comprised of USC and non-USC faculty, and by the USC Stevens Center for Innovation for their commercialization potential. Not all proposals can be funded and some may be funded at less than the requested amount. In reviewing research grant requests, the faculty review panel will consider:

• Likelihood that the research will be translated into human tests that benefit patients.

• Innovation in the research concept and research approach.

• Relevance of the proposed work to real-world disease challenges.

• Qualifications and experience of the research team in technology commercialization, as shown in prior invention disclosures and patent applications, as well as likelihood that they will succeed in achieving project aims.

• Likelihood that project can be leveraged toward new external funding.

• Commercialization and licensing potential of the proposed research.

• For a previously funded team, accomplishments to date, progress toward clinical translation, and external funding obtained for the project/research direction.

NOTIFICATION AND TERM OF AWARD

Reviewer comments are presented at the annual meeting of the MHI Steering Committee for final
determination on which proposals merit funding and at what amount. Proposers will be notified by June 2022. Funds will be available in August 2022. Funds that are not expended at the end of the award period will be returned to the Ming Hsieh Institute.

REPORTING AND ACKNOWLEDGEMENT OF SUPPORT

As a condition of the award, MHI awardees are required to submit a brief progress report in March 2023. A request for the final report (including an accounting of expenditures and any external support received) will also be sent to awardees at the close of the grant period, indicating required information. These reports will be reviewed and portions of the report may be reprinted to build support for the institute among the university community and to make decisions about how best to use the funds to promote productivity in the future.

Any publication or creative endeavor arising from work supported by the fund must acknowledge the Ming Hsieh Institute for Research on Engineering-Medicine for Cancer. Links to those publications should be shared with the Office of Research. The Office of Research should also be informed of any grant submissions/awards for which Ming Hsieh funds were used.

FURTHER INFORMATION AND PROGRAM CONTACT INFORMATION

Questions about the MHI Research on Engineering-Medicine for Cancer award or the application submission process can be directed to Melody Pham at orif@usc.edu.

For submission instructions, see the Proposal Guidelines.
REQUEST FOR PROPOSALS
MING HSIEH INSTITUTE FOR RESEARCH ON
ENGINEERING-MEDICINE FOR CANCER

GUIDELINES

PROPOSAL GUIDELINES

Before preparing a proposal, applicants should read closely the program description, including the sections on eligibility and evaluation criteria.

Proposals must be submitted using the online application system of the Office of Research Initiatives & Facilities (here).

Format: Proposal documents should be written using a standard font, 12 point, single-spaced, with one-inch margins. Documents should be uploaded as PDFs.

PROPOSAL COMPONENTS

Cover page information (to be filled out on-line)

a) PI and co-PI contact information and 10-digit USC ID number;
b) Proposal title;
c) Budget: total requested;
d) Is USC Committee approval required? (Check box to indicate all applicable, such as IACUC, IRB, etc.).
e) Does the PI or co-PI(s) have federally-sponsored grant funds?

Sections to be uploaded: It is requested that applicants follow instructions carefully and do not submit additional materials not requested by this RFP. Information that is uploaded beyond what is requested will not be included in the proposal package provided to reviewers.

a) Abstract: (not to exceed 20 lines of text) The project abstract is meant to serve as a succinct and accurate description of the proposed work when separated from the application.

b) Project Narrative: (not to exceed 6 pages) No other ancillary text, appendices, etc., will be accepted; page limits are inclusive of figures and tables. The narrative must include the following components (use headers below):

i. Introduction
   Provide a brief background and the specific aims of the project. Explain the project’s specific innovations and significance for improving the treatment and diagnosis of the targeted disease.
ii. **Prior Work**  
Describe prior experience in the proposed area of research. Explain areas in which the prior work needs to be advanced towards clinical translation. If an applicant has previously received funding from the Ming Hsieh Institute, describe: (1) prior research aims and accomplishments, (2) proposals that have been submitted or will be submitted to external funders, (3) progress toward clinical translation and (4) how the proposed new project builds from the prior outcomes.

iii. **Commercialization Potential**  
Describe the current state of the market as well as the commercialization, licensing and/or IP potential of the proposed technology or method.

iv. **Patient Population**  
Describe the types of patients that would benefit from the proposed approach, and the disease that would be targeted through the research. Also describe the pathway that the research will take toward human clinical translation.

v. **Methodology**  
Present the technical approach that will be followed in the project, including any aspects of experimental design.

vi. **Outcomes**  
Describe the anticipated outcomes of the project and how the project results will be disseminated. *Provide a clear timeline table and specific milestones to be achieve.*

vii. **Qualifications and Organization**  
Provide the qualifications of the research team for the proposed work and describe how the skills of the PI team complement each other to achieve the project aims. Describe how the project will be organized and the contributions of each participant.

viii. **Future Activity**  
Describe the future plans to extend the proposed research through external funding. Also, describe the timeline and approach for taking the proposed research into clinical translation.

c) **References:** (not to exceed one page).

d) **Budget Justification:** (not to exceed one page) Provide a justification for the project budget, explaining why the proposed expenses will achieve the project aims, and how the funding will be shared between the PIs.

e) **Current Funding:** List all current sources of internal and external support, or pending, both as PI or co-PI. For each, give the title, period, amount, sponsor, and describe the relationship of each to the current proposal. In cases in which existing funding appears to be similar to the proposed project, take special care to explain the differences.

f) **Curriculum vitae:** (not to exceed 5 pages) Summary vitas, per PI, should be provided. Applicants may use any standardized CV format, or institutional ones (such as the NIH Biosketch, etc.).
g) **Patents & Licenses:** Provide a list of invention disclosures, patents and licenses (per PI) as a single PDF.

h) **Letter of Support (optional):** You may provide a Letter of Support of your proposed research from your department chair or school dean identifying the specific support to be provided, but it is not a requirement.

**PROPOSAL SUBMISSION**

Submit your proposal application utilizing the Office of Research Initiatives & Facilities application submission and reporting portal.

Go to [https://orif.usc.edu/oor-portal/](https://orif.usc.edu/oor-portal/) to log in (or create an account for yourself), using your USC email address.

**APPLICATION DEADLINE: 5 pm, Monday, January 24, 2022**

*Proposals submitted after to the above-mentioned deadline will be rejected without review.*

**Signatures:** By submitting the online application, applicants indicate their agreement to comply with the terms and conditions of the Ming Hsieh Institute for Research on Engineering-Medicine for Cancer award program as well as all other applicable USC policies.

**FURTHER INFORMATION AND PROGRAM CONTACT**

For additional information or inquiries about the Ming Hsieh Institute for Research on Engineering-Medicine for Cancer award application submission process, please contact: Melody Pham at orif@usc.edu.