RUSH

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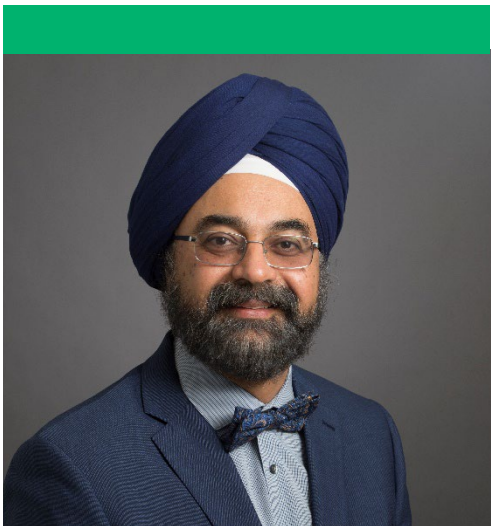

Advancement of Medicine

In 2023 my laboratory, the Glomerular Disease Therapeutics Laboratory (GDTL) continued several ongoing projects to develop and validate the first mechanism-based drugs for a subset of human kidney diseases called glomerular diseases. Over the past year, we published two landmark studies.

The first study, published in the *Journal of Clinical Investigation Insight*, shows the cytokine storm-based mechanisms by which the COVID-19 virus SARS-CoV-2 induces injury in the heart, liver and kidney. This study forms a major foundation for ongoing next pandemic prevention planning at an international level.

The second publication is a review on a form of human kidney disease, Minimal Change Nephrotic Syndrome. Over the past two decades, our GDTL has unlocked most of the disease relevant mechanisms and is also developing novel therapeutic approaches for this disease.

Research

Your generosity supported GDTL-related research efforts and expenses. We have the only functional mass spectrometer at Rush, which we use for the assay of creatinine and specific proteins. Your fund also enabled international academic travel to discuss the research findings covered in two above-mentioned publications.

I continue to serve as principal investigator (PI) or co-investigator (CI) for the following studies:

- “Soluble mediators of relapse” investigates the cytokine storm induced by common cold infections to prevent relapse of MCD and FSGS. (PI)

- “COVID-19 cytokine storm” investigates mechanisms by which the extensive cytokine storm induced by COVID 19 induces kidney injury. (PI)
- “Recombinant hANGPTL4 and CKD” studies the role of human ANGPTL4 mutant in slowing the progression of CKD. (PI)
- “Kidney PCSK9 in nephrotic syndrome” explores the role of PCSK9 secreted from kidney cortical collecting duct cells in the pathogenesis of hypercholesterolemia in nephrotic syndrome. (CI)
- “COVID-19 induced worsening of glomerular disease.” (CI)

Grants

- I was part of an expert panel that did a scientific audit of the National Institute of Environmental Health Sciences in December 2023.
- I have three active non-modular NIH grants and am PI in all three grants.
- Lionel Clement, PhD, has been funded by his own NIH grant since 2021.
- Camille Macé, PhD, started her own NIH grant project in January 2023.
- Eduardo Molina-Jijon, PhD, a GDTL trainee, submitted a K Award to the NIH. If he receives this grant, he will be a third generation K Awardee from GDTL. The other two were Dr. Clement and me.

Publication Highlights—Abbreviated

"Idiopathic" Minimal Change nephrotic syndrome: A podocyte mystery nears the end. *American Journal of Physiology-Renal Physiology*. 2023.

“Cytokine storm-based mechanisms for extra-pulmonary manifestations of SARS-CoV-2 infection,” *JCI Insight*. 2023.

The Year Ahead: 2024 and Beyond

We plan to submit for publication a major study on the first biological drug candidate that can slow the progression of chronic kidney disease.

We also plan to pursue two filed Intellectual Properties into National Phase Entry in multiple jurisdictions

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With Gratitude

Thank you for your generous support. It furthers the cause of our research and academic goals. The pandemic was hard on all of us, but we persevered. Your generosity has played a key role in our success.