Call for Pilot Project Applications

Chemical Biology for Infectious Diseases
NIH Center of Biomedical Research Excellence
University of Kansas

Applications due:	Oct 3rd, 2016
Anticipated Decision Date:	Oct 21st, 2016
Anticipated Start Date:	Nov.1st, 2016

The KU NIH CoBRE in Chemical Biology for Infectious Disease will provide investigators with support for research activities, mentoring, and access to Core Lab Services. **Four** pilot projects at up to $90,000 in total direct cost starting Nov. 1st, 2016 are anticipated for support. Pilot projects are intended to be complete in 1.5 years (April 30th, 2018)

Applications must describe a pilot-research project that fits well with the scientific theme of Chemical Biology for Infectious Disease and incorporates substantial use of one or more associated core labs at KU. The competition is open to all full-time, tenure-track, or tenured faculty at any State of Kansas Regents Universities.

The CoBRE pilot grant program is intended to enable junior and senior investigators to generate preliminary data for submission of competitive grant applications, develop new technologies, and/or achieve other goals as defined by the PI that will better position the institution to conduct biomedical research.

Criteria for evaluation of COBRE applications. The basic criteria for NIH grant review may be found at http://grants.nih.gov/grants/peer/peer.htm. Additional COBRE-specific review criteria include:

- Strength of the science, and the quality and clarity of its presentation;
- Likelihood of the project becoming competitive for independent R01 funding;
- Likelihood of getting a publishable result within the one-year time frame;
- Relevance to the COBRE theme of Chemical Biology for Infectious Disease;
- Clear, detailed plan for utilization of one or more COBRE-CBID Core Labs (or, when justified, another relevant Core Lab at KU);
- Background, experience and career status of the applicant;
- Track record of past research, research grant applications and research funding.

Questions about eligibility, program details, or the appropriate inclusion within this CoBRE scientific theme are encouraged to contact Thomas Prisinzano (prisinza@ku.edu) or Scott Hefty (pshefty@ku.edu).

Chemical Biology for Infectious Disease Core Facilities and Director Information

IDAD-HTS Core Facility (Infectious Disease Assay Development and High-Throughput Screening)
Director: Anuradha Roy (anuroy@ku.edu); https://hts.ku.edu/

The overall goal of the IDAD Core is to provide expertise, facilities, services, and training in the area of HTS assay design, development, validation, small and large-scale screening for organism (cell) based or biochemical infectious disease targets. Core staff will facilitate design, development and validation of assays suitable for automated high-throughput chemical screening. They will also facilitate small- or large-scale screening of compounds (at KU or external sources). The expected outcomes of this core and associated efforts are well developed and validated assays suitable for automated large-scale screening that can be performed internally or externally. Hits generated through successful assay development and limited- or large-scale screening efforts will be directed into CCB and SCB to identify lead compounds for use as molecular probes and pre-therapeutics for infectious diseases.

CCB Core Facility (Computational Chemical Biology)
Interim Director: David Johnson (dkjohnson@ku.edu)

Computational Chemical Biology (CCB) Core will provide comprehensive computational support, with capabilities focused on four distinct classes of computational tasks: chemo-informatics, 3D ligand comparisons, structure-based approaches, and protein modeling. These capabilities will support activities such as virtual screening, lead optimization, target identification, and protein design.

SCB Core Facility (Synthetic Chemical Biology)
Director: Chamani Perera (chamani@ku.edu)

The purpose of the SCB is to provide synthetic chemistry support, including the validation of hit compounds obtained through high-throughput screening, quality control and analysis of compounds, synthesis of compounds unavailable commercially but needed by researchers, structure–activity relationship studies based on HTS campaigns, and optimization of fragment binders.

Other associated Core Facilities (https://corelabs.ku.edu/)

- Protein Structure Labs (Director: Scott Lovell) http://psf.cobre.ku.edu/cores/psl/about
- Protein Production Group (Director: Philip Gao) http://psf.cobre.ku.edu/cores/ppg/about
- Biomolecular NMR Lab (Director: Justin Douglas) http://psf.cobre.ku.edu/cores/bnmrl/about
- Genome Sequencing Core (Director: Jennifer Hacket) http://gsc.ku.edu/
- Microfabrication facility (Director: Ryan Grigsby) http://microfab.ku.edu/
- Microscopy and Analytical Imaging Laboratory (Director: Ed Molinar) https://mai.ku.edu/
- Mass Spectrometry and Proteomics Lab (Director: Todd Williams) http://msl.ku.edu/

General Terms and Conditions of COBRE-CBID Pilot Project Awards.

1. Projects must make significant use of at least one Core Lab. Prospective applicants highly encouraged to consult with the appropriate Core Lab Director(s) before applying. Letter of support from core director reflecting the feasibility of proposed core utility is strongly recommended for the application

2. Summer salary is limited to a maximum of one person-month. Funds may be used for consumable supplies, services or small laboratory hardware, but not for equipment (i.e., items costing > $5000). Personnel costs are allowable but preference will be given to applications that name specific individuals who are assured to be present on-site, eligible to work and ready to begin no later than Dec. 2016. Personnel costs may not be used to support first-year graduate students. Travel costs are limited to essential research-related travel and must be pre-approved by PI (Tom Prisinzano). Tuition costs are allowable as per standard institutional policies.
3. Investigators who receive COBRE pilot project support are REQUIRED to participate as fully as possible in the regular monthly research meetings of the Center, as well as in the seminars, workshops and other special activities organized or sponsored by the Center.
4. A standard NIH-type progress report (ca. 2 pages in length) is required from each COBRE Pilot Project Leader by February 15th, 2016 and 2017 for inclusion in the COBRE annual report to NIH.
5. Junior faculty recipients are expected to have a COBRE-approved senior faculty Mentor
6. **All** pilot project grant recipients are expected to submit an R01 (or similar) proposal within the first year of the pilot project funding period.
7. Term and budget adjustments. The COBRE Director reserves the right to make term and budget adjustments in accordance with the intent of the COBRE-CBID program and NIH policies concerning scientific overlap of projects. For example, if a COBRE investigator receives his/her own R01 grant COBRE grant may be reduced to adjust for overlap, up to and including 100% reduction if the scientific overlap is extensive.
8. Unanticipated new requirements. By accepting COBRE funds, awardees agree to comply with any and all requirements not already mentioned that may be imposed on COBRE-CBID by NIH or other institutional authorities.

Application Requirements.

1. Applications should be prepared in general accord with the NIH PHS 398 application guidelines.
2. Please type the applicant's name in the upper right hand corner of every page.
3. Include the Face Page, Project Summary and Relevance section (form page 2), Detailed Budget page (use a continuation page to provide a budget explanation/justification), NIH Biosketch (applicant and Mentor if applicable), Other Support (applicant only, not mentor) and Checklist. Please include Rigor and Reproducibility description. Budget dates are 11/01/16 – 3/31/17.
4. Number all pages consecutively starting with the face page as page 1.
5. Omit the Table of Contents page and the Resources page(s).
6. Letters of support from Directors of Core Labs that you will use are highly encouraged, but not required. Appendices are not allowed.

In addition, please observe the following COBRE-specific requirements for Step 2:

1. Please use 11-point Arial font with one-inch (1") margins on all four sides. (Write concisely and limit the amount of general background to the essentials that reviewers will need to know in order to understand and appreciate the proposed research.) Keep references to a minimum.

2. The Specific Aims section (maximum of two specific aims for a pilot project) must fit entirely on one page.
3. The Research Plan may not exceed **six (6) pages** in length including the Specific Aims page and all figures and tables, but excluding the reference list. References must be complete citations in the NIH style. Limit the reference list to a single page at most.
4. All figures and lettering MUST be large enough to be clearly legible (redraw if necessary).
5. For Junior Investigators, please include a letter of support from your COBRE Mentor.

Submission Requirements

1. Submit applications as a single PDF document labeled as "PI LAST NAME" and "INSTITUTION" (e.g. HEFTY KU)
2. Submit applications to Shelley Sandberg (sandberg@ku.edu) which must be received no later than 5:00 p.m. on October 3rd, 2016
3. If selected for funding, applicants will be required to furnish copies of all relevant compliance approvals (rDNA, vertebrate animals, etc.) prior to release of award funds, but DO NOT submit these items at this time.

CBID Core Laboratories

Infectious Disease Assay Development Core (Director: Anuradha Roy, Ph.D,) helps researchers with assay development and high throughput screening technologies for identifying chemical probes against infectious disease targets. The laboratory resources include automation for liquid handling, integrated multimodal signal detection instruments and a ~300,000 compound collection of small molecule diversity scaffolds as well as FDA approved drugs and bioactives.

The Computational Chemical Biology Core (CCB) (Director: David Johnson, Ph.D.) provides the computational resources and expertise to enhance the productivity of researchers studying infectious diseases. The CCB is able to provide or assist with virtual screening, protein-small molecule docking, binding site prediction, protein modeling and design, prediction of protein stability changes upon mutation, fragment based probe design, as well as preparation of presentation graphics. The core utilizes the KU Community Cluster at the Advanced Computing Facility for its high-performance computing needs. The KU Community Cluster offers 458 compute nodes with a total of 8,568 compute cores, including 17 nodes that offer GPU-accelerated computing. The CCB specializes in initial hit identification of non-traditional drug targets such as protein-protein or protein-RNA interfaces by offering high-throughput virtual screening via pocket optimization with exemplar screening at protein-protein interfaces and hotspot pharmacophore mimicry of protein-RNA interactions.

The Synthetic Chemical Biology Core (Core Director: Chamani Perera), a part of the Center for Chemical Biology for Infectious Diseases, strives to provide comprehensive synthetic chemistry capabilities to investigators under one roof. The synthetic expertise of the core includes, but is not limited to, novel and commercially unavailable small molecules, fluorescent molecules and peptides. The core assists in identifying hits for medicinal chemistry optimization in infectious disease targets and provides synthesis capabilities for structure activity studies of said hits. The core staff will work with investigators to design and synthesis novel molecular probes to facilitate their research. SCB core encompasses the Purification and Analysis Laboratory (PAL) (Ben Neuenswander) that provides purification, analysis and quality control of compounds via HPLC-MS. The core utilizes automated mass directed fractionation for purification in both reversed and normal phases (including chiral separations), and also provides relative purity analysis by UPLC coupled to a high resolution mass spectrometer for structure confirmation.