



**National Science Foundation
4201 Wilson Boulevard
Arlington, Virginia 22230**

NSF 10-065

Dear Colleague Letter: Submission of unsolicited proposals to NSF programs that address the interdisciplinary topic of physical and engineering sciences in oncology

Historically, the fields of cancer biology and clinical oncology have been dominated by researchers with classical training in the basic and clinical life sciences. More recently, the field has expanded to include physical and engineering scientists, whose background and expertise are complementary to those possessed by life scientists, leading to the recognition that significant advancements in the fundamental understanding of cancer diseases are possible through multidisciplinary research that involves experts in the physical and engineering science disciplines. Emerging and burgeoning opportunities for collaborative research at the intersection of the physical/engineering sciences and the life sciences have been identified through several NSF workshops over the past few years, including "[The Cell as a Machine](#)" (NSF award 0803692) and "Cell and Molecular Biomechanics" (NSF award 0834046); in addition, this topic was the focus of a well attended and highly participatory session at the [Grantees Conference](#) held by the Division of Civil, Mechanical, and Manufacturing Innovation (CMMI) in June of 2009; similarly, in October of 2009, the National Cancer Institute's (NCI) Office of Physical Sciences-Oncology (OPSO) launched its network of 12 [Physical Sciences in Oncology Centers](#) (PS-OCs). In addition, the National Academies has conducted and published similar studies, including those entitled "[Research at the Intersection of the Physical and Life Sciences](#)," "[A New Biology for the 21st Century](#)," and "[Inspired by Biology: From Molecules to Materials to Machines](#)." In summary, significant advances may be expected as the result of continued investments in inter- and multi-disciplinary research at the intersection of the engineering and physical sciences and the life sciences with a focus on unraveling, at the molecular level, the cause and origin of cancer cell formation and otherwise advancing the fundamental understanding of cancer biology and clinical oncology to underpin translational research that promotes the prevention, detection, and treatment of cancer diseases.

To foster fundamental research in this field, NSF, in collaboration with the NCI's OPSO, will accept and review investigator-initiated proposals. It is anticipated that programs in the Engineering Directorate, including Divisions of [Civil, Mechanical, and Manufacturing Innovation](#) (CMMI), [Chemical, Bioengineering, Environmental, and Transport Systems](#) (CBET), and [Electrical, Communications, and Cyber Systems](#) (ECCS), and the Mathematical and Physical Sciences Directorate's Division of [Materials Research](#) (DMR, [Biomaterials Program](#)) will accept proposals on this interdisciplinary topic. Proposals should be submitted to the relevant NSF program; submitted proposals will follow standard NSF policies and procedures for merit review and must comply with all requirements identified in the current [NSF Grant Proposal Guide](#). PIs are encouraged to contact the appropriate NSF program director *via* email or telephone before submission to ensure that the identified program is participating in this program and to inform the NSF program director (PD) of the principal investigator's (PI's) plan to submit in response to this dear colleague letter (DCL).

Proposals will be due no later than 5:00 PM proposer's local time on October 31, 2010 and must be submitted *via* FastLane or Grants.gov in response to the [NSF Grant Proposal Guide](#). PIs should identify the appropriate NSF program upon proposal submission.

The scope of submitted proposals should be commensurate with that which is typical for unsolicited proposals entertained by these programs. As noted above, PIs are encouraged to contact the appropriate program director to discuss the research topic and scope prior to proposal submission. PIs are advised that there are no set aside funds for this Dear Colleague Letter; the exact number of awards and total funding depend on the quality of proposals and availability of funds.

Following proposal submission, the PI must notify, by e-mail, Clark V. Cooper (ccooper@nsf.gov) and Larry A. Nagahara (nagaharl@mail.nih.gov); the e-mail message should identify the proposal title and the NSF proposal number that FastLane assigns at the time of submission.

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Sincerely,

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