

Project Title. Unraveling the gut-immune axis in IgA nephropathy: The Beat IgA Nephropathy (BIgAN) study.

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Brief Description. The pathophysiology of IgAN is currently not fully understood. It is fundamentally important to gain a better understanding of the mechanisms leading to the aberrant glycosylation of systemically circulating IgA1 and the formation of antibodies against it, the underlying systemic immune dysregulation, and the role of the gastrointestinal microbiome in this process. Therefore, this research focuses on unraveling the pathophysiology of IgA nephropathy. With this, we aim to identify how the disease can be better (non-invasively) diagnosed, how we can better understand and predict disease progression, how we can comprehend and predict treatment effects, and identify targets for drug development. This study consists of a discovery cohort of 50 IgAN patients and 50 age- and kidney function-matched controls, from whom we analyze detailed clinical data, single-cell RNA sequencing of circulating immune cells, the metagenomic composition of the microbiome from stool and saliva, the glycosylation profiles of IgA1 measured by mass spectrometry, and proteomic signatures of blood and urine. The innovation of this project lies in the use and integration of all these analysis techniques and their application in this patient population with well-matched controls. With our cohort, we collaborate with other research groups in the IgAN Atlas initiative.

Project status. Baseline clinical data and biologic samples (blood, urine, saliva, feces) have been collected for all patients and controls. Single-cell RNA sequencing of circulating immune cells, the metagenomic composition of the microbiome from stool and saliva, the glycosylation profiles of IgA1 measured by mass spectrometry, and proteomic signatures of blood and urine are currently being analyzed. A call for all IgAN patients and controls for a follow-up visit is scheduled, during which clinical data and biosamples will be collected again.

Founding Source. RadboudFonds and The Dutch Kidney Foundation.

Preliminary publication

N/A