

THE
NANOTECHNOLOGY
— INSTITUTE —



CEET

CENTER OF EXCELLENCE IN ENVIRONMENTAL TOXICOLOGY

2009 PROPOSAL PACKAGE

**APPLICATION to the
CENTER OF EXCELLENCE IN
ENVIRONMENTAL TOXICOLOGY,
University of Pennsylvania,**

and the

NANOTECHNOLOGY INSTITUTE

**Pilot Projects in
*Nanotoxicology***

Deadline: June 15, 2009

PROGRAM INFORMATION

Background: The Center of Excellence in Environmental Toxicology (CEET) was launched in 2005 and receives grant support from the National Institutes of Environmental Health Sciences (NIEHS). It is one of only twenty-two Environmental Health Science Core Centers in the nation designated by NIEHS. It is the first Environmental Health Science Center in the Commonwealth of Pennsylvania. The CEET mission is to understand the mechanistic link between environmental exposures and diseases of environmental etiology. Understanding these processes can lead to early diagnosis, intervention and prevention strategies. The end result will be to improve environmental health and medicine in our region.

The Nanotechnology Institute (NTI) was formed in 2000 as a partnership among Ben Franklin Technology Partners of Southeastern Pennsylvania (BFTP/SEP), Drexel University and the University of Pennsylvania to support regional economic development by connecting university assets in nanotechnology to industry in the region. The mission of the NTI is to act as the catalyst for enterprise creation using nanotechnology as an enabler for the development of new products and processes; orchestrating the creation and efficient transfer of intellectual property from the universities into area companies and new businesses; helping to educate and build a skilled technical workforce, and organizing, communicating and marketing the assets of the region with a unified voice.

The research strengths of the CEET, particularly in lung and airway disease and oxidative stress, are relevant to conditions that may or may not arise from inhalation of nanoparticles either by consumers or via occupational exposures. The NTI's broad mission to support nanotechnology research includes interest in the design, fabrication, and characterization of nanoparticles for research and commercialization purposes. The marriage of these two disciplines has the potential to lead to extremely well-targeted trans-disciplinary research in the engineering, and fabrication of environmentally health safe nanoparticles. In addition, CEET is vested in improving environment health in the southeastern Pennsylvania region. NTI, by virtue of its funding source being the Pennsylvania Initiative for Nanotechnology of the Department of Community and Economic Development of the Commonwealth of Pennsylvania, is interested in the economic development of the Southeastern Pennsylvania region through commercialization of university-based nanotechnology advances by industry in the region.

To jump-start initiatives in this area, CEET and NTI are pleased to announce this new program to support Pilot Projects in Environmental Nanotoxicology. We seek proposals for 12-month seed efforts that address any relevant research topic related to the toxicology of nanoparticles and nanostructured materials. Projects that characterize the physical and chemical properties of engineered nanoparticles, explore their basic biology and pathobiology, and provide a clear pathway to the clinical and commercial deployment of environmentally safe nanoparticles are particularly encouraged, as are projects that have the potential to generate new or develop existing intellectual property.

APPLICATION TO
Center of Excellence in Environmental Toxicology and The Nanotechnology Institute
Pilot Projects in Environmental Nanotoxicology

Submission Deadline: June 15, 2009

Size of Award: Up to \$25K per project.

Research Areas: All areas concerned with toxicology related to nanoparticles or nanostructured materials are eligible for consideration.

Duration: A start date of July 1, 2009 is anticipated, subject to time required to review proposals and process contracts. 50% of the awarded funds must be spent by Dec. 31, 2009. 100% of the awarded funds must be expended by June 30, 2010.

Eligibility: Any member of the standing faculty or research track faculty in the 12 professional schools at the University of Pennsylvania, or our affiliates (CHOP and Monell). However, we encourage applications from Penn researchers who collaborate with researchers at other NTI affiliated institutions. Subcontracted funds to these institutions can be included in the proposed budget but cannot comprise more than 50% of the total amount requested. The research being proposed should represent a new idea or direction, and cannot already be funded by an external funding agency.

NTI Affiliated Institutions: CHOP, Drexel University, Fox Chase Cancer Center, Haverford College, Lankenau Institute for Medical Research, Millersville University, Thomas Jefferson University, University of Pennsylvania, University of the Sciences in Philadelphia, Temple University, Villanova University, Widener University

Criteria: Proposals will be evaluated based on technical merit, impact, feasibility, likelihood of success, and appropriateness of needed facilities and equipment. A successful track record of research, commercialization, and interdisciplinary collaborations are all advantageous. Leveraging of current or future extramural funding from the federal NanoHealth initiative, NIEHS or NIST is advantageous but not mandatory. Potential for economic impact in the southeast Pennsylvania region is also advantageous. Research projects that have clinical and/or commercial potential, potential for generating IP, potential for licensing new or pre-existing IP, leveraging of existing expertise and pre-existing IP at NTI institutions will be given priority.

Budgeting: Funds may be used to support graduate students, and other research staff; materials and supplies. Minor equipment less than \$5,000 can be purchased with these funds and the leasing of larger equipment is allowed. Universities shall not charge overhead on these grants. Faculty cannot charge their salary or request travel funds on these grants

Application Fee: None

Directions for Submission: Submit one PDF file to **Linda White**, Sr. Program Administrator, BFTP/SEP, linda@sep.benfranklin.org and a duplicate application to **Mary Webster**, Director of Administration CEET webster@mail.med.upenn.edu

APPLICATION TO
Center of Excellence in Environmental Toxicology and The Nanotechnology Institute
Pilot Projects in Environmental Nanotoxicology

Proposals should be written using 12-point font, single spaced, with 1” margins.

Review Selection: All applications will be reviewed by the NTI Operations Committee and the CEET Executive Committee for eligibility, adherence to stated requirements, overall merit of the proposed research, and appropriateness of the budget. As part of the review process, applicants may be asked to respond to questions from the reviewers.

Intellectual Property: All intellectual property generated by Penn researchers will be handled by NTI’s NanoCommercialization Group (NCG) as per the NTI’s Inter-Institutional Agreement (IIA). BFTP should be notified of all IP generated by any NTI-funded researcher regardless of whether it is deposited with NCG.

Questions: If you have any questions, please check the NTI and CEET websites first for the most up-to-date and complete information: www.nanotechinstitute.org, and www.med.upenn.edu/ceet You may also call Linda White, Sr. Program Administrator, Ben Franklin Technology Partners/SEP or the following members of NTI and CEET:

Linda White, Sr. Program Administrator, BFTP/SEP
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The Philadelphia Navy Yard
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Mary Webster, Director of Administration, CEET
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University of Pennsylvania School of Medicine
130C John Morgan Bldg
3620 Hamilton Walk
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Tel: 215- 746-3031; Fax: 215-573-2236
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Trevor Penning
Director, Center of Excellence in Environmental Toxicology
Professor Department of Pharmacology, Biochemistry & Biophysics and OB/GYN

APPLICATION TO
Center of Excellence in Environmental Toxicology and The Nanotechnology Institute
Pilot Projects in Environmental Nanotoxicology

University of Pennsylvania School of Medicine
130C John Morgan Bldg
3620 Hamilton Walk
Philadelphia, PA 19104-6084
Tel: 215-898-9445 Fax: 215-573-2236
ceet@mail.med.upenn.edu

Review Process: The evaluation of Program proposals is expected to be completed approximately **2-4 weeks** from the submittal date. The time may vary slightly depending on the volume of applications.

CEET and NTI will maintain the confidentiality of proposals. All NTI personnel sign non-disclosure agreements with the NTI. NTI universities and their faculty have existing confidentiality agreements in place with the NTI, as a condition for their participation. Proposals should include enough information for NTI and CEET to make informed decisions on the merits of the proposed work. All proprietary information should be clearly marked. **Note that, if awarded, NTI and CEET may disclose publicly the title of the proposal and the individuals and institutions involved.**

Post-Award Procedures

A. Funding Agreement

The NTI and CEET will enter into a grant agreement with the awardees that will involve funds being contracted the participating universities.

B. Reporting

Award recipients are required to submit a final project and expenditure report to the NTI at the conclusion of the project period. The final project report is a brief narrative description of the project accomplishments as per the milestones described in the proposal, and future project plans. This report should list the publications and grant applications that have been applied for and/or awarded. The expenditure report requires an accounting for the expenditures of the awardee and any participating organizations or sub-contractees during the project. Recipients of the pilot-projects will also be asked by CEET to give a seminar on their progress after 12-months of support.

C. Project Tracking & Management

The NTI and CEET will actively monitor the projects during the funding period. NTI Operations Committee and CEET Internal Advisory Committee members are available for advice and consultation. Awardees are encouraged to contact NTI Operations Committee members or CEET Internal Advisory Committee members as needed throughout the entire project period.

The Commonwealth of Pennsylvania requires an annual performance survey of NTI funded projects. The survey includes information on the number of jobs created, the number of products commercialized, annual revenues, and the amount of private dollars raised.

APPLICATION TO
Center of Excellence in Environmental Toxicology and The Nanotechnology Institute
Pilot Projects in Environmental Nanotoxicology

Awardees are required to keep accurate and verifiable records which can be submitted annually.

D. Acknowledgement of NTI and CEET funding

All publications, presentations, patents, reports and any other public disclosure of research and results supported by this grant should include the following acknowledgments:

Funding is made possible by the Commonwealth of Pennsylvania under the Ben Franklin Technology Development Authority and the Nanotechnology Institute and by grant P30-ES013508-04 from the National Institute of Environmental Health Sciences."

Pilot Projects in Environmental Nanotoxicology Funding Application

TABLE OF CONTENTS

Your proposal should include the following elements if applicable:

- I. Proposal Cover Pages
- II. Non-Confidential Executive Summary
- III. Technical Description
 - a. Problem Statement
 - b. Program of Work
 - c. Contractual Agreements
 - d. References
 - e. Biographical Sketches
 - f. Current and Pending Support
 - g. Facilities, Equipment and Other Resources
- IV. Budget

I. PROPOSAL COVER PAGES

PROPOSAL TITLE: _____

Principal Investigator: _____ Title: _____

University/Institution: _____

Department: _____

Telephone: _____ Fax: _____

Street Address: _____

City: _____ State: _____ Zip: _____

E-Mail: _____

Web Site: _____

APPLICATION TO
Center of Excellence in Environmental Toxicology and The Nanotechnology Institute
Pilot Projects in Environmental Nanotoxicology

Co-Investigators (must have PI status at NTI-affiliated institutions)

Investigator: _____ Title: _____

University/Institution: _____

Department: _____

Investigator: _____ Title: _____

University/Institution: _____

Department: _____

Investigator: _____ Title: _____

University/Institution: _____

Department: _____

Attach additional sheets if necessary.

APPLICATION TO
Center of Excellence in Environmental Toxicology and The Nanotechnology Institute
Pilot Projects in Environmental Nanotoxicology

Intellectual Property: Provide title, patent or application numbers (include indication of provisional status), docket numbers, and titles of all existing Intellectual Property assets involved in this application.

Patent Title _____

Patent/Provisional Application Number _____

Docket Number _____

Patent Owner (must be a NTI member institution) _____

If a for-profit company is involved, is there a license or option to license in place?

Yes No

Attach additional sheets if necessary.

APPLICATION TO
Center of Excellence in Environmental Toxicology and The Nanotechnology Institute
Pilot Projects in Environmental Nanotoxicology

Amount Requested from NTI (max. \$25,000): \$_____*

*Please make sure this amount matches that listed on your project budget sheet.

Disclaimer: The submission of the proposal shall not create any rights on behalf of the submitter, contractual or otherwise. The submission of a proposal does not constitute or create any legally binding or enforceable agreement or commitment on the part of NTI other than to maintain the confidentiality of proposal information identified as confidential. No past or future action, or course of conduct by NTI, will give rise to or serve as a basis for any legally enforceable duties or obligations on NTI other than to maintain the confidentiality of proposal information identified as confidential.

Signature of Authorized Official at Applicant University/Institution:

Signature:_____ Date:_____

Type or Print Name and Title:_____

**Funding under this program is made possible by the Commonwealth of Pennsylvania under the Ben Franklin
Technology Development Authority and the Nanotechnology Institute.**

II. NON-CONFIDENTIAL EXECUTIVE SUMMARY

Proposal Title

University/Institute Name(s)

Provide a one-page maximum Executive Summary of the project addressing each of the following:

- 1) a description of the proposed research
- 2) anticipated scientific, technological, clinical, and/or commercial impact of the project

* Information provided in this Executive Summary may be used as needed by the NTI and all affiliates in public communications about NTI programs and initiatives. Grant applicant and partners acknowledge that information provided in the Executive Summary may be made available to the public at any time by any method.

III. TECHNICAL DESCRIPTION

A. Problem Statement. Address each of the following. Use a maximum of one (1) page.

1. Identify the goals and objectives of the project.
2. Describe the present state of the technology (or technologies) that forms the basis of the project.
3. Describe what is limiting in the current technology that makes improved technology, which will be addressed by the proposed research, desirable?
4. Identify competing technologies and the specific advantage(s) and disadvantage(s) of the proposed technology.

B. Program of Work. Address the following. Use a maximum of four (4) pages.

1. Describe the method(s) you will use to meet the technical goals. Include any preliminary data that support your choice of methodology and the feasibility of the proposed project.
2. Describe in detail the specific work to be carried out.
3. Specify the role of each participating organization and where the work will be conducted.
4. Summarize the facilities available to the project, whether at the university/non-profit laboratories, the company work site(s), or identified service providers.
5. Describe the roles of the key personnel in the project. Summarize the qualifications of the project's management and technical team members, showing how their education and work experience qualify them for the project.

C. Contractual Agreements. Briefly describe any university-industry or sub-contract arrangements addressing the following (maximum of one (1) page; provide attachments as needed).

In the case of a university-industry collaborative research project that is critically related to the proposed work:

1. If applicable, attach the signed intellectual property agreement between the company (or companies) and the university/non-profit institution.
2. Has a contractual relationship between the company and the university/non-profit institution been signed? If not, when will a contract be signed?

APPLICATION TO
Center of Excellence in Environmental Toxicology and The Nanotechnology Institute
Pilot Projects in Environmental Nanotoxicology

3. Describe any business relationship (e.g., employee, consultant) that the principals, directors, officers, employees or advisors of the firm(s) have with the university or non-profit partner.

For sub-contracted research:

1. Has a qualified service provider been identified?
2. Have quotes for services indicated in Program of Work been obtained? If so, please attach.

D. References. References are not included as part of the page limits described above, but are required. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. If the document is available electronically, it is preferred that the website address be identified. Proposers must be especially careful to follow accepted scholarly practices in providing citations for source materials relied upon when preparing any section of the proposal. While there is no established page limitation for the references, this section must include bibliographic citations only and must not be used to provide parenthetical information outside of the technical description described above.

E. Biographical Sketches. Append a maximum 2 page curriculum vitae for each team member. The style of CV used for NSF or NIH proposals is suitable.

F. sCurrent and Pending Support. This section of the proposal calls for required information on all current and pending support for ongoing projects and proposals. All current project support from whatever source (e.g., Federal, State, local or foreign government agencies, public or private foundations, industrial or other commercial organizations) must be listed for each PI. The proposed project, and all other projects or activities requiring a portion of time of the PIs, must be included, even if they receive no salary support from the project(s). The total award amount for the entire award period covered (including indirect costs) must be shown as well as the number of person-months per year to be devoted to the project, regardless of source of support. Similar information must be provided for all proposals already submitted or submitted concurrently to other possible sponsors including NTI and CEET. The NSF or NIH style of Current and Pending support documents is suitable for this section of the proposal.

G. Facilities, Equipment and Other Resources. This section of the proposal is used to assess the adequacy of the organizational resources, such as important major pieces of equipment, available to perform the effort proposed. Proposers must describe only those resources that are directly applicable.

IV. PROJECT BUDGET

Budgets should clearly show how Pilot Project funds will be used to achieve project goals. Please review the eligible expenses and budget guidelines below before preparing your project budget.

Expenditures are categorized as: personnel, consultants and subcontracts, and other direct expenditures. Please also note the following:

1. Personnel for the project should be listed individually by their place of employment, together with their title and their time allocation to the project. Identify all students supported by Pilot Project funds, listing stipends and tuition separately. Benefits should also be listed separately.
2. Note: Equipment may not be purchased with NTI funds. The Pilot Project funding may, however, be used for the rental of equipment. If funds are needed for this purpose the rental cost should be shown in the column under Other Direct Costs.
3. Identify consultants and subcontracts and attach quotes for services at the end of the grant application. Subcontracted amounts may not exceed 50% of the total budget.
4. Other direct costs include materials, cost of rented equipment, travel directly related to the research, printing, library search fees, travel etc.