Ming Hsieh Institute for Research on Engineering-Medicine for Cancer
2013 Call for Research Proposals
Letter of Intent (not required): January 18, 2013

Ming Hsieh Institute for Research on Engineering-Medicine for Cancer

The 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 Hsieh Institute will be 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.

Goals of this Solicitation

The Ming Hsieh Institute seeks proposals that will initiate new nanomedicine research projects 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 include the following types of research targeting cancer:

- 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.

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 in which already developed nanomedicine is married with clinical patient populations for human testing, or proof-of-concept projects as a step toward a specific commercialization goal.

Proposal Requirements

Proposers: Each proposal must have a team of two or more USC faculty principal investigators. At least one investigator must be a physician/clinical scientist whose work is related to cancer. At least one investigator must be experienced in nanoscience or nanoengineering. The team of two or more principal investigators must hold primary faculty appointments in at least two schools of the university. 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.

Duration: Projects will begin July 1, 2013, with one-year duration.

Budget: Up to $85,000 may be requested. Permissible expenses include: (1) postdoctoral research associate salary and fringe benefits; (2) stipend for a Ph.D. student as a graduate research assistant; (3) wages for an undergraduate student worker; (4) staff technician salary and fringe benefits; (4) project supplies and other direct project costs such as service charges (up to $10,000). Funding is not provided for indirect costs, tuition, sub-awards to other institutions, faculty salary or equipment.

USC Regulations: All normal 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 these reviews are complete.

Proposal Sections

The proposal document should contain the following elements listed below. Proposals may not exceed 10 pages (single spaced, Times New Roman, 12 pt, 1” margins).

A. Cover Form

Cover form information will be entered in our online proposal submission site.
B. Proposal

1. Introduction
   Provide the specific aims of the project, and explain the project’s innovations and significance for improving the treatment and diagnosis of cancer.

2. 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 to that have been submitted or will be submitted to external funders, and (3) how the proposed new project builds from the prior outcomes.

3. 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.

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

5. Outcomes
   Describe the anticipated outcomes of the project, the timeline of the project, and how the project results will be disseminated.

6. 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. Also describe how the project will be organized, and the contributions of each participant.

7. 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.

8. Budget Justification
   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.

C. Vitas

In addition to the proposal, proposers will be required to upload a C.V. or NIH format bio-
sketch for each PI. There is no total page limit for these additional items.

### Proposal Selection

Each proposal will be peer-reviewed according to the following criteria:

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.

The final selection will be made by the Institute’s Steering Committee. The names and affiliations of committee members can be found in the appendix.

Proposers will be notified of the outcome for their proposals by June 2013. Up to six projects will be funded from this solicitation.

### Reporting and Acknowledgement of Support

All recipients will be expected to submit a project report within 30 days of completion of the grant year (by July 31, 2014) and to be available for participation in conferences organized by the Institute.

Any publications or creative endeavor arising from work supported by the fund should acknowledge the Ming Hsieh Institute for Research on Engineering-Medicine for Cancer at the University of Southern California. Copies of publications should be submitted to the Office of Research.

### Proposal Submission

Letters of intent (LOI) are optional, with a deadline of January 18, 2013. A letter of intent should summarize the proposed research in no more than one page, and provide the names of investigators. Submitters will receive an assessment of the relevance of the proposed work to the solicitation by January 25. No proposal will be rejected or accepted based on the LOI. LOIs should be submitted to vprsch@usc.edu with the subject line: “MHI LOI”.
APPLICATION SUBMISSIONS:

All proposals must be submitted using our online application by **Friday, February 22, 2013 at 11:59PM**. To start your application you will need to log in using your USC NetID (or “username”) and password:

http://web-app.usc.edu/web/research/

**IMPORTANT:** You may experience problems with the online application when using the browser Internet Explorer. If you experience problems, please access the online application system through a different browser, such as Mozilla Firefox or Google Chrome.

For additional information or inquiries, contact the Office of Research:

Email: vprsch@usc.edu
Phone: 213-740-6709