Single-Cell Transcriptomics Reveals Age-Dependent Transdifferentiation Potential of Glomerular Parietal Epithelial Cells

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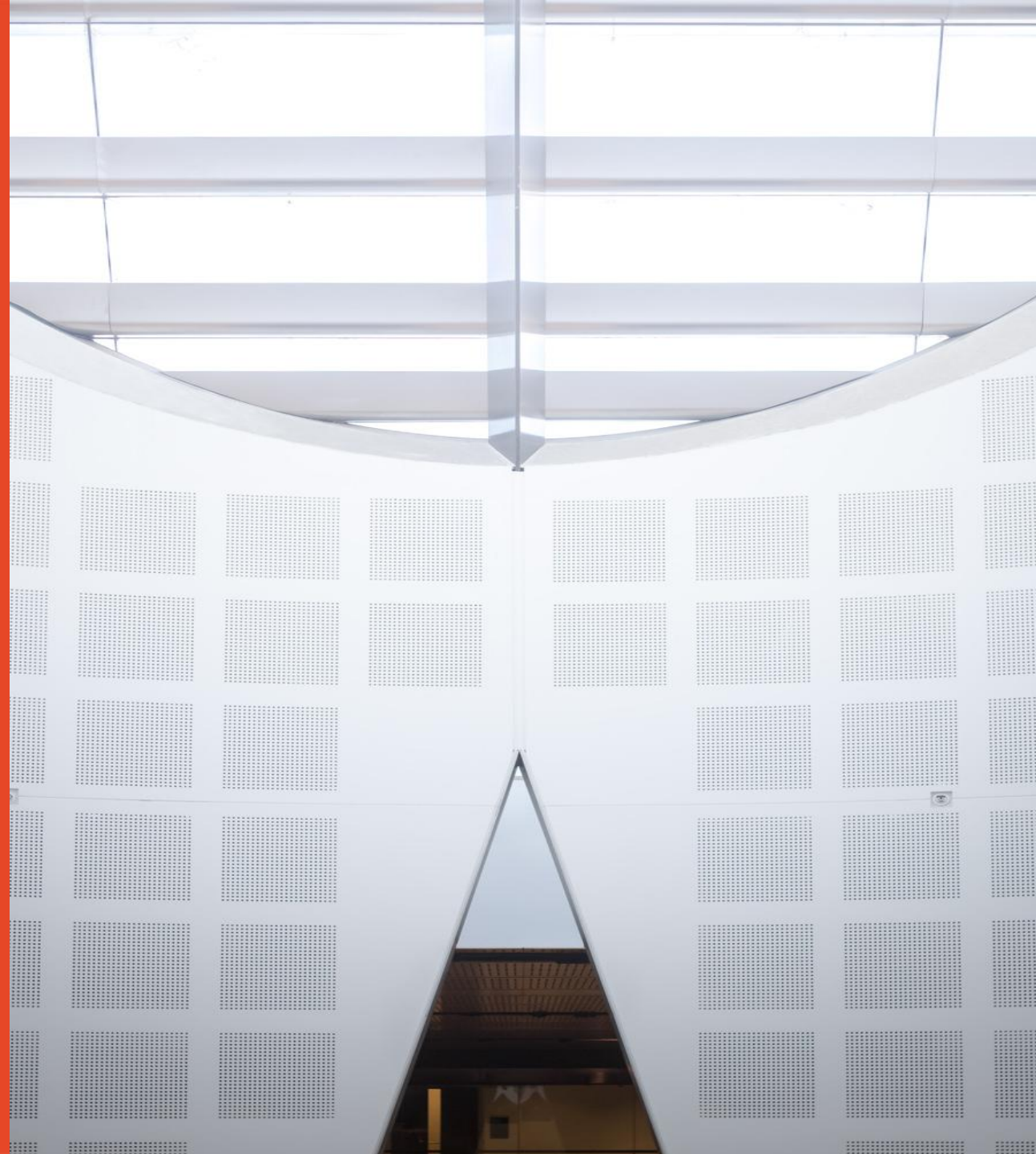
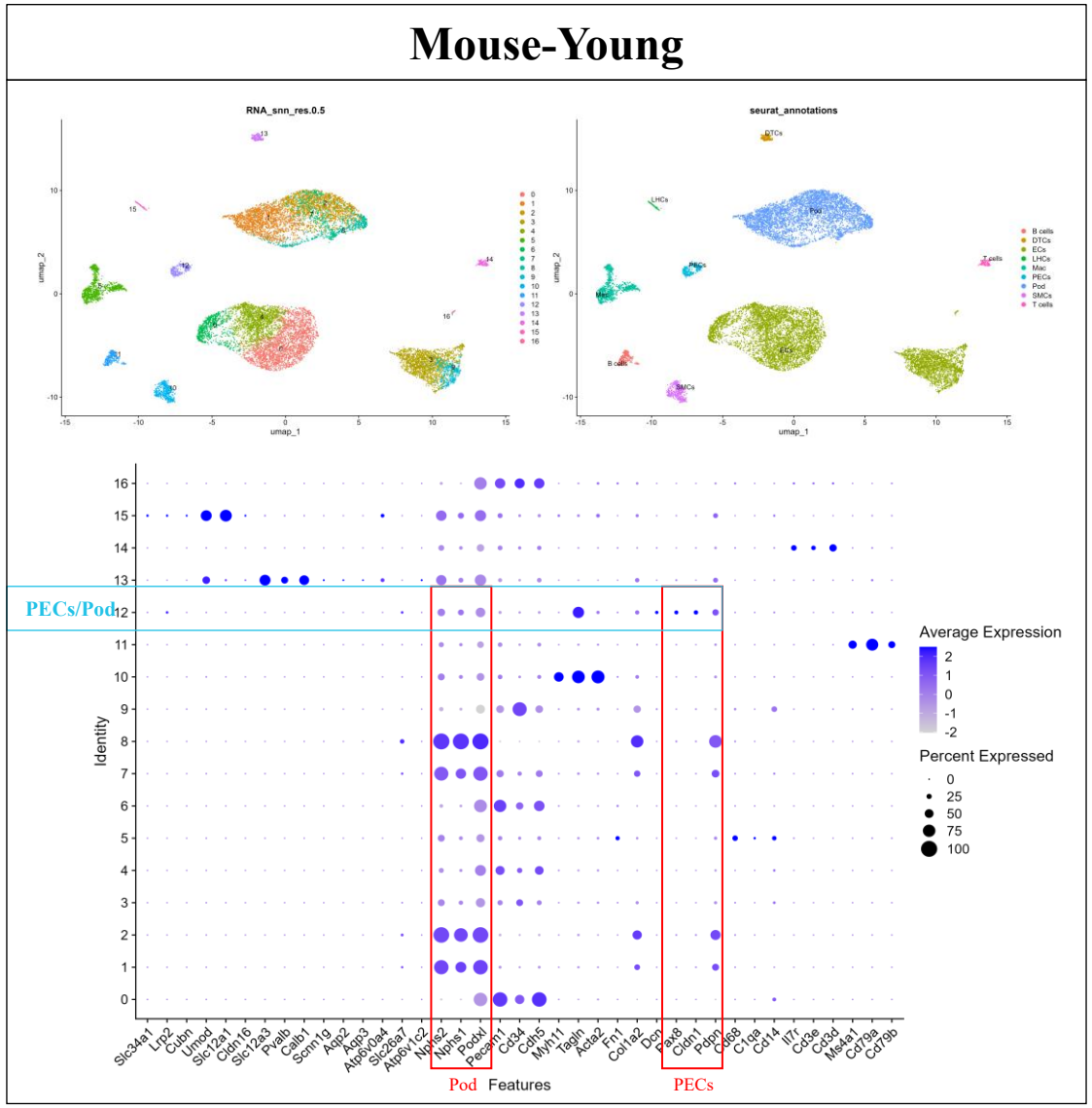
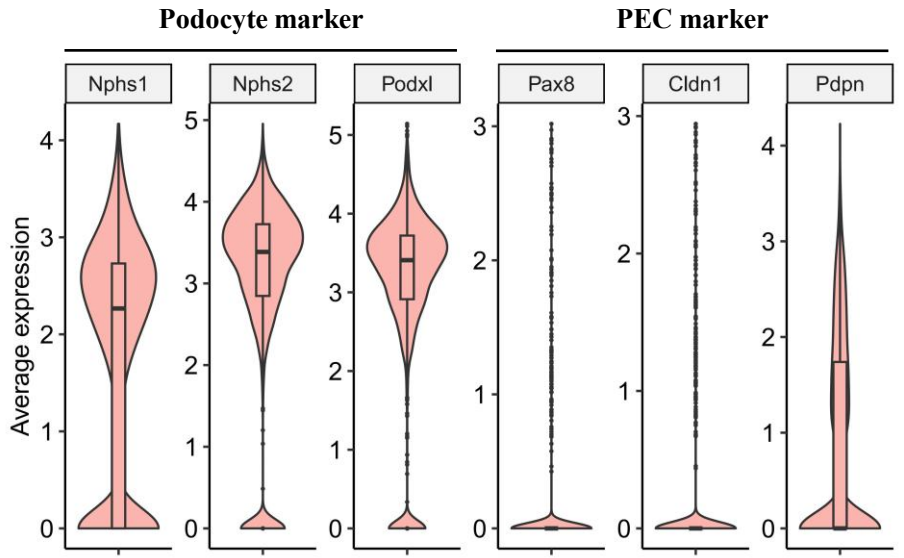


scRNA-seq data source

ID	Species	Detail
GSE240374	Mouse	2 Aged; 2 Young
GSE244475	Mouse	4 T2DN
GSE279086	Human	28 T1DN; 10 Ctrl; (24 ± 3 vs. 25 ± 3 years)

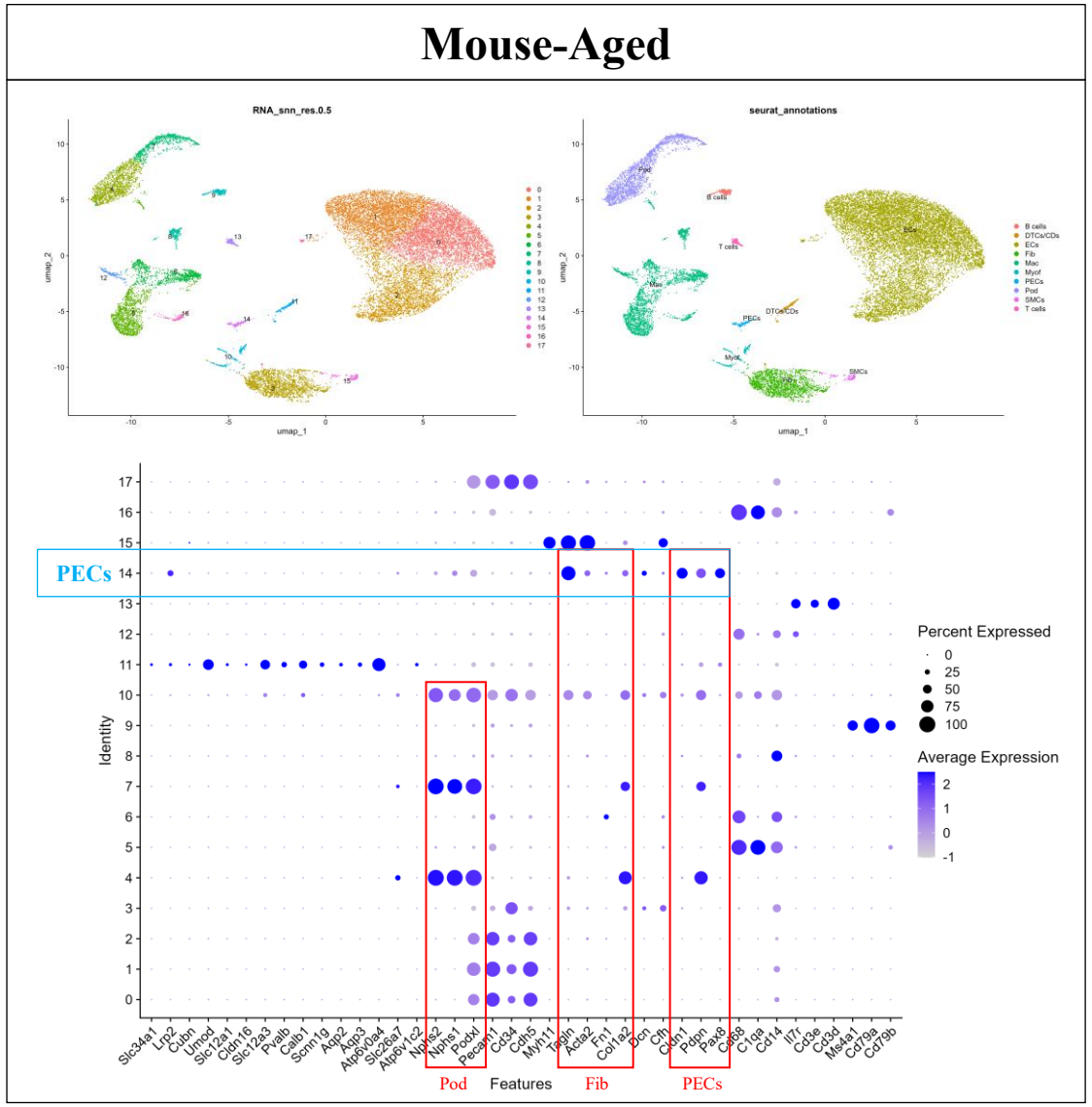
1. Analysis of scRNA-seq data from young mouse kidney

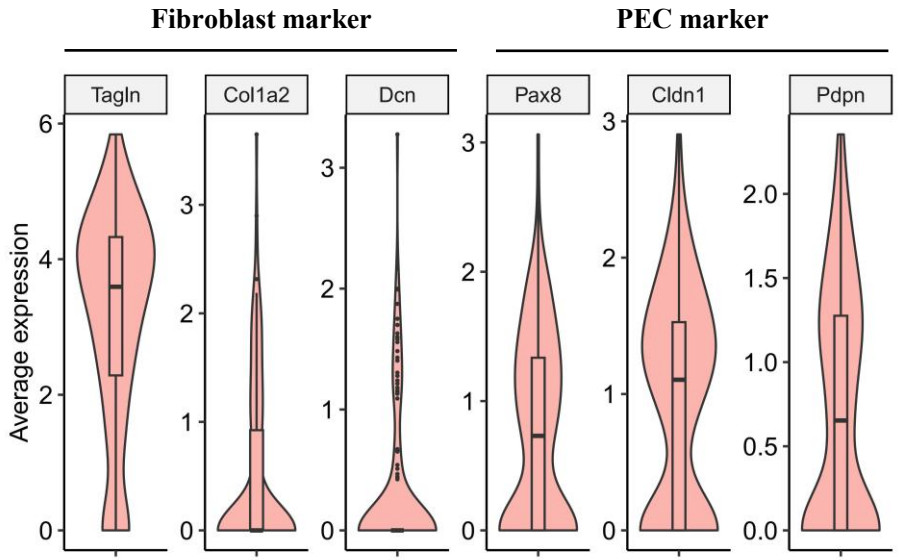




- A clearly defined prominent podocyte **(Pod)** subpopulation is present.
- Parietal epithelial cells **(PECs)** exhibit expression of podocyte markers.

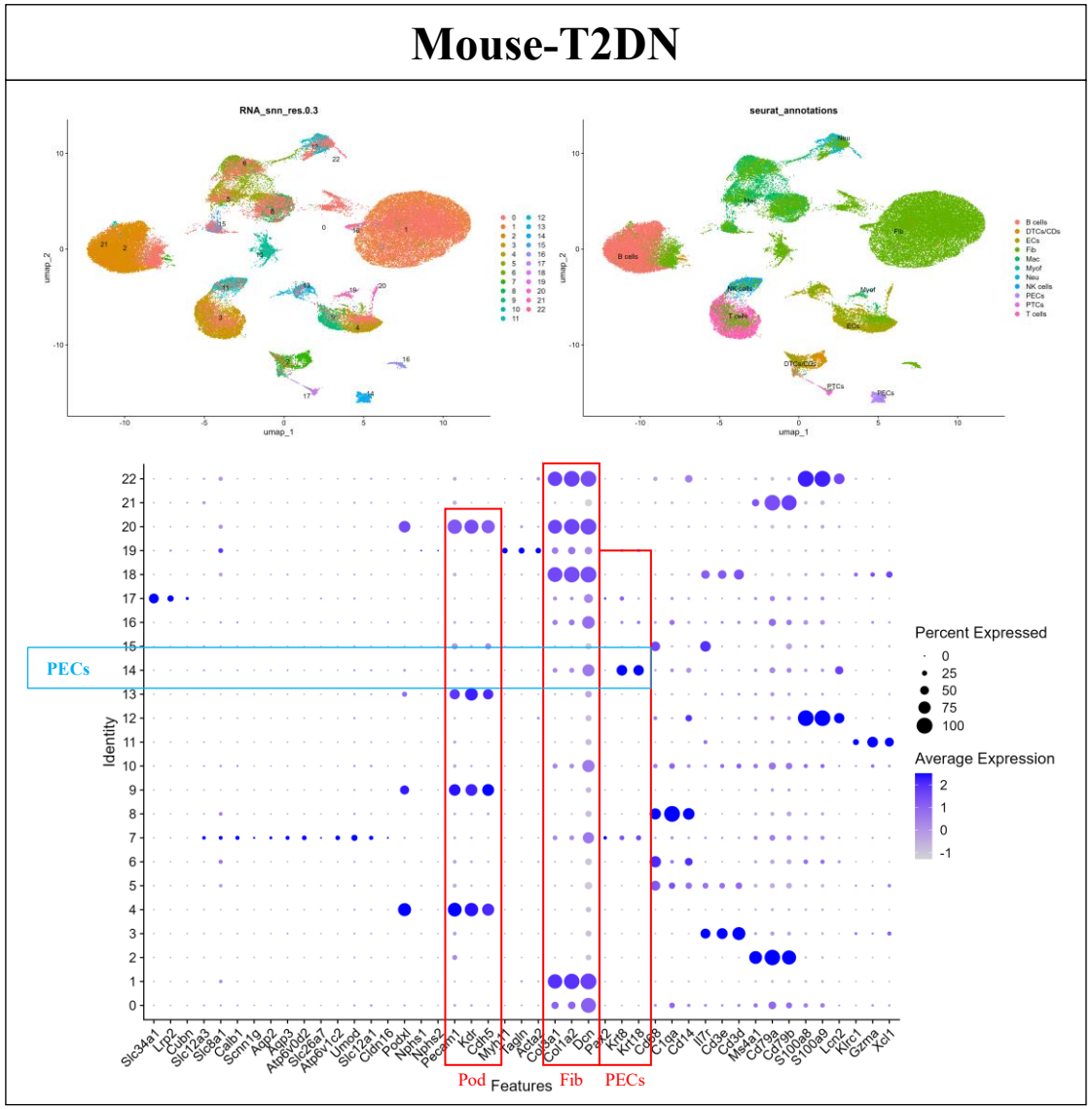
2. Analysis of scRNA-seq data from aged mouse kidney

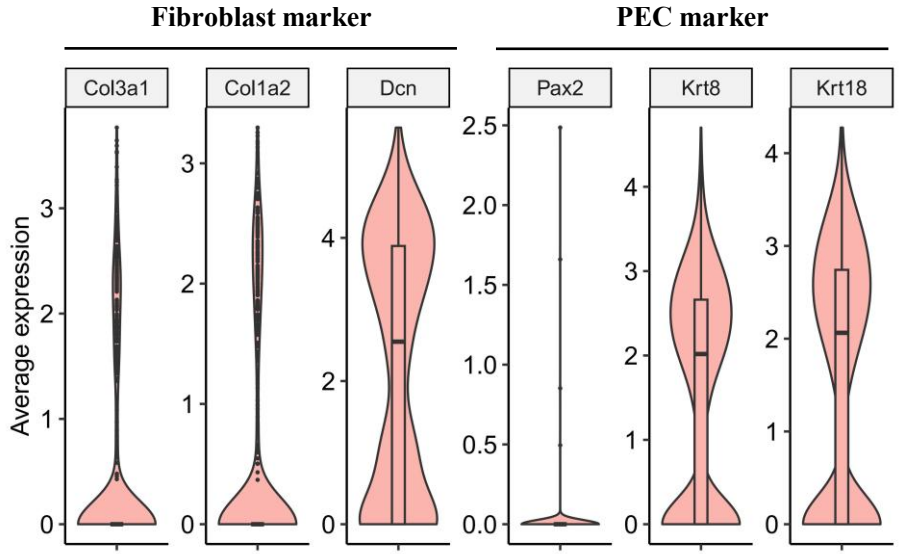




- The number of **podocytes** in the kidneys of aged mice is reduced.
- **PECs** exhibit expression of fibroblast markers.

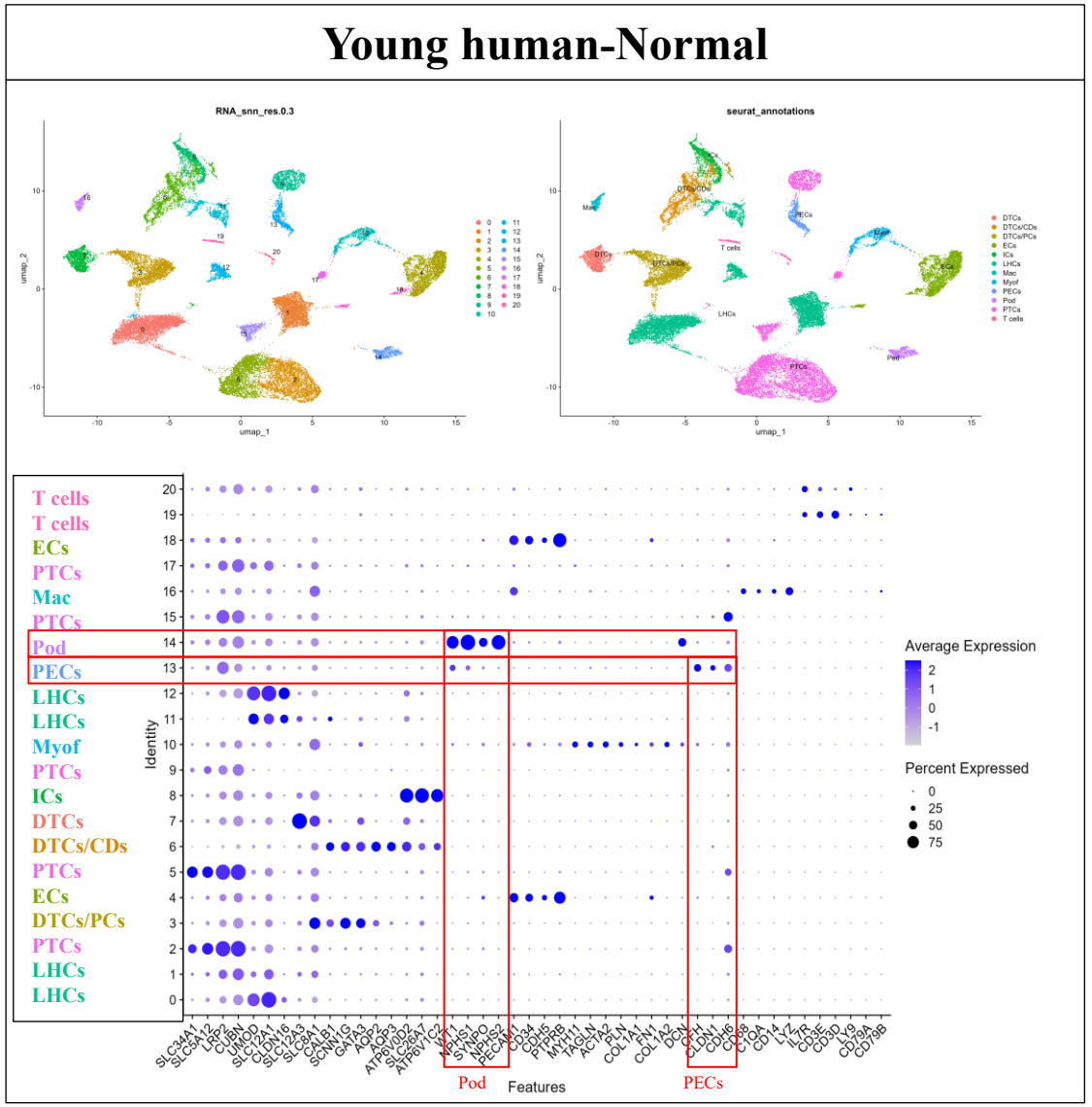
3. Analysis of scRNA-seq data from T2DN mouse kidney

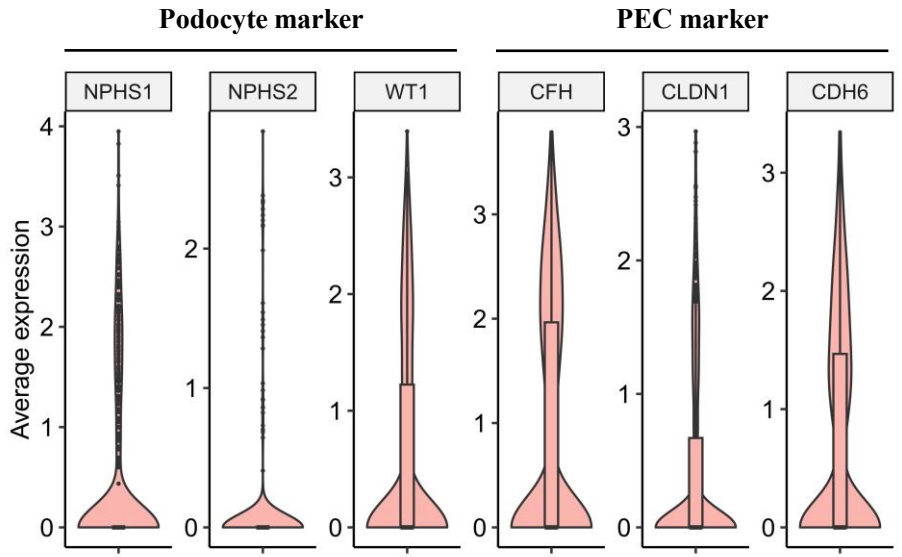




- The number of **fibroblasts** is increased in the kidneys of T2DN mice.
- **PECs** exhibit expression of fibroblast markers.

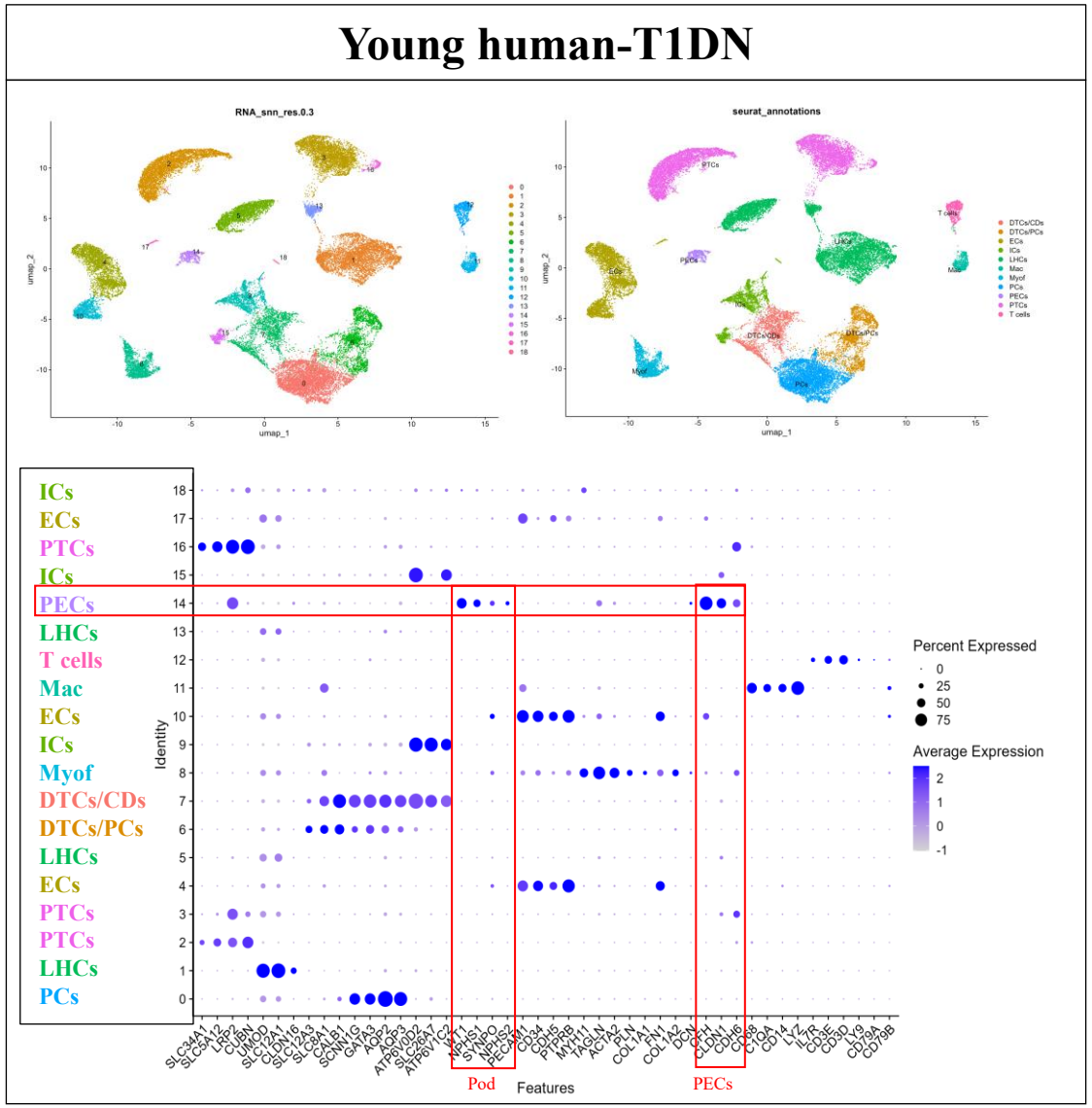
4. Analysis of scRNA-seq data from young human kidney

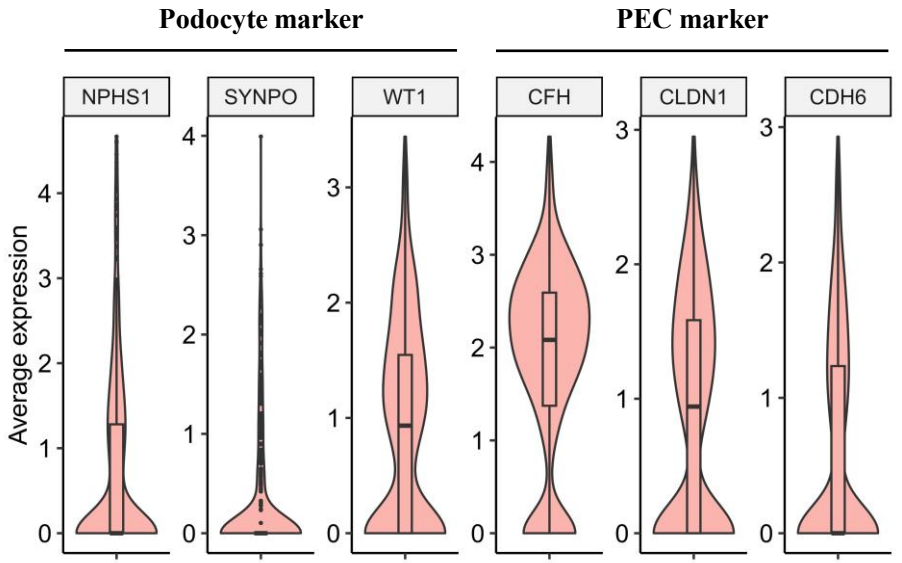




- **PECs** exhibit expression of podocyte markers.

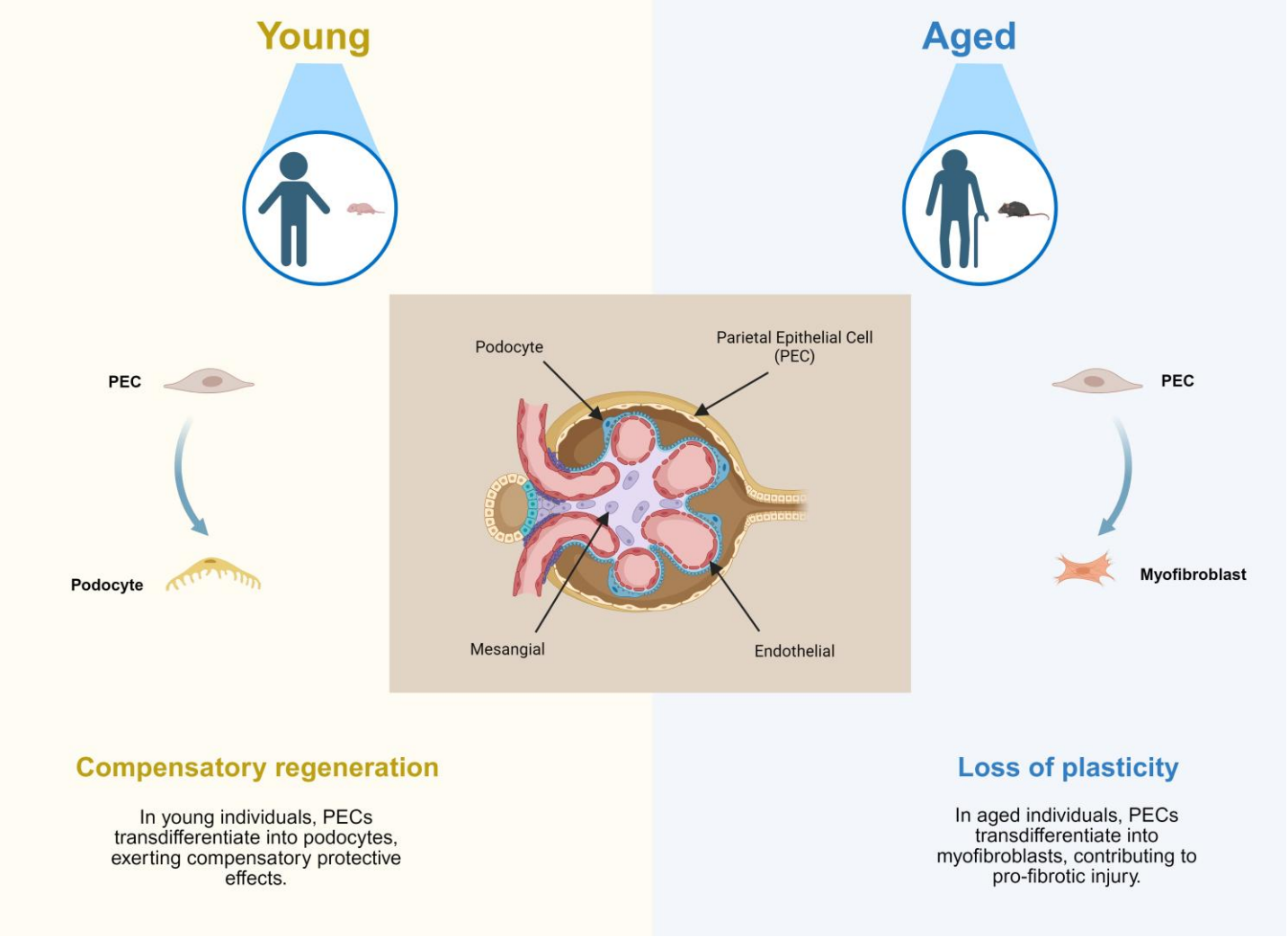
5. Analysis of scRNA-seq data from young human T1DN kidney





- There is a loss of **podocytes** in the kidneys of patients with T1DN.
- **PECs** exhibit expression of podocyte markers.

Summary



- Under conditions of aging or disease, the number of **podocytes** is reduced.
- Under conditions of aging or disease, **PECs** exhibit a tendency to transdifferentiate into **fibroblasts**.
- In the young state, **PECs** retain the potential to transdifferentiate into **podocytes**, thereby counteracting pathological injury.

Thank you

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