



PRESS RELEASE

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SCIENTISTS CREATE THE MOST COMPLETE ATLAS OF THE HUMAN FETAL KIDNEY TO DATE

Highlights

- By examining the gene expression patterns of single cells from human fetal kidneys, researchers created a map that demonstrates the trajectories of cell states in the developing kidney and that identifies characteristics associated with kidney diseases.
- Results from the study will be presented at ASN Kidney Week 2023 November 1–November 5.

Philadelphia, PA (November 3, 2023) — Scientists have examined the gene expression patterns of single cells from 5 human fetal kidneys to create the most complete atlas of the fetal kidney to date. The research will be presented at ASN Kidney Week 2023 November 1–November 5.

The atlas, which was based on a total of 65,348 cells, demonstrates the trajectories of cell states starting from a progenitor population to mature cell types. By examining properties within this map, investigators identified the transitions between different cell states and defined properties during fetal development that are characteristic of common and rare human genetic diseases.

“We were able to identify cellular transitions and the genes that appear to push toward these transitions, making a map of developmental states and showing that tubular cells are derived from a separate population than podocytes, as has been shown to be the case in mice. We found some paths that had been hypothesized in humans but not clearly shown involving parietal epithelial cells, proximal tubule cells, and podocytes,” said first author Jonathan Levinsohn, MD, PhD, of Children’s Hospital of Philadelphia. “Also, by examining genes involved in rare cases of kidney malformations, we identified cell states that appear to be more likely affected. We also examined heritability of adult kidney traits and found evidence that particular fetal cell states may subtly contribute to kidney health later in life.”

Study: “A Single-Cell Atlas of Human Fetal Kidneys Identifies Cell States Associated with Rare and Common Human Disease”

The world's premier nephrology meeting, ASN Kidney Week, brings together approximately 12,000 kidney professionals from across the world. The largest nephrology meeting provides participants with exciting and challenging opportunities to exchange knowledge, learn the latest scientific and medical advances, and listen to engaging and provocative discussions with leading experts in the field.

About ASN

Since 1966, ASN has been leading the fight to prevent, treat, and cure kidney diseases throughout the world by educating health professionals and scientists, advancing research and innovation, communicating new knowledge and advocating for the highest quality care for patients. ASN has nearly 21,000 members representing 140 countries. For more information, visit www.asn-online.org and follow us on [Facebook](#), [X](#), [LinkedIn](#), and [Instagram](#).

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