

REQUEST FOR PROPOSALS

Driving Biological Projects (DBPs)

Technology Center for Networks, Pathways and Dynamics of Lysine Modification

Background

The **Technology Center for Networks & Pathways (TCNP) of Lysine Modification**, informally known as the “Special K Project,” plans to add three to four new **Driving Biological Projects (DBPs)** to its program. This is an **NIH Roadmap-funded Center** based at the **Johns Hopkins University School of Medicine** in Baltimore, MD. The Center consists of six cores, five of which are funded for a five-year period. Core 2 of this TCNP currently consists of several DBPs that will be transitioning to R01 or other support in the next few months. **Up to two years of funding for three to four new DBPs will become available on or about August 1, 2010, and the TCNP of Lysine Modification is now soliciting proposals for new DBPs.**

For detailed information about our TCNP, please see our web site:

<http://www.hopkinsmedicine.org/ibbs/research/TCNP/index.html>

The TCNP of Lysine Modification is structured around six cores, and takes advantage of an important new physical entity, the High Throughput Biology Center (the HiT Center) at Johns Hopkins University School of Medicine

http://www.hopkinsmedicine.org/institute_basic_biomedical_sciences/research/research_centers/high_throughput_biology_hit/

An ongoing and very important component of the Center is the **Technology Development** component (**Core 1**) and accordingly, this core has the most participants and consumes the largest portion of the budget. Core 1 consists of 4 distinct and highly complementary technologies. The technology core projects employ a broad spectrum of approaches ranging from relatively clear-cut, step-wise methods of technology development to ones with high-risk components. The projects make use of traditional proteomics arenas such as mass spectrometry, as well as innovative approaches such as chemical probes of lysine acetylation and methylation, protein microarrays, microfluidic devices and genetic methods to infer protein functions, networks and pathways.

In the TCNP, the intended use of technologies developed by Core 1 is to solve complex biological problems and better understand dynamic cellular processes. This is done in the context of the **Driving Biological Projects (DBPs)**, which make up **Core 2**. The current DBPs in this TCNP include investigators at the Johns Hopkins University Schools of Medicine and Public Health, as well as leading researchers in the field of protein post-translational modification at other institutions. These projects are in their final year of funding in 2009-2010 and will be converting to R01s and other forms of support during 2010. **Core 3** is focused on computational infrastructure and modeling and ties together all of our efforts by modeling biological systems using data generated by our TCNP and

by other research units. **Cores 4, 5 and 6** are focused on training, dissemination, and management, respectively.

The new DBPs we seek will become an integral part of our TCNP and will complement the existing research components of the Center. DBPs can be one of three types:

- 1) The DBP can fit with our overall experimental theme (lysine and other protein modifications; histones; chromatin; yeast/human) and use our technologies
- 2) The DBP can have a completely different biological focus, and simply leverage one or more of the technologies in our center in interesting ways.
- 3) The DBP can bring in a new technology to our Center that is currently unavailable and complements what is available already (e.g. a better method to analyze acetylation or ubiquitylation). However, we probably will not recruit more than one “new technology” to our Center.

Again, see the web site for the various core technologies already available. In a nutshell, they include:

Core 1.1: Protein, peptide and antibody microarrays (Heng Zhu, hzhu4@jhmi.edu; Sean Taverna, stavern1@jhmi.edu)

Core 1.2: Barcode microarrays, SLAM (synthetic lethality), yeast Ts mutants, high copy libraries, large-scale histone genetics, microfluidic technology etc. (Jef Boeke, jboeke@jhmi.edu; Andre Levchenko, alev@jhu.edu)

Core 1.3: Mass spectroscopy with an emphasis on post translational modifications, especially Ubiquitylation, SUMOylation, methylation and acetylation; Post-source Decay MS; quantitative MS/SILAC (Robert Cotter, rcotter@jhmi.edu; Akhilesh Pandey, pandey@jhmi.edu; Yingming Zhao, Univ. of Chicago, Yingming.Zhao@uchicago.edu)

Core 1.4: Chemical probes of acetyl- and methyl-transferases and related enzymes (Phil Cole, pcole@jhmi.edu)

Core 3: Network modeling/databases/molecular interaction modeling (Joel Bader, joel.bader@jhu.edu; Andre Levchenko, alev@jhu.edu)

Eligibility

DBP Proposals should have a single PI, and may be inside or outside Johns Hopkins University. All DBP PIs must be currently funded either by NIH or by an organization of similar stature. The ideal proposal uses our Center's Technology(s) to further research already funded by an NIH R01 to the PI, although this is not required. In the event of equally meritorious proposals, preference will be given to non-JHU proposals, provided an adequate communications plan is provided. Ability to attend monthly TCNP “Special K” meetings held at the JHU School of Medicine in Baltimore, MD and/or access to VTC facilities is an asset. Out-of-state applicants should explicitly indicate how the PI plans to assure regular communication with the Center (e.g. travel to JHUSOM/VTC/other modes of interaction). Non-U.S. applications will be considered.

We welcome and strongly encourage applicants to contact us before writing a proposal. In particular, direct communication with the relevant TCNP Core 1 directors is essential prior to submission. TCNP cores may need additional manpower or reagents to help your DBP succeed, and these activities will require advance planning.

Guidelines for Proposals

Proposals (Research plan not to exceed 8 pages, 11-point, single-spaced, exclusive of references) should include the following:

1. *Specific Aims*
Articulate the main goals of the research and which Core 1/Core 3 technologies will be utilized. This is absolutely critical. Provide enough background so that readers can grasp the scientific content of the theme and its context. What are the short- and long-term goals of the proposed DBP? A maximum of 2-3 specific aims that can be accomplished in two years' time are suggested per DBP.
2. *Background and Significance*
Provide the necessary background for non-specialists to understand the proposed research and how it intersects with the existing Center and its goals.
3. *Preliminary Work Accomplished*
Review the major conclusions and publications from your group that address the specific aims or provide proof of principle that the proposed work will be successful. Note that preliminary data specifically addressing the aims is NOT required.
4. *Research Design and Methods*
Succinctly outline the proposed experiments that will be used to accomplish the specific aims. Organize the sections by specific aim.
5. *Specific Interactions with Core 1 and Core 3*
Spell out exactly the type of work to be done in collaboration, which technologies will be used and the approximate scale of the collaborative work (e.g. 50 protein arrays per year, 25 Tandem Mass Spectrometry samples per year), etc.
6. *Literature Cited*
Please include titles in references.

Budget

Use standard PHS398 Year 1 and composite budget form pages and give brief justifications. The maximum budget is \$100,000 per year Direct Costs for a maximum of two years. The start date is August 1, 2010.

Also please provide the following documents:

- NIH-style Biosketch for PI and other key personnel (but NOT post-doctoral fellows or graduate students)
- Other support for above key personnel

We welcome and encourage your inquiries in advance of submission. For general questions about this RFP, or to discuss the suitability of your idea(s), please contact Jef Boeke at 410-955-2481 or jboeke@jhmi.edu.

Deadlines and Evaluation

This is a one-time solicitation. Proposals should be submitted by July 1, 2010 and emailed as a single pdf to selee@jhmi.edu.

Applications must be received by midnight, EST, July 1, 2010.

Decisions will be announced on or about July 15, 2010.

Evaluation will be carried out by a committee consisting of the Core 1 and Core 3 directors and the Program Manager. Investigators outside of the committee may be consulted. Proposals will be evaluated on the basis of scientific merit, responsiveness to RFP, novel applications of TCNP technology, track record of the investigator, plan for communication with TCNP members and extent to which TCNP resources will be utilized effectively by the PI. Up to four top applications will be selected for funding. Recommendations of the committee will be forwarded to the TCNP's Science Officer, **Dr. Adam Felsenfeld**, and the Program Administrator, **Dr. Doug Sheeley**, for final approval.

We look forward to receiving your application!