UC DAVIS
OFFICE OF RESEARCH

BRAIN-STIM: the UC Davis Grand Challenge Initiative in Brain Science

Request for Applications Deadline: Jan 30, 2015

Background and Objectives

On April 2, 2013, the Obama administration announced plans for the implementation of the BRAIN Initiative (Brain Research through Advancing Innovative Neurotechnologies), a new program with the goal of mapping the activity of every neuron in the human brain. With an initial expenditure of $100 million for fiscal year 2014, the program has been projected to distribute upwards of $300 million per year for ten years. A subsequent scientific commentary outlining proposed plans for the project indicated that efforts would begin with studies focused on more approachable nervous systems and the development of new technologies to study brain activity, such as the development of nanoparticles that could be used as voltage sensors that would detect individual action potentials and nanoprobes that could serve as electrophysiological multielectrode arrays.

With the breadth and depth of scientific expertise at UC Davis in the fields of molecular, cellular, systems, and cognitive neuroscience, and bioengineering, physics, and chemistry, the campus has established the "UC Davis BRAIN Consortium" to stimulate collaborative and innovative research focused on achieving the goals of the Obama BRAIN Initiative. A major component of this effort is a new funding opportunity designed to promote new and creative strategies as well as the collection of pilot data to stimulate and strengthen proposals for extramural funding associated with the BRAIN Initiative. This new program, called **BRAIN-STIM: the UC Davis Grand Challenge Initiative in Brain Science**, is supported jointly by the UC Davis Office of Research and the newly established Behavioral Health Center for Excellence in the UC Davis School of Medicine through funds established from the State of California and directed for mental health research and health care improvement.

A major goal of BRAIN-STIM is to propel UC Davis faculty and researchers to positions of strength in competing for extramural funding associated with the Obama Brain Initiative. Five federal agencies (NIH, NSF, DARPA, IARPA, and the FDA), along with several private foundations, and a state-wide program (Cal-BRAIN), have committed significant funds in support of the BRAIN Initiative. Successful BRAIN-STIM proposals will therefore be those with the greatest potential for future high impact discoveries and innovation in public health through the assembly of interdisciplinary teams, including the creation of research programs leveraging external partners and resources.

Award Information

We anticipate awarding up to 5 BRAIN-STIM grants. Each award will be for up to $200,000, depending on scope and scientific merit, and funds must be utilized within a two-year period. We recognize that BRAIN-STIM funding will not be sufficient to solve the high-level challenges put forward in the Obama Brain Initiative, but it should motivate the assembly of needed interdisciplinary research teams and provide the proof of principle preliminary data that are vital to securing funding from the Obama Brain Initiative.

BRAIN-STIM Project Leaders will report on their progress and outcomes to the UC Davis BRAIN Consortium Advisory Committee and to the Vice Chancellor for Research (VCR).

Instructions for Submitting a Proposal for a UC Davis Campus BRAIN-STIM Award

BRAIN-STIM proposal general content and requirements

- Proposals should be submitted in the form of a "white paper." The white paper should present the major scientific objective(s) of the Research Project. Desired outcomes must have the potential for major scientific impact. Details of the required content are provided below.
- A Project Leader should be identified. The Project Leader will be responsible for all correspondence relating to the proposal as well as other planning activities during the development of the Project. An individual can be a Project Leader on only one proposal.
- Projects must include 2 or more UC Davis faculty and should emphasize synergistic outcomes. Each faculty member should play a central role in the planning, execution and governance of the Project's research activities. All faculty participants must be clearly justified on the basis of their scientific expertise and contribution to the Project's goals. Multi-campus collaborative projects that include matching support are also encouraged.
- All UC Davis faculty (Senate and Academic Federation) are eligible to participate in the BRAIN-STIM competition as Project Faculty and Project Leader.
- UC Davis faculty and staff may be associated with more than one white paper and more than one funded BRAIN-STIM award as Project Faculty or Affiliates.
- Graduate students and postdoctoral researchers may be supported with BRAIN-STIM funds provided they will contribute in relevant and significant ways to make the Project competitive for large-scale funding.
- Major equipment requests will be considered but must be strongly justified in the budget documentation.
- Proposals that leverage BRAIN-STIM funding with support from corporate, foundation or other partners deemed relevant to the mission of a Project are strongly encouraged **Please contact** BRAIN-STIM@ucdavis.edu **prior to submission if a corporate partner has been identified**.

BRAIN-STIM Proposal Instructions

Proposals must be submitted before 5:00pm, Friday Jan 30, 2015. Proposals should be submitted via email to BRAIN-STIM@ucdavis.edu in a single PDF or Microsoft Word file that includes all 7 components **in the following order (please be sure that all points and subpoints are addressed)**:

1. Cover Page: Please use the form provided with this document.
2. White Paper: The white paper should not exceed 5 pages (11 pt Arial font, one-inch margins). The white paper should address the following points:
   i. Overview and Rationale (~2 pages)
      - What are the major scientific issues to be addressed by the Research Project? What important problem(s) is to be solved? Describe in sufficient detail the approach that will be used to address the problem(s).
      - Describe how the proposed research "fits" within the goals of the BRAIN Initiative.

   ii. Significance and Innovation (~1 page)
      - Describe the potential impact that the project is anticipated to have on the field. What new methods/strategies for understanding the brain will emerge from this work? How

will the project build on existing technologies or concepts (or is it completely novel)?

- How will this project build new or improve established interdisciplinary relationships and those with external entities?

iii. Sustainability (~1 page)

- Identify the target funding agency or foundation and target program or RFP to which grant applications arising from the proposed work will be directed.
- Describe the long-term goals for the project. Identify potential risk factors that could impact the Project's success.

iv. Team Membership and Expertise (~1/2 page)

- Briefly describe what expertise each BRAIN-STIM faculty member brings to bear in solving the main problems to be addressed in the Project.
- For Projects involving multiple institutions, include a letter from each partner institution confirming the nature of the collaboration and financial support, if any.

v. Organization and Administration (~1/2 page)

- Briefly outline the proposed Project's organization and internal administration.

3. Potential for Intellectual Property and Economic Development (not included in the 5 page limit)

- If a corporate partner is identified, describe in detail the nature of the partnership. For Projects that have successfully procured a commitment of matching funds from private industry or foundations, the vision and reasons for the partnership should be clearly stated in this section.
- What kind of intellectual property is likely to arise from the Project's research? How is technology transfer envisioned for new intellectual property developed by the Project?

4. References Cited: No page limit (not included in 5 page limit).

5. Budget: (not included in 5 page limit) Please use the form provided with this package.

i. Do not include any indirect costs in the budget.

ii. Salary of any kind for BRAIN-STIM Project Faculty who are UC Davis ladder faculty will not be supported by the program.

iii. Salary for UC Davis Project Faculty and Affiliates who are not ladder faculty will be allowed for up to 15% effort. Salaries must be justified.

iv. Salaries may be escalated up to 3% during the grant period. If non-budgeted salary increases are authorized by the campus during the grant period, those increases will be honored by the BRAIN-STIM program.

v. Total salary costs should be grouped by personnel category as indicated on the budget forms provided, and itemized in the budget justification.

vi. BRAIN-STIM funds may only be used to support personnel and activities at UC Davis.

vii. Although both resident and non-resident graduate students will be supported, for BRAIN-STIM proposals graduate students should be budgeted for resident tuition only. Use a tuition rate of $16,541 and escalate tuition 10% each year.

6. Budget Justification: Provide a brief explanation of the budget elements specified in the budget form. Proposals that indicate an external match for thematic research should describe those arrangements and provide a non-binding letter of intent from the sponsor indicating the nature of support for the activities of the Project, the anticipated amount per year and expected duration

of the funding activity. The match can be in the form of cash, in-kind, or other support that can be quantified. Salaries for all non-ladder faculty and staff should be adequately justified.

7. CVs for Project Leader, all Project Faculty and key Affiliates: Four pages maximum each. A standard NIH, USDA, or NSF biosketch is ideal. This document should include positions held, educational experience, relevant honors and awards, recent and/or relevant publications, and a list of currently funded (or recently expired) extramural projects.

Review Process

An *ad hoc* External Scientific Advisory Committee (ESAC) appointed by the VCR will assess the white papers. The ESAC will comprise distinguished scientists from outside the UC Davis campus who are free from conflicts of interest. The ESAC will advise the VCR on the merits of the thematic proposals and rank them for funding. The VCR and Executive Director of the Behavioral Health Center for Excellence will be jointly responsible for final decisions and implementing the recommendations of the ESAC.

The primary criteria used to evaluate BRAIN-STIM proposals will be:

1. The quality of the proposed research and the alignment of the research with the goals of the Obama BRAIN Initiative. The potential for transformative research leading to paradigm shifts will be highly valued.
2. The qualifications, experience and productivity of both the Project Leaders and additional personnel. Only essential expertise will be considered. Addition of inadequately justified personnel will not be viewed positively.
3. An assessment of the investigative team's plan for sustainability beyond the initial funding period.
4. An assessment of how the proposal will build interdisciplinary and/or external relationships and how collaboration will be used to establish/advance a successful research program.

The review committee may solicit revisions or additional information if necessary to achieve a final ranking of submissions. In addition, the committee may recommend that the white paper author(s) make an oral presentation in order to clarify organizational and scientific aspects of the proposal.

The ESAC may suggest that some teams coalesce around a single thematic area where significant overlap or potential synergy of effort is evident.

A multi-question scoring system will be used by the ESAC to rank the proposals. The VCR will communicate award decisions directly to Project Leaders, with a written summary of reasons given for the decision. An objective of the review process is to identify Projects that are outstanding scientifically and appropriate to the mission of BRAIN-STIM; therefore not all Research Projects will be selected for funding.

Award Criteria

A. Funding Period. Awarded BRAIN-STIM Projects will receive funding for up to $200,000 total to be spent over a period of up to 2 years.

B. Decisions. Funding decisions will be made no later than March 6, 2015. Notifications will be made by the Office of the VCR to Project Leaders.

Contact Information

For proposal submission and questions regarding BRAIN-STIM, please contact:

BRAIN-STIM@ucdavis.edu

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Associate Vice Chancellor for Research

Whitney Cheung
Interdisciplinary Research & Strategic Initiatives Analyst

Attachments

In the following pages, please find templates for the following:

- BRAIN-STIM Cover Page
- BRAIN-STIM Budget Form