Key questions defining research program:

- How does the activity of the epithelial Na\(^+\) channel (ENaC) influence blood pressure?
- Do human genetic variants that alter ENaC activity alter risk of hypertension?
- Do enzymes leaked into the urine in nephrotic syndrome activate ENaC?
- Do levels of specific proteins in the urine in nephrotic syndrome predict decline in kidney function?

Key words describing research program:

- Hypertension
- Chronic kidney disease
- Extracellular volume status
- Ion channel electrophysiology

Titles for shovel-ready research projects:

- The influence of human genetic variants on ENaC activity
- A comparison of urinary protease enzyme levels with risk of developing hypertension and progression of chronic kidney disease
- A family with Liddle syndrome without mutations in the epithelial Na\(^+\) channel

Data sources for shovel-ready research projects:

- Using ELISA, protease levels from previously collected urines from human subjects who went on to develop hypertension and/or kidney disease will be examined to determine whether protease levels predict prognosis in these diseases.
- Using two-electrode voltage clamp, human genetic variants of the epithelial Na\(^+\) channel will be examined to determine whether these variants alter channel activity, potentially influencing risk of developing hypertension.
- A family has been identified that clinically behaves as if its individuals have Liddle syndrome, normally caused by a mutation in the epithelial sodium channel. However, this family lacks mutations in the coding regions of this channel. Family members will be contacted to gather clinical data to identify members for whole exome sequencing, to identify the novel mutation causing this syndrome in this kindred.