

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



APPLICATION DEADLINE: 5 pm, Monday, January 22, 2018

PURPOSE

The Ming Hsieh Institute aims to make USC an international leader in translational cancer research that bridges basic science, engineered devices, synthesized molecules and materials, and medicine. Established in 2010 through a generous gift from Ming Hsieh (a USC graduate of the Viterbi School of Engineering and founder of Cogent Systems), the centerpiece of the Ming Hsieh Institute is integrated engineering, scientific and medical research that speeds discovery and creates the pathways by which research rapidly improves the lives of patients living with cancer. By embarking on this new interdisciplinary direction, we aim to develop new targeted therapeutic approaches to cancer. To achieve these goals, the Ming Hsieh Institute for Research on Engineering-Medicine for Cancer award provides up to **\$140,000** in research support.

The Ming Hsieh Institute seeks proposals that:

1. Will initiate new *nanomedicine* multi-disciplinary research projects and that show exceptional promise for translation into human clinical trials for treatment of cancer, or
2. Aim to develop new *targeted immunotherapeutic approaches* to cancer.

The Ming Hsieh Institute seeks proposals that will initiate *multi-disciplinary research teams* employing computational biology, protein chemistry, physics, chemistry, pharmacology, and/or engineering, for the purpose of developing new treatments or diagnostics for patients with cancer. Proposals should demonstrate that a modest seed investment will have significant impact, either through initiating a novel research concept with a clear clinical application, or accelerating research into clinical trials.

AREAS OF INTEREST:

Types of research targeting cancer include:

Nanomedicine:

- Methods that combine therapies with diagnostic/theranostics, using multifunctional nanoparticles to image the tumor, provide targeted treatment and assess in real-time the therapeutic action.
- External activation of nanoparticles as a mechanism for non-invasive local delivery of drug and/or tumor ablation.
- Nanoparticles, including their synthesis, genetic engineering, surface engineering and characterization that can be readily tailored for functionality toward specific clinical applications, as well as other novel therapeutic concepts made possible by nanoscale approaches.

- Biomarkers that can be exploited to attach nanoparticles to specific cancer cells.
- Nanoparticle delivery of DNA/RNA-based therapies.
 - * Optimization of dosing regimen and formulation;
 - * Studies that establish the safety and efficacy of nanoparticle based therapies, including pharmacokinetic and pharmacodynamics analysis and dose ranging toxicology studies;
 - * Scale up processes for the manufacturing of nanoparticle based therapies;
 - * Initial clinical evaluation of the safety, pharmacokinetics or pharmacodynamics of nanoparticle based therapies.
- Development of novel therapeutic or diagnostic products to detect or predict early response to, and/or treat cancer.

Immunotherapeutics:

Immuno- or biologic therapy, including but not limited to antibodies, polypeptides, fusion proteins and protein-molecule conjugates will be considered. Potential uses of such molecules as diagnostic or therapeutic agents must be novel. Therapeutic or diagnostic agents must have strong scientific rationale for their potential application as individual molecules in case of fusion proteins or protein-small molecule conjugates. Molecules that have potential for immune activation of innate or adaptive immune responses are among the highest priority initiatives. Companion biomarker for cancer detection and early responses are a plus.

ELIGIBILITY

The Institute supports two categories of projects:

- *Early stage:* work in which a clinical perspective informs and guides basic research toward engineering medical solutions.
- *Translational projects:* work in which already developed technologies or therapies are married with clinical patient populations for human testing or pre-clinical animal testing, or proof-of-concept projects as a step toward a specific commercialization goal.

OTHER ELIGIBILITY REQUIREMENTS

Faculty Rank: Applicants must be permanent, full-time faculty at USC at the start of the award period. Research faculty are eligible. Tenure track and non-tenure track faculty are eligible. Individuals who are visiting faculty are *not* eligible to apply.

Proposers: Each proposal *must have a team of two or more USC* faculty principal investigators:

- At least one investigator *must be a physician (MD)* whose work includes servicing cancer patients.
- The team of two or more principal investigators must hold *primary* faculty appointments in *at least two schools of the university*.

TYPES OF ASSISTANCE

Ming Hsieh Research Awards provide up to **\$140,000/year**. 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 \$20,000);
- Salary support for post-docs, graduate student RAs and other student wages;
- Salary support for staff technician;
- Research expenses related to data acquisition, such 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 (i.e., 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; recipients must be faculty of USC during the award period.
- Awards **do not** fund student tuition and other student fees (such as health insurance);
- 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 Ming Hsieh Institute 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 not be provided until all pertinent reviews are complete.

RESEARCH PROPOSAL EVALUATIONS

Research proposals submitted to the Ming Hsieh Institute are evaluated by interdisciplinary faculty panels. Typically, the reviewers will be USC faculty members; however, when the necessary expertise does not reside on campus, external reviewers may be used. The reviewer panels advise the Vice President of Research on which proposals merit funding and at what dollar amount. Because of limited resources and intense competition, not all proposals can be funded and some will be funded for less than the requested amount.

In reviewing research grant requests, the faculty panel will consider:

- 1) Likelihood that the research will be translated into human tests that benefit patients with cancer;
- 2) Innovation in the research concept and research approach;
- 3) Relevance of the proposed work to nanoscience and/or immunotherapeutics;
- 4) Qualifications of the research team; likelihood that they will succeed in achieving project aims;
- 5) Likelihood that project can be leveraged toward new external funding;
- 6) For any previously funded team, accomplishments to date and progress toward clinical translation and external funding.

NOTIFICATION AND TERM OF AWARD

Up to **\$140,000/year** may be requested. A prior recipient may apply for a second and final year of funding under this program, but must demonstrate that promising results have already been achieved and that an effort is underway to seek additional external funds.

Reviewer comments and recommendations will be provided to the Vice President of Research who, in conjunction with the Institute's Steering Committee, will make the final awardee selection. Proposers will be notified of the outcome for their proposals by the end of **May, 2018**. Funds will not be available until before the fiscal year beginning **July 1, 2018**. **Funds that are not expended at the end of a fiscal year will be returned to the Ming Hsieh Institute.**

REPORTING AND ACKNOWLEDGEMENT OF SUPPORT

Minh Hsieh Institute awardees are asked to submit a brief progress report by **April, 2019**. 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**. Copies of publications should be submitted to 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 Ming Hsieh Institute Research Award or the application submission process can be directed to Melody Tang at Vprsch@usc.edu or 213-821-8163.

For submission instructions, see 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 Office of Research online application system (see p. 7).

Format: Proposal documents should be written using a standard font (e.g., Arial or Times New Roman), 12 point, single-spaced, with one inch margins. Documents should be uploaded as PDFs. Apart from use in formulas, preferably do not use symbol text format (use “alpha” instead of “ α ”).

PROPOSAL COMPONENTS

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

- a) Principal Investigator (PI) contact information;
- b) Proposal title;
- c) Keywords: provide up to 5 key words that best describe your research interests;
- d) Budget: total requested;
- e) Is USC Committee approval required? (*Please indicate all that apply*);
- f) Co-PI contact information (*if applicable*)

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 30 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 10 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 cancer.

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. *Patient Population*

Describe the types of patients that would benefit from the proposed approach, and the forms of cancer that would be targeted through the research. Also describe the pathway that the research will take toward human clinical translation.

iv. *Methodology*

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

v. *Outcomes*

Describe the anticipated outcomes of the project and how the project results will be disseminated. Provide a clear timeline of the project.

vi. *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.

vii. *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 4 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) **Letter of Support** *(optional)*

You may provide a Letter of Support from your department chair or school dean in support of your proposed research, but it not a requirement.

PROPOSAL SUBMISSION

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

Go to <https://app.wizehive.com/webform/USCgrants> to log in (or create an account for yourself), using your USC email address.

APPLICATION DEADLINE: 5 pm, Monday, January 22, 2018

Signatures: By submitting the online application, applicants indicate their agreement to comply with the terms and conditions of the Ming Hsieh Research Award program as well as all other applicable USC policies.

FURTHER INFORMATION AND PROGRAM CONTACT

For additional information or inquiries about the Ming Hsieh Research Award program application submission process, please contact: Melody Tang at Vprsch@usc.edu or 213-821-8163.