

**Appendix A: KKC Scientific Challenge** /// **Short Proposal Submission Deadline: February 10, 2021**

The primary goal of the project should be the discovery or development of a novel compound, target molecule, or drug concept for the treatment of kidney-related diseases and/or novel technology to drive such research.

Target diseases are:

- **Chronic Kidney Disease (CKD)** caused by a genetic component or various primary diseases including, but not limited to, Diabetes, Hypertension, Nephrotic Syndrome and Nephritis.
- **Acute Kidney Injury (AKI)** including septic, post-cardiac surgery and drug induced acute injury.
- **End-Stage Kidney Disease (ESKD)** including its complications.
- **Kidney disease-related multi-organ failure.**

Kidney cancer is excluded from the focus of this RFP.

Primary research focus:

1. Novel compounds, target molecules and drug concepts applicable to therapeutics for the target diseases.
  - Areas of high interest include:
    - Kidney dysfunction evaluated by markers such as creatinine and blood urea nitrogen
    - Decrease in glomerular filtration rate
    - Proteinuria/Hematuria
    - Kidney injury induced by a specific gene mutation
    - Damage, dysfunction or loss of podocytes
    - Damage, dysfunction or necrosis of tubular epithelial cells
    - Fibrosis of tubulointerstitium
    - Oxidative stress
    - Injury on vascular endothelial cells
    - Inflammation and/or invasion of inflammatory cells
    - Multi-organ injury related to kidney dysfunction
  - Modalities of interest: small molecule, antibody, peptide, protein, nucleic acid, or cell therapy.
  - Strong consideration will be made for proposals that include *in vivo* proof-of-concept data from animal models for kidney disease or use clinical findings to develop a drug concept.
2. Novel technologies that can drive innovative research and therapies in kidney-related areas.
  - Technologies of interest include:
    - *In vitro* or *ex vivo* assays to replace *in vivo* evaluation enabling a bridge from pre-clinical to clinical studies, or to use for high-throughput compound screening.
    - Methods for segmentation of patients with potential genetic causes of disease identified from clinical samples.
    - Methods for finding promising target molecules or pathways in the target diseases
    - Drug delivery systems targeting kidney, and more preferably specific cell types within kidney, such as podocytes and epithelial cells of tubule or collecting duct.
    - Novel drug modalities or therapeutic technologies, and their application to a target kidney disease. For example, the development of gene therapy enabling more effective gene induction and/or modulation.
3. Proposals in areas other than those described above, yet related to the mission of KKC, may also be welcomed.