The University of Alabama at Birmingham (UAB)/University of California at San Diego (UCSD) O’Brien Core Center for AKI (NIH P30 DK079337) has established an interdisciplinary center of excellence in AKI-related research. The main objective of this core center is to provide scientifically rigorous, cost-effective, state-of-the-art methodologies to address questions that will advance our understanding of the pathophysiology, enhance our diagnostic specificity and expand our preventive and therapeutic approaches for AKI.

This objective will be implemented in three specific aims:

1. Facilitate hypothesis-driven research through shared core facilities and leverage these core technologies into new projects, interactions and collaborations in AKI-related research.

2. Foster multidisciplinary interactions among UAB-UCSD investigators and create an extended research base of investigators from multiple institutions at the regional, national and international levels.

3. Provide, through the Biomedical Research Cores, a Pilot and Feasibility Program (PAP) and Scientific Enrichment program, the intellectual resources and the research infrastructure, to attract new and established investigators to AKI research.

The core center investigators will benefit from access to a set of three complementary Biomedical Research Cores that will integrate existing intellectual and technological resources of UAB and UCSD and provide a defined set of services that will facilitate the research of investigators pursuing AKI research. The Clinical Research Core will provide support to the cores and pilot projects. These cores and the investigator base of clinical and basic investigators will provide unique expertise that is critical for innovative and productive research in AKI to advance our knowledge in this field.

**Clinical Research Core**

The objective of the Clinical Research Core is to provide resources to enable interdisciplinary clinical investigation in AKI that will advance our understanding of the natural history and pathophysiology of human AKI, ascertain genetic contributions for susceptibility and prognosis of AKI, and enhance our diagnostic specificity and expand our preventive and therapeutic approaches for this disorder. The objective will be implemented in three specific aims.

- **Clinical research for AKI:** Provide core resources for the design and conduct of observational and interventional clinical studies in AKI by enhancing and further developing an existing data management system and databases of patients with AKI.

- **Genomics for AKI:** Provide a genomic resource to facilitate the investigation of genetic determinants of AKI, and enable investigators to perform unbiased, hypothesis-free, genomic analyses to allow correlation with clinical phenotypic information.

- **Bio-repository for AKI:** Provide access to a biological sample repository linked to the clinical databases to enable further characterization of patients.

**Organizational Structure**

The administrative core coordinates and integrates the diverse activities of the UAB-UCSD O’Brien center, facilitates interactions and collaborations among the research base, ensures quality control of the core services and promotes scientific development. The administrative core includes a Biostatistical Resource (BR), which provides statistical support for the cores and research and pilot projects of the O’Brien Center. The BR was established by an Internal Advisory Committee. In addition, the center leadership is advised by an External Advisory Committee, a Pilot and Feasibility Study Program and an Scientific Advisory Committee. The Administrative Core oversees the Pilot and Feasibility Studies Program and is responsible for evaluating the Pilot Program’s efficacy in promoting high quality AKI-related basic and clinical science research that leads to extramural funding and publications. Additionally, the Administrative Core organizes and supports an annual symposium consisting of seminars with invited speakers, journal clubs/work-in-progress sessions, mini-sabbaticals for furthering scientific knowledge and learning techniques and an Annual Conference Research Symposium. The Administrative Core enables optimal coordination of the various Core Center components through its committees, regularly scheduled meetings, seminar series, web-based communication mechanisms and video conferences between participating institutions.

**Bio-repository for AKI**

The specific aims of Core B are to provide investigators with a resource for animal models, small animal imaging and renal physiologic studies relevant to AKI.

1. **Provide the facilities and skills to study murine models of AKI.**
2. **Maintain a state-of-the-art small animal imaging facility.**
3. **Provide the facilities and requisite skills to determine renal physiologic changes in AKI.**

This core will specifically provide:

- Expertise in the development and training in the use of rodent models of AKI specifically in the setting of sepsis/renal injury, sepsis and renal transplant.

**Pilot and Feasibility GEMS Program**

The primary objective of the BR is to provide statistical and bioinformatic support to the research projects, pilot projects and other Cores of the O’Brien Center.

- **Provide statistical expertise in the conceptualization and design of projects.**
- **Provide expertise in data management and analysis of research data projects.**
- **Assist with the preparation of project reports and presentations and manuscripts.**
- **Assist the Administrative Core in scientific review of projects.**
- **Contribute relevant statistical developments via publication and presentation.**

**Administrative Core**

The Co-Directors of Core A are Orlando Gutierrez, MD, UAB, and Ravindra Mehta, MD, UCSD.

**Clinical Studies of AKI**

The Co-Directors of Core B are Paul W. Sanders, MD, UAB, and Volker Vallen, MD, UCSD, James George, PhD, UAB.

**Pilot and Feasibility Study Program**

The Co-Directors of Core B are Paul W. Sanders, MD, UAB, and Volker Vallen, MD, UCSD, James George, PhD, UAB.

**Data Management and Analysis**

- **Confirmation of protein modifications and quantitative analysis (LC-MS/MS)***
- **Protein identification by peptide mass fingerprint analysis (MALDI-TOF/TOF)***
- **Confirmation of protein localizations by western blot analysis***
- **Established investigators who have not worked in the field of AKI but want to explore a novel concept related to AKI and want to apply their expertise to a problem in this area.**

Funded investigators will be expected to present their findings at the annual Comprehensive Research Symposium that will alternate between UAB and UCSD.

**Pilot and Feasibility Program**

The objective of the Pilot and Feasibility Program is to provide seed funds for new, outstanding, and innovative research proposals related to AKI. These pilot funds will provide eligible investigators with up to two years of support along with the resources necessary to explore investigator-initiated projects related to AKI. The ultimate goal of the UAB-UCSD O’Brien Center PAP program is to provide sufficient resources and training for pilot investigators to pursue additional funding of AKI-related research through extramural mechanisms.

- **Eligibility criteria:
  - New independent investigators (Instructor or Assistant Professor) who do not have current or past NIH research support (R01/RO1).
  - Established investigators who have not worked in the field of AKI but want to explore a novel concept related to AKI and want to apply their expertise to a problem in this area.**

Funded investigations will be expected to present their findings at the annual Comprehensive Research Symposium that will alternate between UAB and UCSD.

- **Pilot and Feasibility Proposals**
  - Request for Proposals (RFP) will be circulated four months prior to the award date (usually August 1) that will be distributed to all UAB-UCSD faculty by posting in local newsletters, notice boards, and will be distributed to all members of the Extended Research Base by e-mail. A two-phased application process will be used.

- **First level review**
  - Interested investigators are asked to submit a two-page description of the project that includes separate sections on overall objectives, a hypothesis with specific aims, significance of the proposed research to AKI, and experimental plan summary. Emphasis will be placed on scientific merit, innovation, qualifications of the investigators, and adequacy of the proposed budget. The successful applicant will also have a demonstrated potential for NIH funding. A NIH-style biosketch with a completion progress report is required. A one-page outline of the budget must be included with the application.

- **Second level review**
  - Investigators with the highest rated applications in the first level review will be asked to submit full pilot project applications for review by the PAP program committee.