REQUEST FOR PROPOSALS
MING HSIEH INSTITUTE FOR RESEARCH ON
ENGINEERING-MEDICINE FOR CANCER
2016 RESEARCH AWARD

APPLICATION DEADLINE:  5:00 pm, Friday, January 22, 2016

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.

The Ming Hsieh Institute seeks proposals that will initiate new nanomedicine multi-disciplinary research projects and that show exceptional promise for translation into human clinical trials for treatment of cancer.

Proposals should demonstrate that a modest seed investment will have significant impact, either through initiating a novel research concept, or accelerating research into clinical trials.

AREAS OF INTEREST:
Types of research targeting cancer include:

- 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.
- Development of biomarkers of response to immune-modulators such as immune check point inhibitors

**ELIGIBILITY**

The Institute supports two categories of projects:

- *Early stage*: work in which a clinical perspective informs and guides basic research toward nanomedicine solutions.
- *Translational projects*: work in which already developed nanomedicine is 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 is related to cancer.
- 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 **$130,000/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**

- Funding is not provided for tuition, sub-awards to other institutions, faculty salary or equipment.
- Awards will include fringe benefits, but awards are not assessed Facilities & Administration Costs (i.e., *Indirect Costs*).
- Awards are not transferable to other institutions; recipients must be faculty of USC during the award period.
- Awards are not transferable to other researchers.
• The Ming Hsieh Research Award is not intended to duplicate currently funded efforts or to provide interim bridge funding.
• Awardees have discretion in the budgeting and re-budgeting of funds to meet their research needs within the general guidelines of the fund and the terms of the proposal; however, funds may not be transferred to another project.
• 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 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;
4) Qualifications of the research team and 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 $130,000/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, 2016. Funds will not be available until before the fiscal year beginning July 1, 2016. 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 report by September 16, 2017 (including an accounting of expenditures and any external support received). A formal request for the final report will 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 should 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 Zumberge funds were used.

**FURTHER INFORMATION AND PROGRAM CONTACT INFORMATION**

Questions about the Ming Hsieh Institute 2016 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 below.
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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.

PROPOSAL COMPONENTS

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

a) Proposal title  
b) Keywords;  
c) Principal Investigator (PI) and Co-PI contact information;  
d) Budget summary: fill in appropriate fields on the online budget form as completely as possible.

Sections to be uploaded: Materials for each item below should be uploaded as a single PDF. 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 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) **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.

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

If review committee approval is required for the applicant’s project, approval must be received prior to funding.

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.