

APPROPRIATIONS REQUEST FORM OREGON HOUSE DELEGATION FISCAL YEAR 2010

DEADLINE FOR SUBMISSION: FEBRUARY 13, 2009

1. Project Title:

Brain Safety Net

2. Organization Name and address:

UNIVERSITY OF OREGON
Eugene, OR

3. Primary Contact name, phone number, mobile phone number, fax number and email:

Rich Linton, VP for Research

University of Oregon

Office - 541-346-2090

Fax 541-346-2023

rlinton@uoregon.edu

Jennifer Schafer

Cascade Associates

Office -202-554-5828

Fax – 202-554-2896

jasca@verizon.net

4. Project Location Address (if different from Organization):

5. Please describe the requesting organization's main activities, and whether it is a public, private non-profit, or private for-profit entity:

Public University

Research, Development and Deployment activities

6. Briefly describe the activity or project for which funding is requested (please keep to 500 words or less.)

Previous congressional interest funding for the University of Oregon's Brain, Biology and Machine Initiative has moved progressively into the translational phase, and is the genesis of a new initiative focused on neurorehabilitation and associated medical applications. More precisely, the project seeks to develop and optimize evidence-based treatments of soldiers and civilians suffering from amputations, traumatic brain injuries (TBI) and neurological disorders such as epilepsy. It builds on our well-established partnership with the Telemedicine and Advanced Technology Research Center (TATRC) within the Department of the Army.

A distinguishing feature of this interdisciplinary project is the use of techniques ranging from state-of-the-art brain imaging (functional and structural MRI and dense array EEG) to genetic and behavioral analyses, to advanced computational modeling. These combined capabilities are the foundation of a consolidated effort to increase our ability to harness the brain's remarkable capacity to respond adaptively to change (neuroplasticity). These include responses to bodily (e.g., amputation) or brain (e.g., TBI or stroke) injuries, as well as to stimulation provided by effective therapeutic interventions. Such neuroplasticity is widely regarded as the basis for recovery of function and yet the field of neurorehabilitation remains hampered by a relative lack of interventions that are grounded in neuroscientific evidence. Previous research has identified a number of

factors that influence neuroplasticity, and the current project is translating these basic research findings into more effective and efficient diagnostic and interventional practices.

Highlights of accomplishments thus far include the discovery that individuals with mild TBI often have subtle cognitive deficits that persist long after the incident. Remarkably, these changes may be responsive to cognitive retraining exercises developed as an extension of our basic research. It has long been known that amputation of a hand causes reorganizational changes in brain areas dedicated to movement and sensation of the now absent limb. However, we find that such changes are far more widespread, for example involving brain areas devoted to the intact hand. Further, these changes may play a role in the debilitating “phantom” pain experienced by many amputees. It is notable that these reorganizational changes in the brain and the associated pain may be reversible, even years after the amputation, through behavioral therapies. Finally, work in our mammalian genetics program has begun to shed light on the mechanisms that mediate the interactions between genes and the environment that lie at the heart of these translational neurorehabilitative efforts and influence neuroplasticity.

7. Has this project received federal appropriations funding in past fiscal years?

No

7a. If yes, please provide fiscal year, Department, Account, and funding amount of any previous funding.

Precursor program called Brain Biology and Machine Applied was funded in FY09 at \$1.6 B

8. Federal agency and account from which funds are requested (Please be specific –e.g. Department of Housing and Urban Development, Economic Development Initiatives account):

FY2010 Defense Appropriation

Department of the Army

RDT&E

Line item: #30 Medical Advanced Technology

R-1/PE # 0603002A

9. What is the purpose of the project? Why is it a valuable use of taxpayer funds? How will the project support efforts to improve the economy and create jobs in Oregon?

University of Oregon researchers are working with victims of spinal cord injury (SCI), limb amputees and those with brain injuries (including soldiers and veterans with mild traumatic brain injuries (mTBI) that often go undiagnosed and under-treated) as well as those with other forms of brain malfunction such as epilepsy. SCI, limb amputation and mTBI have impacts on the organization of brain sensory and motor functions. Similar to direct brain injuries, understanding the brain’s neuroplasticity is critical to successful rehabilitation. This work is of particular interest to the Army’s Office of Telemedicine.

Most importantly, the project has the potential to improve the lives of many Oregonians including veterans injured during service in Iraq and Afghanistan. An individual’s ability to effectively use a prosthetic device or manage the consequences of a traumatic brain injury means a higher quality of life and better opportunities for employment.

Furthermore, it is estimated that each \$1 million investment in university research activities generates more than 40 direct and indirect Oregon jobs. Finally this project is a showcase for the University of Oregon’s strength in neuroscience research, an aspect of the “clusters” identified by the 2008 Oregon Business Plan Policy Playbook as both an asset for the state and an area of economic opportunity.

10. Have you requested funding for this project from other Members of Congress?

If so, who?

Yes. We are seeking funding requests from the entire Oregon Delegation

11. Funding Details:

a. Total project cost (all funding sources and all years):

Unknown

b. Amount being requested for this project in Fiscal Year 2010:

\$3 million

c. What other funding sources (local, regional, state) are contributing to this project or activity? (Please provide specific dollar amount or percentage.)

\$23 million in private support for faculty endowments, research activities associated with neuroscience and neuroimaging centers

\$32.5 million in private support for facilities investments, including the new integrative sciences building

\$30 million in state bonding authority granted for the new integrative sciences building

Competitive research grants from various agencies that currently provide over \$2 million in additional support to the principal investigators from agencies such as NSF, NIH, or DoD

d. Do you expect to request federal funding in future years for this project?

Yes

e. Breakdown/budget of the amount you are requesting for this project in FY 2010.

(e.g. salary \$40,000; computer \$3,000):

\$.75 M for materials and instrumentation, \$2.25 M towards researcher costs, salaries and OPE.

f. Please list public or private organizations that have supported/endorsed this project:

Electrical Geodesic, Inc.

Ann Bunnenberg, President

541-687-7962

University of Oregon Foundation

University of Oregon Alumni Association

g. Is this project scalable? (i.e. if partial funding is awarded, will the organization be able to use the funds in FY 2010?):

Yes