Please see below for a more detailed list of services of each core.

If you would prefer to fill out this form and attach it to the Core User Request form please save it as a PDF and upload at the appropriate point on the webform.

O'Brien Core Center for Acute Kidney Injury Research
(P30 DK079337)

Biostatistical Core
Contact: Gary Cutter, PhD (cutterg@uab.edu)

- ☐ Analysis of pilot data
- ☐ Design of Epidemiological, Clinical studies or Clinical trials
- ☐ Sample Size and/or Power for trials
- ☐ Analyses of study results
- ☐ Database development
- ☐ Forms and/or instrument development

Clinical Studies in AKI (Core A)
Contact: Ravindra Mehta, M.D. (rmehta@ucsd.edu)

- ☐ Study Planning and Design
  - Protocol creation, IND submission, IRB/GCRC submission, Budget creation, Patient recruitment plans, Informed consent form creation, Study registration
  - Ethics Issues: Ethical considerations for study design, Optimization of informed consent documents and process, Safety - Research Safety Advisor related issues and procedures (e.g. establishment of a Data Safety Management Panel)
- ☐ Study Initiation and Conduct
  - Data Base Management System: Define variables, Creation of CRF's, web based relational database, Manuals for Standard operating procedures
  - Training for using database, study monitoring procedures, study conduct
  - Tools for monitoring study conduct and quality assessment with GCP guidelines
  - Ongoing safety data accrual and reporting
  - Data compilation and preparation for data analysis
- ☐ Study Analysis and Interpretation (In conjunction with Biostatistical Core)
  - Primary study data analysis and interpretation, analysis of data from translational Studies, plans for follow up studies.
- ☐ Biological Sample Repository
  - Procedures for sample acquisition
  - Barcoding system for lab samples integrated with database
  - Kits for sample acquisition and shipping
  - Sample storage
- ☐ Design of Genetic studies of AKI

- Design of single nucleotide polymorphism assays
- Preparation of genomic DNA, with quality control.
- Performance of single nucleotide polymorphism assays.
- QC of SNP assays.
- Informatics and statistical genetics of SNP information.

Pre-Clinical Studies of AKI (Core B)
Contact: Paul W. Sanders, M.D. (psanders@uab.edu)

- Rodent (mouse and rat) models of transplantation
    - Orthotopic kidney transplantation
    - Heterotopic heart transplantation
    - Orthotopic abdominal aorta transplantation
- Rodent models of acute kidney injury
    - Renal ischemia/reperfusion
    - Nephrotoxin-induced models of AKI (e.g. cisplatin, gentamicin)
    - Rhabdomyolysis model of AKI
- Other procedures (e.g. tail vein injection, cannulation)
- Arterio-venous fistula (carotid artery to jugular vein)
- Use of microsurgical workstation
- Hands-on training of a surgical protocol
- Isolation and culture of primary cell lines (proximal tubule, endothelial, smooth muscle)
- Functional renal imaging analysis
- Structural and metabolic imaging
    - Ultrasound
    - MicroCT
- Gamma-ray Imaging
    - Gamma camera
    - SPECT/CT
- Optical Imaging
    - Bioluminescence
    - Fluorescence
- Renal Physiological Techniques in rodents
    - Whole kidney clearance and oxygen consumption studies
    - Tissue oxygen partial pressure determination in kidney
    - Nitric oxide generation
    - In vitro assessment of O_2 consumption by isolated proximal tubule segments
    - Micropuncture for nephron function and tubuloglomerular feedback
    - Metabolic cage experiments in mice
- Radioimmunoassay of angiotensin II
- Videometric flow velocitometry (VMFV)

Bioanalytical Core (Core C)
Contact: Stephen Barnes, Ph.D. (sbarnes@uab.edu)

- Training in proteomics and mass spectrometry approaches
- Consultation for analysis of oxidative stress biomarkers in AKI
- Biomarkers for AKI
    - Functional markers: Cystatin C, beta-2 microglobulin
    - Structural markers: NGAL, KIM-1, IL-18, Osteopontin, MMP, albumin
    - Cytokines: TNF α, IL-6, IL-10, IL-1 and additional assays available on Luminex platform
    - Assays available on Meso Scale Diagnostics Platform
- Serum/plasma/urine creatinine determination by isotope dilution LC-MS/MS
- Assays for oxidative stress markers
    - F2-isoprostanes
    - Oxidized fatty acids
    - Sulfhydryl and oxidative modification of proteins and peptides
- Bioenergetics and Mitochondrial Function Assessment for AKI
- Assays for post-translational modification of proteins
    - 2D-gel approaches (e.g. CyDye, 2D, DIGE, blue native 2D gels)
    - Protein identification by peptide mass fingerprint analysis (MALDI-TOF-TOF MS)
    - Confirmation of protein modifications and quantitative analysis (LC-MS/MS)
- Quantitative analysis of Krebs cycle and glycolytic intermediates by LC-MS/MS