LSU School of Veterinary Medicine

LOUISIANA STATE UNIVERSITY
AND AGRICULTURAL AND MECHANICAL COLLEGE

CLBD Center for Lung Biology and Disease

REQUEST FOR APPLICATIONS
PILOT PROJECTS

SUMMARY: The NIH/NIGMS funded Louisiana Center for Lung Biology and Disease (CLBD) at LSU School of Veterinary Medicine (MPI: Tammy Dugas and Stephania Cormier) invites Pilot Project Investigators (PPIs) to submit applications for pilot research projects consistent with the research goals of this Center. The thematic focus of the CLBD encompasses mechanistic studies of respiratory diseases induced by both infectious (bacterial, viral) and non-infectious (e.g., environmental, cigarette, e-cigarette aerosols) stimuli.

RESEARCH OBJECTIVES: The COBRE program seeks to promote the initiation and development or expansion of unique, innovative state-of-the-art biomedical and behavioral research at institutions in IDeA-eligible states. **The long-term goal of the CLBD is to establish a Center of Excellence (COE) in pulmonary diseases in Louisiana that is highly interactive and consists of a dynamic group of investigators whose research focus is on understanding the molecular and cellular immunological mechanisms associated with the pathogenesis of both infectious and non-infectious lung diseases.** This COBRE program will provide novel insights into the pathogenesis of devastating lung diseases that guide future improved strategies for treating and preventing these and other lung diseases in animal and human populations.

PILOT RESEARCH PROJECTS: The pilot research project application should describe the Specific Aims in the pulmonary disease area of research and the goals for the first year and/or second year. The design principles supporting the research or the hypotheses to be tested should be delineated. Preliminary studies are required for COBRE projects. Moreover, each pilot project should critically assess the existing knowledge and approaches that have been or are being directed in the area with an emphasis on specifically how the multi-disciplinary COBRE approach will advance the field of pulmonary diseases. Each pilot project must identify a senior mentoring team that will assist the independent career development of the PPI Investigator and describe the institutional commitment to the PPI (support letters from the mentor and Investigator's department chair). **The goal of the mentoring program is achieving independent status by the Investigators through an acquisition of a major funded grant, such as an R01.**

FUNDS AVAILABLE: Budgets should not exceed $50,000 in direct costs only for the time period of January 1, 2026, through December 30, 2026**.** It is anticipated that at least **2 new pilot projects** will be awarded. NIH - PHS 2590 progress reports are required upon project completion.

ELIGIBLE INDIVIDUALS: Faculty investigators of all ranks are eligible, but priority will be given to Early Stage and New Investigators for leading a Pilot Project. Individuals holding postdoctoral, trainee, or similar non-independent positions are not eligible to lead a Pilot Project. For the

purpose of eligibility, a PPI is defined either as (1) an individual who does not have or has not previously had an external, peer-reviewed Research Project Grant (RPG) or Program Project Grant (PPG) from either a Federal or non-Federal source that names that investigator as the PI or (2) an established investigator who is making a significant change to his/her career. Senior, funded investigators who are not making a significant career change are ineligible.

A PPI must hold a tenure-, clinical- or research-track full-time faculty appointment at Louisiana State University Baton Rouge or any other institutions in Louisiana at the time that the award is made. Moreover, a clear commitment to support this appointment and career development of this applicant independent of the outcome of this application must be demonstrated from the institution by a letter(s) from the appropriate senior institutional official(s). Applicants must propose a project that fits into the central theme of the CLBD-COBRE, i.e., respiratory diseases.

APPLICATION SUBMISSION: Interested investigators should submit an application that conforms to the NIH Exploratory/Developmental Research Grant Program (R21) guidelines that can be found at the website: http://grants.nih.gov/grants/funding/r21.htm. The application should be written as an NIH R21 application intended for submission to the NIH, containing an explanation of the type of preliminary results that will be generated by the COBRE project funding that are needed to render this application competitive for NIH R01 funding.

In the interest of competitiveness for NIH R21 or R01 funding, it is critical for applicants to articulate the potential translational application of the proposed research to human health. The applicant should also consider the overall fit of the aims of their application for the goals of this COBRE, which are to promote excellence in research in the broad area of pulmonary diseases. The **deadline** for submission of a **letter of intent (LOI)** is **September 22, 2025**. The LOI should have the Specific Aim (one) page and NIH Biosketch (5 pages). If you have questions about the pilot grant application process, please contact Dr. Tammy Dugas or Dr. Stephania Cormier.

The completed SF424 application (all sections) should be compiled as a PDF document and submitted electronically to:

Merilyn Jennings
Email: mjennings@lsu.edu

Timeline

Release Date: August 29, 2025
Letter of Intent (open) submission deadline: September 22, 2025
Proposal submission (by invitation only) deadline: October 20, 2025
Funding Start Date: January 1, 2026 (earliest)

ADDITIONAL REQUIREMENTS: All applicants selected to receive CLBD project grant funding are required to submit an NIH R21 or R01 application and/or show that they are making significant progress towards submitting a competitive NIH application. Successful applicants are expected to attend the CLBD monthly meetings and present project progress reports as appropriate. Recipients will also be expected to actively participate in the CLBD seminar and work-in-progress series. A final report is required in the form of an NIH 2590 progress report. These reports should state the original objectives of the project and indicate which of the objectives were addressed during the allotted 12-month time period. Appropriate tables and figures should be included to help clarify these issues. The final report must also include the title of the resulting grant proposal

submitted to external federal agencies for funding, the date the proposal was submitted or will be submitted, and a list of any resulting articles submitted or published. A timetable should be provided that outlines a plan for seeking subsequent or supplemental extramural funding.

BUDGET SPECIFICATIONS: The total budget requested for each project is not to exceed **$50,000** for the 12 months (January-December). If additional funds are needed, a thorough justification is needed which is subject to advisory committee (AC) approval. **Expenditures allowed:** 1) Technical staff salary support, 2) Research supplies and animal maintenance, 3) Equipment costing less than $10,000, 4) Supplies, 5) Domestic or foreign travel, and 6) Publication costs, including reprints. **Expenditures NOT allowed:** 1) Office equipment and supplies, 2) Computers or honoraria and travel expenses for visiting lecturers, 3) Dues and membership fees in scientific societies, 4) Rental of office or laboratory space or construction or building maintenance. We want to encourage the use of the COBRE scientific cores. Therefore, each project will receive an additional $2,500 credit for SVM-to cover the use of core facilities and services including the Pulmonary Immunopathology (PIPC), Molecular and Cell Biology (MCBC) and Inhalation and Infection Core (IIC) Cores. These funds will be expended to reduce by 25% actual costs of project investigators utilizing these Cores.

UTILIZATION OF CORES: The use of CLBD Cores, such as PIP, MCBC, and IIC should be included in the overall experimental design.

FORMAT: The NIH R21 format should be followed. The grant application should be compiled as a single PDF document using the SF424 form and emailed to Merilyn Jennings.

Furthermore, as per NIH requirement, for each of the projects that are selected for funding, please provide the following PHS 398 Forms:

- Face Page
- Project Summary
- Research Strategy Section
- Biographical Sketch
- Human Subjects and Clinical Trials Information Form (if applicable)
    - An approved IRB Protocol letter will be needed should your proposal is selected. If Human Subjects is part of the project, documentation of the human subject's education is required.
- Vertebrate Animal Section (if applicable).
    - An approved IACUC Protocol letter will be needed should your proposal is selected.

SELECTION: LOIs will be screened initially by the MPIs for thematic fit and eligibility and if acceptable will be invited for submission of a full application. The AC of the CLBD-COBRE will review selected applications for merit and fit within the scope of the CLBD. Applications selected for funding by the AC will be forwarded to NIH for approval. NIH will then issue a notice of award pending just-in-time information and after approval. Applications are required to have approved IACUC and IRB protocols prior to receipt of funding. AC will use the NIH scale to review applications.

MAJOR REVIEW CRITERIA: The goals of this NIH-supported research are to advance our understanding of pulmonary diseases, to improve the prevention and control of pulmonary diseases, and to enhance human health throughout the lifespan. Diversification of the biomedical research workforce and development of the next generation of independent investigators are also important objectives of the NIH extramural research portfolio and a specific goal of the

NIH/NIGMS COBRE funding mechanism. A single-digit score and a bulleted list of strengths and weaknesses for each of the six review categories, as well as an overall priority score, using the following **NIH-based scoring scale** will be used (Note that an application does not need to be strong in all listed categories to be judged).

Significance: Does this study address an important health problem? If the aims of the application are achieved, how will scientific knowledge or clinical practice be advanced? What will be the effect of the study on the concepts, methods, technologies, treatments, services, or preventive interventions that drive this field?

Innovation: Is the project original and innovative? For example: Does the project challenge existing paradigms or clinical practice or address an innovative hypothesis or critical barrier to progress in the field? Does the project develop or employ novel concepts, approaches, methodologies, tools, or technologies?

Investigator: Is the investigator appropriately trained and well suited to conduct the proposed study? Is the proposed research appropriate to the experience level of the principal investigator and collaborators? If the principal investigator is a junior faculty member, has the applicant designated a senior mentor and a brief description of a mentoring plan? Does the investigative team bring complementary expertise to the project?

Approach: Are the conceptual or clinical framework, design, methods, and analyses adequately developed, well-integrated, well-justified, and appropriate to the aims of the project? Does the applicant acknowledge potential problems and propose alternative strategies?

Environment, Collaborations, and Partnerships: Does the scientific environment in which the study will be performed contribute to the probability of success? Does the proposed study benefit from unique features of the scientific environment or subject populations, or employ useful collaborative arrangements? Will there be collaborations to address the scientific questions in the proposed research area? Will the research fit into the Department and Institutional strategic plans and research?

Terms of the Center for Lung Biology and Disease (CLBD)-COBRE award:

- Awardees (PPIs) will be required to prepare a “personal mentoring or career development plan” with their mentor.
- Awardees will be required to attend CLBD meetings, such as grant proposal development, work in progress, journal club, seminars, and give an oral presentation at the Annual CLBD Research Retreat. Awardees’ lab members are also required to participate in CLBD activities.
- Awardees’ progress will be evaluated annually by the members of the AC).
- Awardees **must** acknowledge the COBRE grant support as well as COBRE Research Core support (if applicable) in publications, presentations, press releases, or other documents regarding research. A disclaimer should be included such as "Research reported in this publication was supported by the National Institute of General Medical Sciences of the National Institutes of Health under **P20GM130555**. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health."
- Awardees must annually provide information on their publications, presentations, honors, grants, other recognitions, and service in study sections for the NIH progress report during the tenure of the COBRE grant.

Appendix: Services provided by CLBD-COBRE Research Cores

Pulmonary Immunopathology Core (PIPC) (Core lead: Masami Yoshimura, PhD, Co-I, Tomislav Jelesijevic, DVM, PhD)

We provide COBRE and other biomedical investigators with resources on comprehensive immunopathological assessments for mice, including instrumentation, technical support, consultation, and training.

1. Intranasal/intratracheal instillation of reagents, such as LPS, bacteria, antibodies, and compounds.
2. Pulmonary function tests.
3. Mouse dissections and tissue collections.
4. Bronchioalveolar lavage fluid (BALF) collection.
5. Support for experimental design related to mouse pulmonary pathology sampling.
6. Tissue processing for paraffin-embedded tissue sections and stains.
7. Immunohistochemistry tissue staining.
8. Histological scoring of lungs and extrapulmonary tissues.
9. Support for flow cytometry and cell sorting.
10. Equipment and support for standard tests of immune function, including tests of cell-mediated immunity (intracellular cytokine staining utilizing flow cytometry), cytokine gene expression, and cytokine protein expression via the Bio-Plex Immunoassay System, NETosis and phagocytosis, via the IncuCyte S3 Live Cell Imaging System, and the ECHO Revolve microscope.

Molecular and Cell Biology Core (MCBC) (Core Lead: Konstantin Kousoulas, PhD, Co-I, Vladamir Chouljenko, PhD)

1. Overexpression vectors for transgene expression.
2. Site-directed mutagenesis.
3. Gene and pathway reporter assays.
4. Support for transfection using adenovirus and lentivirus vectors.
5. Real-time PCR gene quantification.
6. DNA microarray and RNAseq analyses
7. Support for evaluations using immunofluorescence and confocal microscopy, and interpretation of images obtained by scanning and transmission electron microscopy.
8. Consultation on molecular biology aspects to the COBRE investigators and to help develop or adopt new techniques as needed.

Inhalation & Infection Core (IIC) (Core Director: Alexandra Noël, PhD, Co-Director, Tirumalai Rangasamy, PhD)

1. Equipment and support to conduct *in vivo* studies with mice co-exposed to either $PM_{2.5}$, secondhand smoke, or e-cigarette aerosols, and a BSL2-infectious agent. (Years 3 to 5)
2. Equipment and support to conduct lung function testing in mice (*flexiVent*).
3. Equipment and support to conduct *in vitro* air-liquid interface exposures. (Years 3 to 5)
4. Models of bacterial pneumonia in mice (e.g., Carbapenem-resistant *Klebsiella pneumoniae* (CRKP), *Staphylococcus aureus,* Methicillin-resistant *Staphylococcus aureus* (MRSA), *Streptococcus pneumonia, Klebsiella pneumoniae, Pseudomonas aeruginosa).*

5. Support and training on bacterial preparation; bacterial inoculation; bronchoalveolar fluid collection and inflammatory cell phenotyping; enumeration of bacterial burden in different organs; lung perfusion and inflation with low melting agarose.
6. Support and training on isolation of resident and innate immune cells (e.g., murine alveolar type II epithelial cells, generation of macrophages from bone marrow cells of mice, purification of neutrophils using neutrophil enrichment kit) from mice.
7. Support and training on intracellular killing assays (using opsonized bacteria and heat inactivated and FITC-labeled bacterial species).
8. Support and training on extracellular killing assay (i.e., by infecting murine/human cells/cell lines with different bacterial species).
9. Conduct measurement of lung injury/emphysema (e.g., mean linear intercept) in mice using metamorph software program. (Years 3 to 5)