VISIOPHARM®

Histological characterization of a PKD1 knockout mouse strain - Kidney Research

Research question

Autosomal dominant polycystic kidney disease (ADPKD) is an inherited systemic disorder mainly associated with mutations in the PKD1 gene and characterized by the development of multiple cysts in the kidneys and other organs. There is still a high unmet need for treatment options for patients with ADPKD because Tolvaptan, the only approved treatment, has limited efficacy and non-negligible side effects. To mimic naturally occurring human PKD1 mutations, a PKD1 inducible knockout mice strain was established at Novalix to study disease progression and evaluate therapeutic approaches.

Why Visiopharm's Discovery software helps

The software enabled comprehensive histological and imaging analyses, providing actionable insights into the disease mechanisms and progression. By facilitating the quantification of cysts, vessels, and fibrosis through advanced tissue segmentation workflows, the software delivered detailed metrics, including cyst size, count, area percentage, and fibrosis levels, with precision and efficiency.

Florence Anquetil-Besnard
is a Histology Project Manager at NovAliX. After a PharmD and a PhD in Immunology, she began her career in the autoimmune field (rheumatoid arthritis, diabetes) and specialized in histopathology and quantitative image analysis. She is a passionate advocate for digital pathology and loves to solve challenging projects using artificial intelligence (AI) tools.

Key insights

"I would say that we are now better equipped to address the complexity of organs. Taking kidney as an example, it is an organ divided into four main compartments: glomeruli, tubules, blood vessels, and interstitium. These parts are independent from each other, but can also be all connected together, posing unique challenges for analysis. Now, with Visiopharm, we can conduct detailed analyses in each area, a task that was significantly more challenging before. For instance, we can independently assess fibrosis in the glomerulus and in the interstitium. This improvement is largely due to the deep learning capabilities of the software."

Florence Anquetil-Besnard: at the interview with Visiopharm:
Q&A: NovAliX's journey with Visiopharm's image analysis software

Learn more

Watch the full webinar with Florence to deep dive into the study:
https://visiopharm.com/resources/innovative-imaging-analysis-approaches/