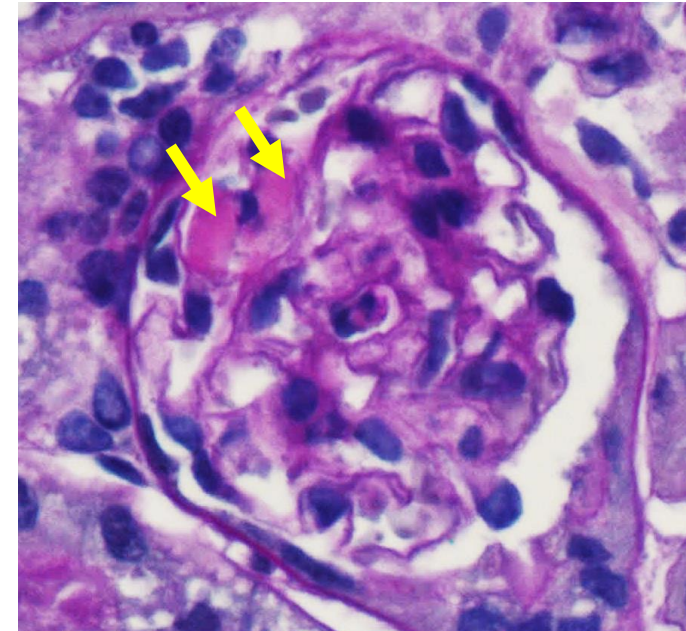
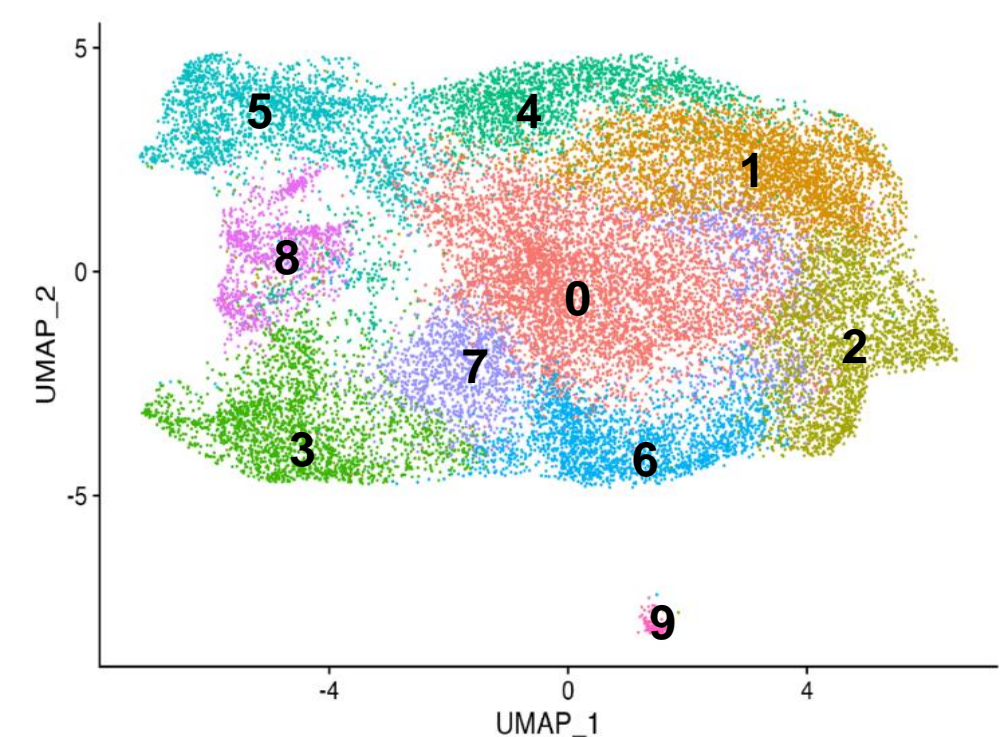
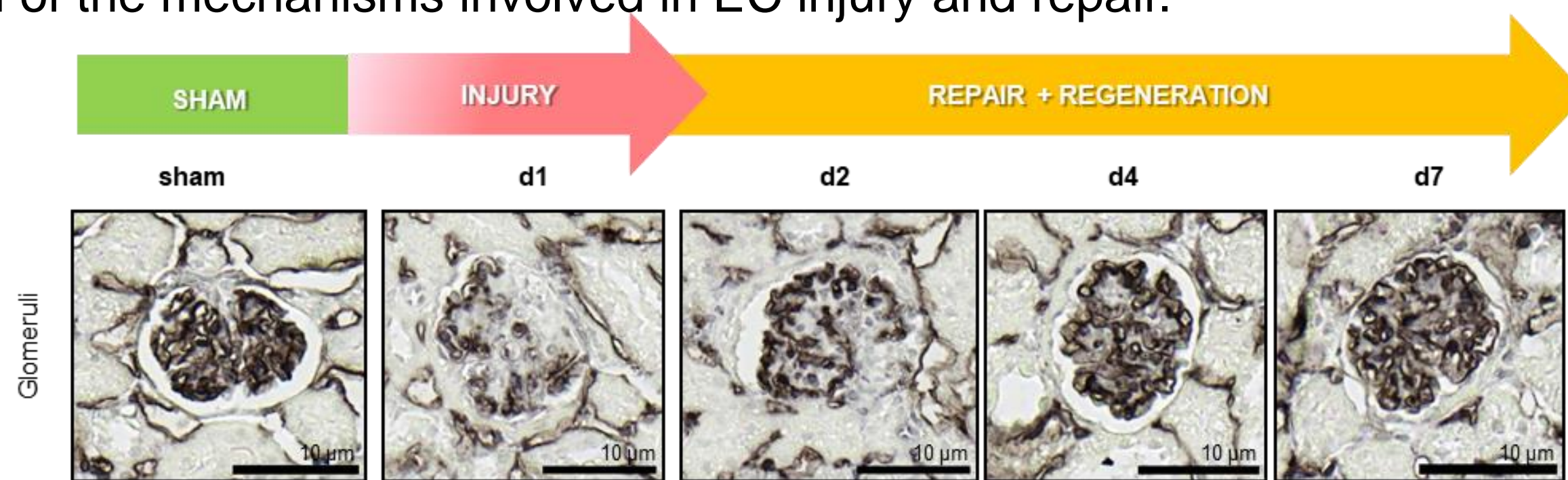
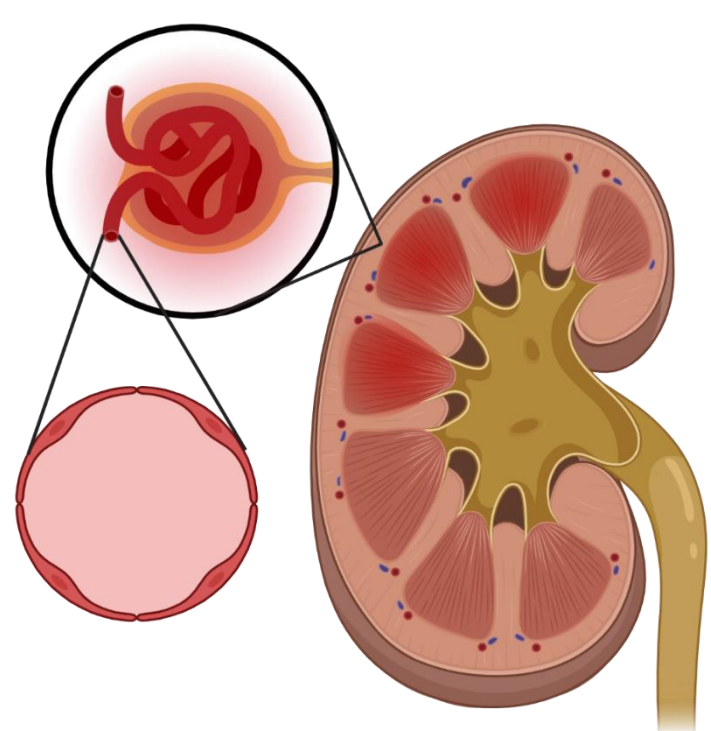


Why should we deepen our knowledge of renal endothelial regeneration?

- In thrombotic microangiopathies (TMAs), severe endothelial cell injury (ECI) can cause acute or chronic organ damage, particularly affecting the kidney
- Examples: typical/atypical HUS, malignant hypertension, scleroderma renal crisis, and antibody-mediated transplant rejection).
- The mechanisms driving endothelial cell (EC) repair remain unknown.
- Limited access to human tissue during regeneration phases hinders research, due to the risks of repeat kidney biopsies in kidney diseases.
- Experimental animal models are essential for studying EC injury and repair processes.
- A rare animal model has been developed that mimics human renal thrombotic microangiopathy (TMA).
- model enables reproducible monitoring of EC injury (ECI) and regeneration within a well-defined time window.
- allows detailed investigation of the mechanisms involved in EC injury and repair.



glomerulus

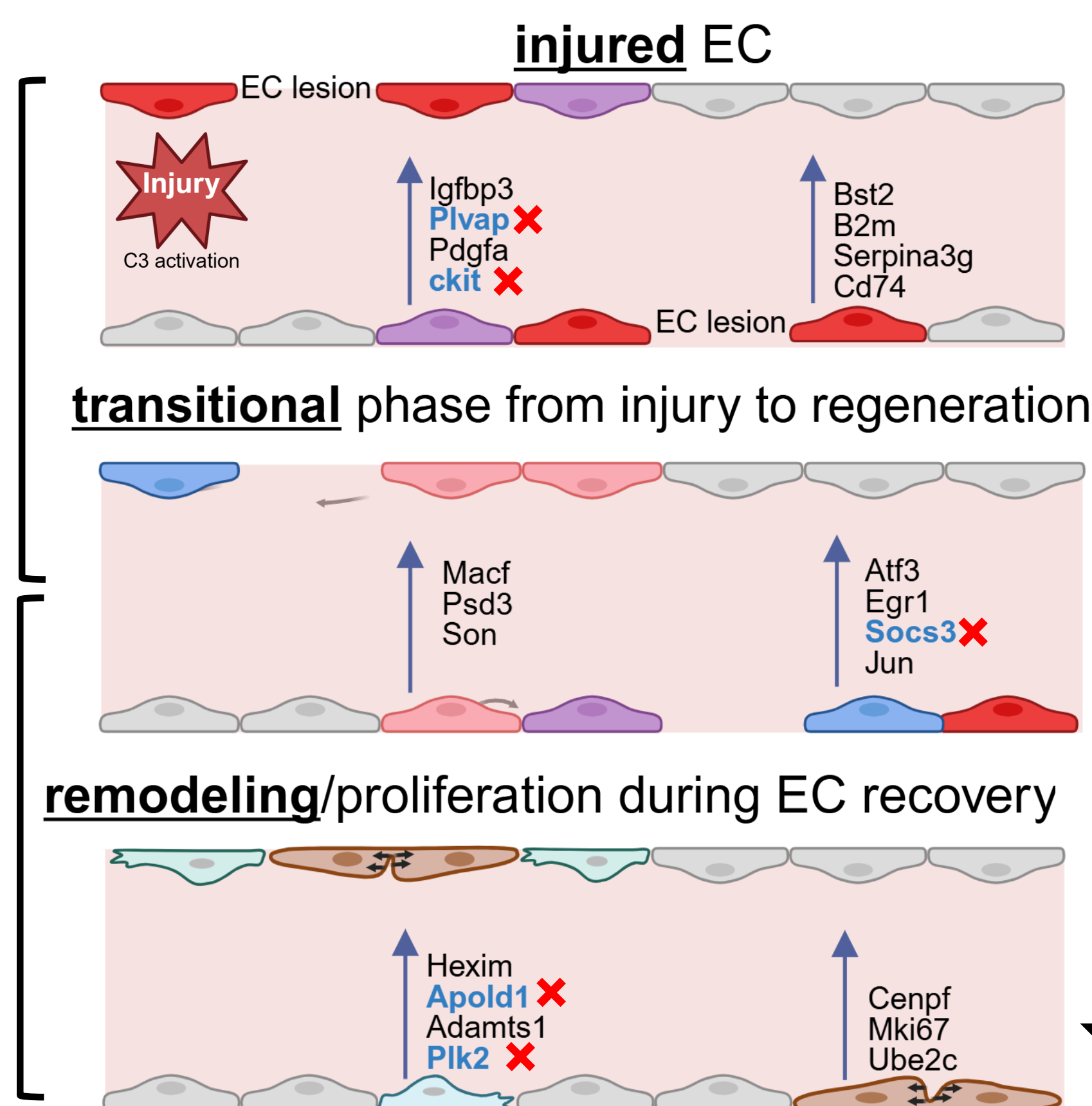


Early Phase:

What mechanisms drive the transition from injury to regeneration in endothelial damage in the kidney?

Late Phase:

How is endothelial regeneration regulated?

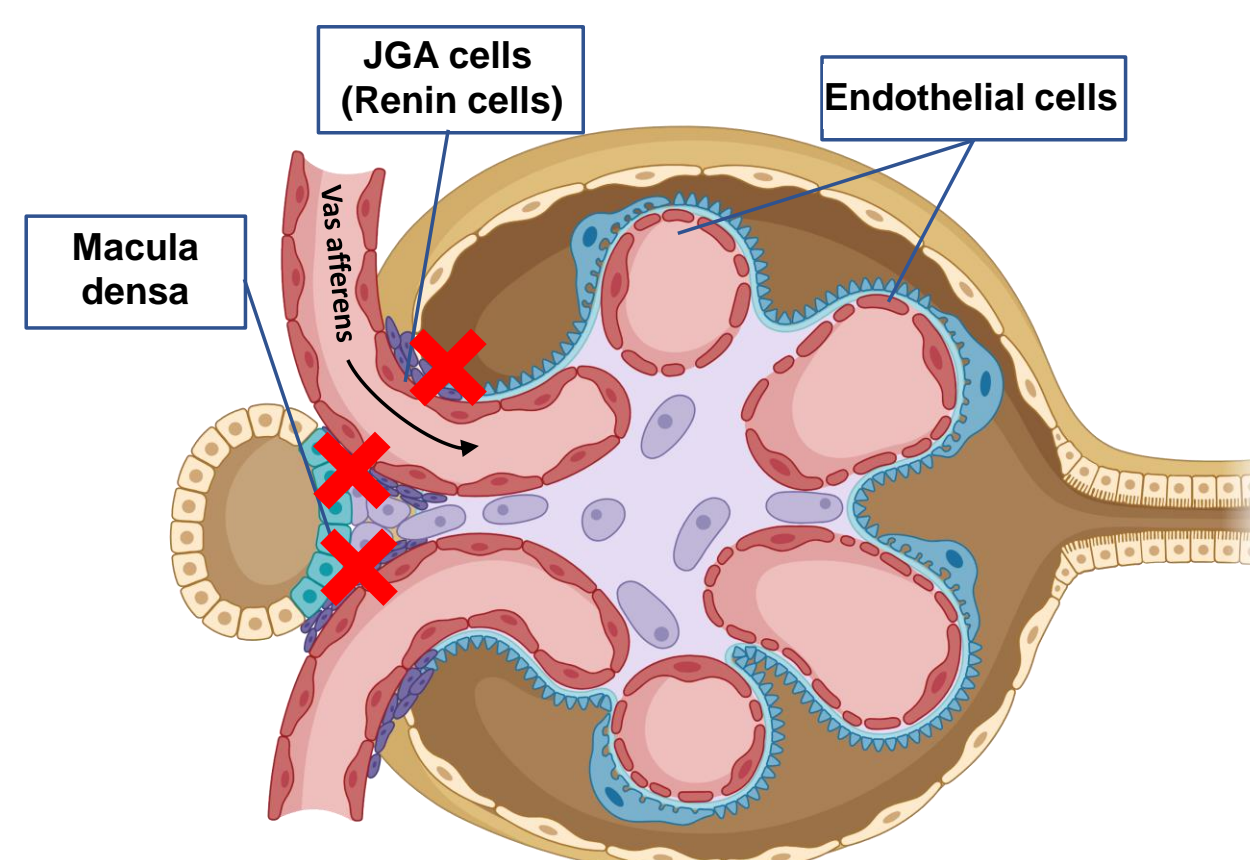


time

knockout mice
+
murine TMA
+
analysis of tissue
(human and mice)
+
cell culture
(human and murine cells)

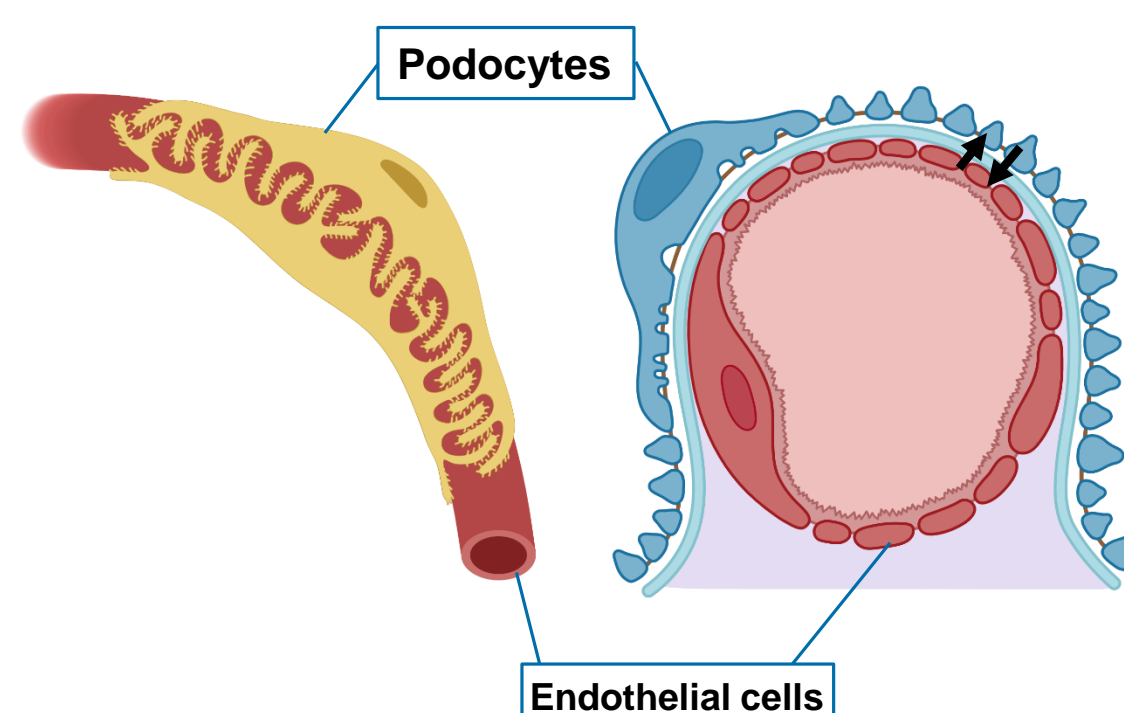
Feedback mechanisms:

Does the tubuloglomerular feedback mechanism play a role in the regeneration of glomerular endothelial cells?



Crosstalk:

How does the interaction of podocytes influence endothelial regeneration?



→ Our studies aim to understand the regenerative processes of the renal endothelium

MD projects focus on:

- Renal endothelial: injury, regeneration, mechanism, crosstalk, treatment strategies

- Projects are possible with or without animal experiments

for more information:

- <https://www.uniklinikum-dresden.de/de/das-klinikum/kliniken-polikliniken-institute/mk3/nephrologie/grundlagenforschung/ag-hugo>

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