

Kidney Precision Medicine Project (KPMP)

The NIDDK Kidney Precision Medicine Project aims to ethically obtain and evaluate human kidney biopsies from participants with AKI or CKD, create a kidney tissue atlas, define disease subgroups, and identify critical cells, pathways, and targets for novel therapies. It will have three distinct, but highly interactive activities.

Recruitment Sites (RS)

RFA-16-026 = ~\$1.6M TCs UG3/UH3 = 12 pages

- About 4 awards to recruit either AKI or CKD patients for longitudinal cohort studies with research kidney biopsies
- 2 year UG3 phase to establish common protocols and enroll small numbers of patients
- 3 year UH3 phase to expand longitudinal cohort studies in initial AKI or CKD populations

Tissue Interrogation Sites (TIS)

RFA-16-027 = ~\$2M TCs UG3/UH3 = 12 pages

- About 5 awards to support agnostic discovery on human kidney tissue
- 2 year UG3 phase to use or adapt current “state-of-the-art” methods to interrogate existing samples and small numbers of biopsies; to develop and optimize “next generation” tissue interrogation methods
- 3 year UH3 phase to implement next generation methods

Central Hub (CH)

RFA-16-028 = ~\$3.15M TCs

Multicomponent U2C (Overall = 6 pages; DCC = 12 pages; DVC = 12 pages; AC = 6 pages)

Data and sample Coordinating Center (DCC)

- Support clinical protocol development and statistical calculations
- Perform standard clinical assessments (e.g., patient data reports, recruitment tables)
- Collect, curate, aggregate, store, distribute, and ensure quality control of all data and samples

Data Visualization Center (DVC)

- Perform digital pathology
- Create a kidney tissue atlas to classify and locate different cell types and interstitial components in health and disease
- Develop and manage a website for internal and external communication, analysis, and discovery

Administrative Core (AC)

- Provide administrative and meeting support
- Establish working groups
- Solicit patient input and feedback
- Administer an Opportunity Pool to form new partnerships

KPMP Stages

The KPMP aims to ethically obtain and evaluate human kidney biopsies from participants with AKI or CKD, create a kidney tissue atlas, define disease subgroups, and identify critical cells, pathways and targets for novel therapies. It is anticipated that the KPMP will be conducted in stages:

Stage 1 (years 1-2)

- Optimize and validate tissue processing and interrogation methods
- Establish common clinical protocols and cohort studies enrolling a small number of AKI or CKD participants
- Assess quality of phenotype data and biopsy protocols at each site
- Begin work on kidney tissue atlas and optimize next generation assays

Stage 2 (years 3-5)

- Small scale proof of concept studies to determine if clinical and analytic pipelines are robust
- Implement next generation tissue interrogation assays
- Enrich the kidney tissue atlas
- Expand longitudinal cohort studies in initial AKI or CKD populations

Stage 3 (years 6+)

- Expand to larger cohort studies
- Expected to occur in the next 5 year funding cycle of the KPMP