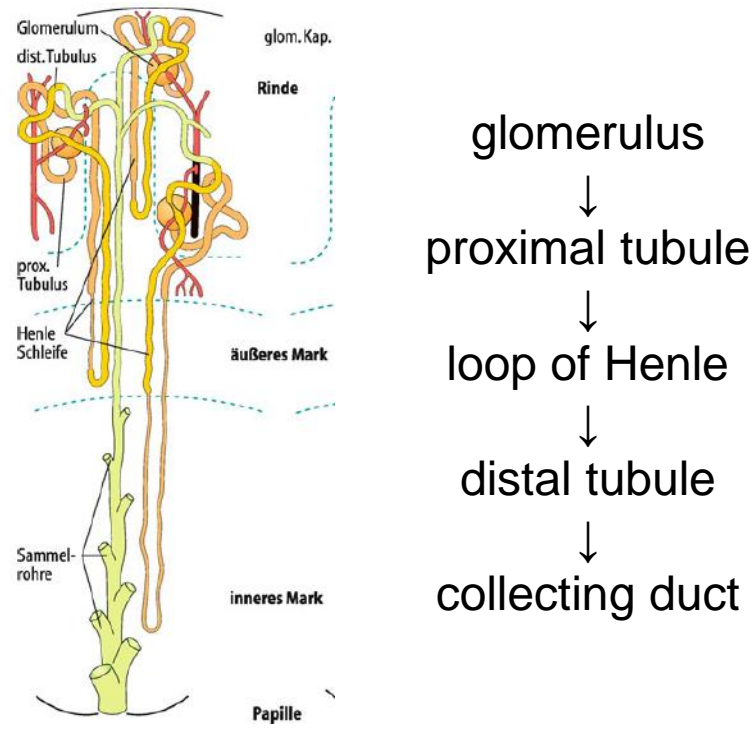
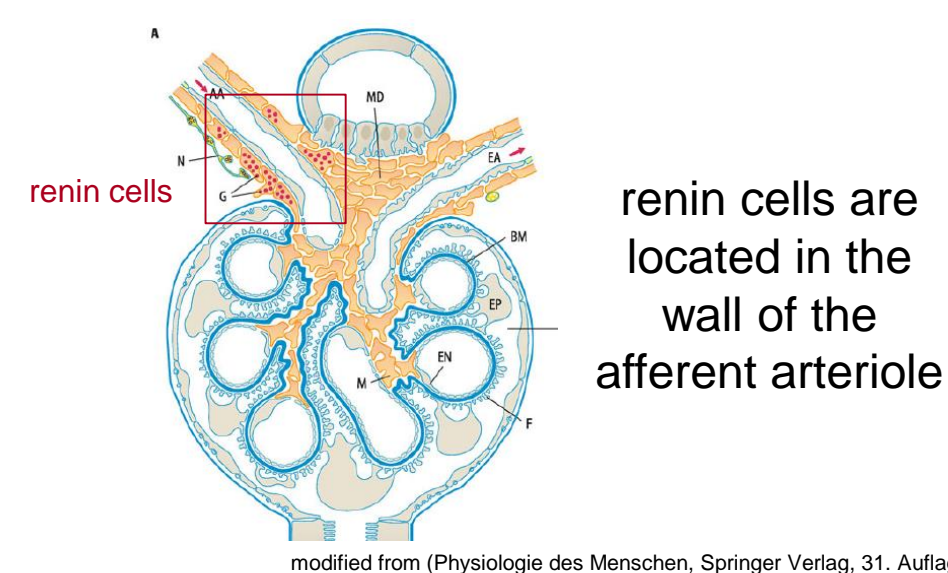


Renin cells in renal physiology and regeneration

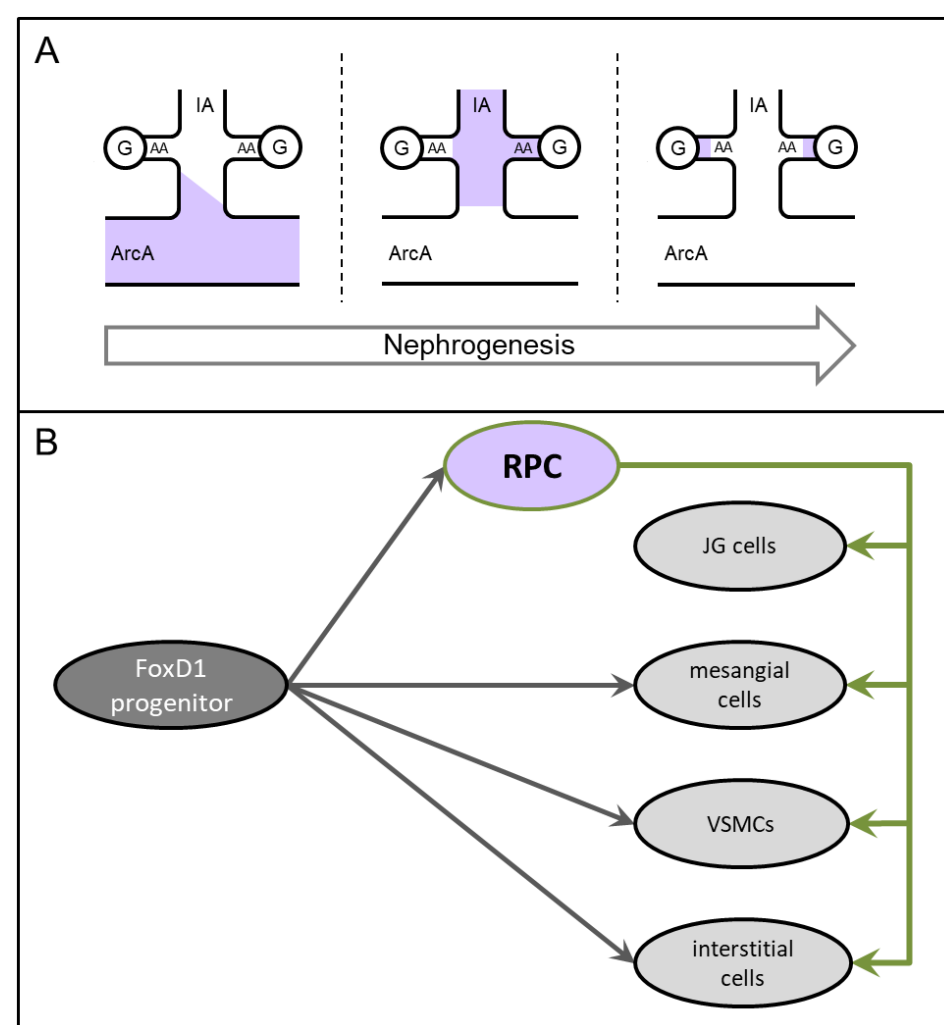
anatomy of a nephron



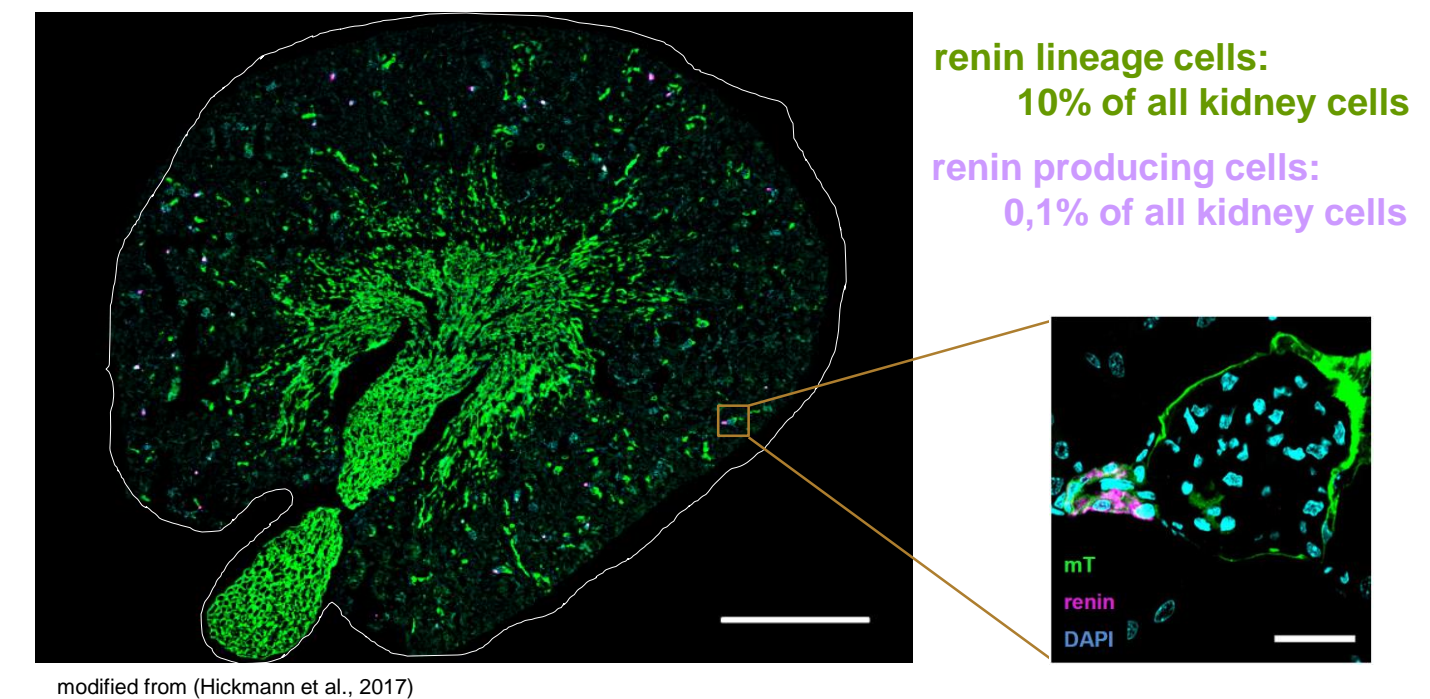
anatomy of a glomerulus



renin cells: renin producing cells (RPCs) vs. renin lineage cells (RLCs)

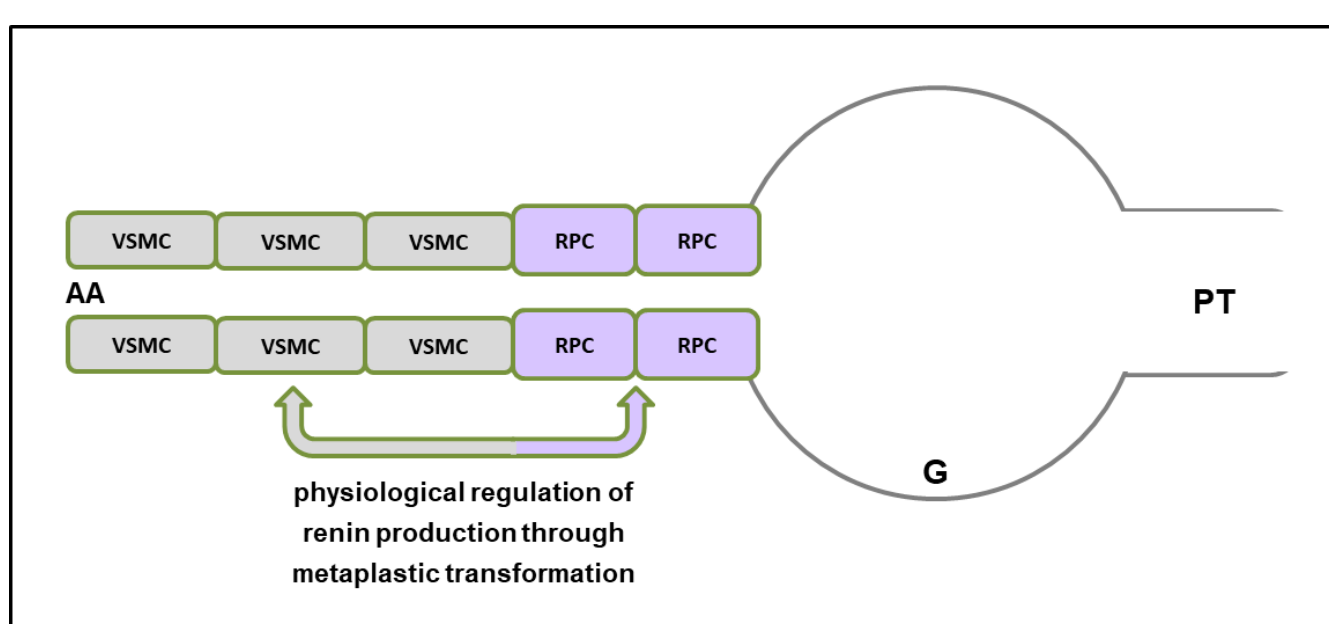


renin cells can be tracked in genetically modified mouse strains by fluorescent reporter proteins



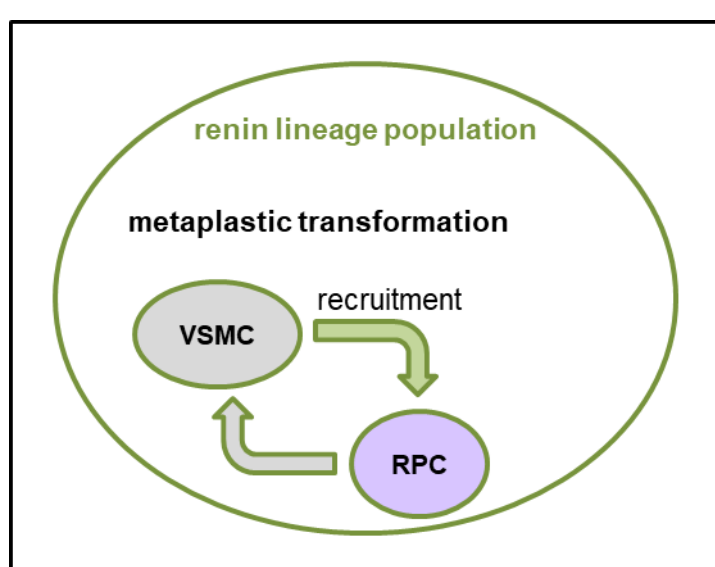
RLCs	non-RLCs
mesangial cells	podocytes
parietal epithelial cells	endothelial cells
proximal tubules, collecting duct cells	
interstitial cells	
vascular smooth muscle cells	

renin cells in renal physiology

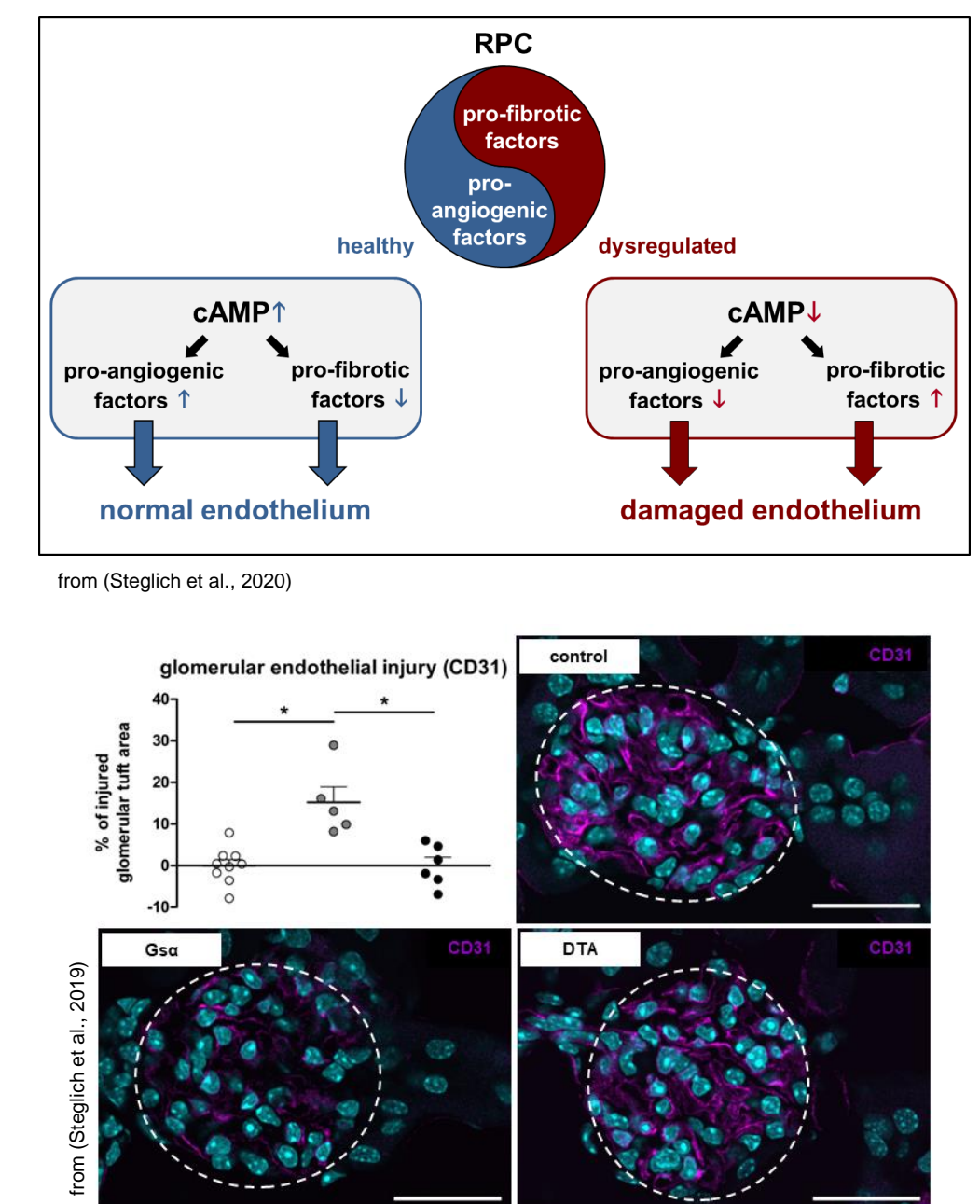
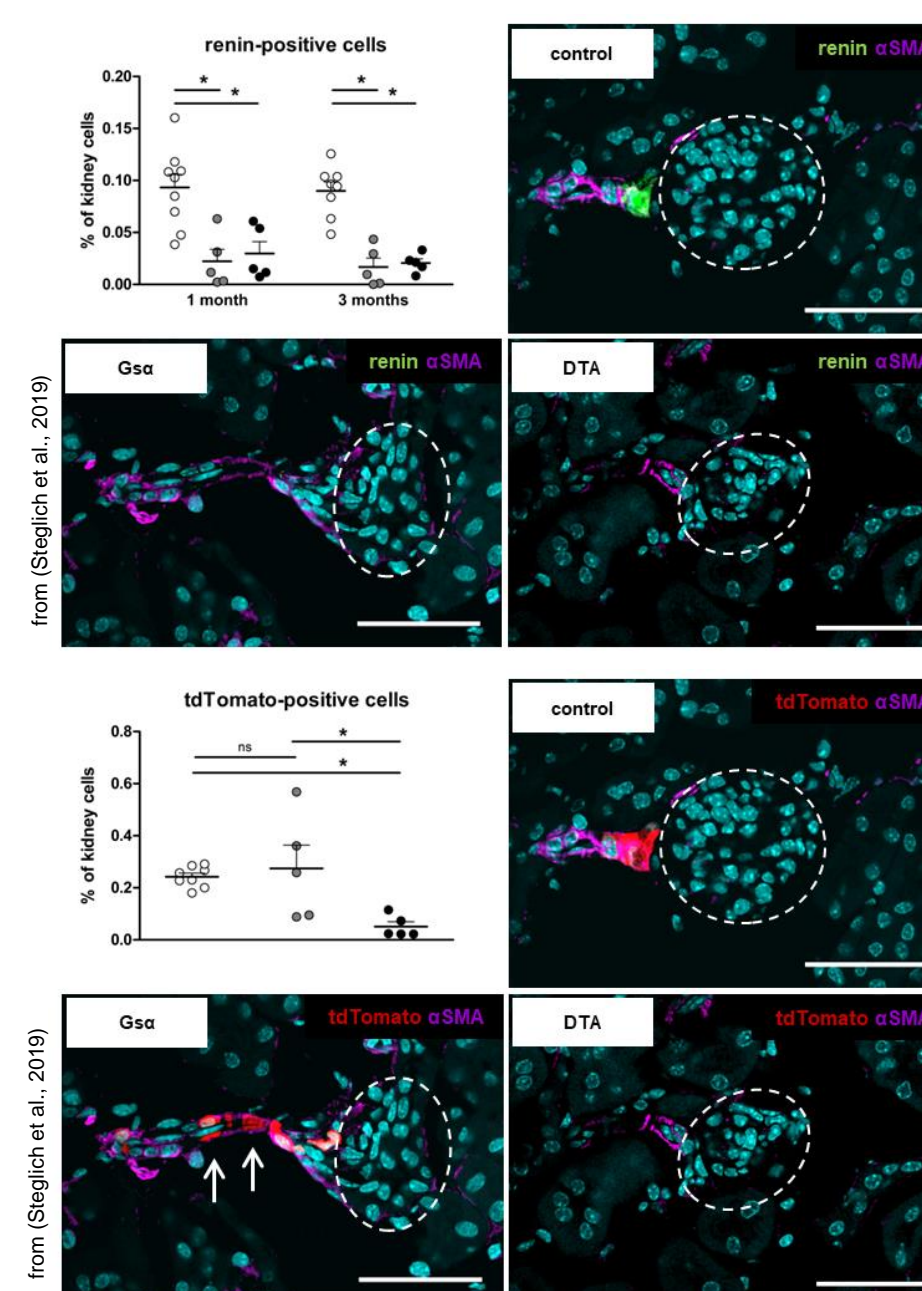


renin production and amount of renin cells is adaptable and is adjusted to physiological and pathophysiological conditions, such as:

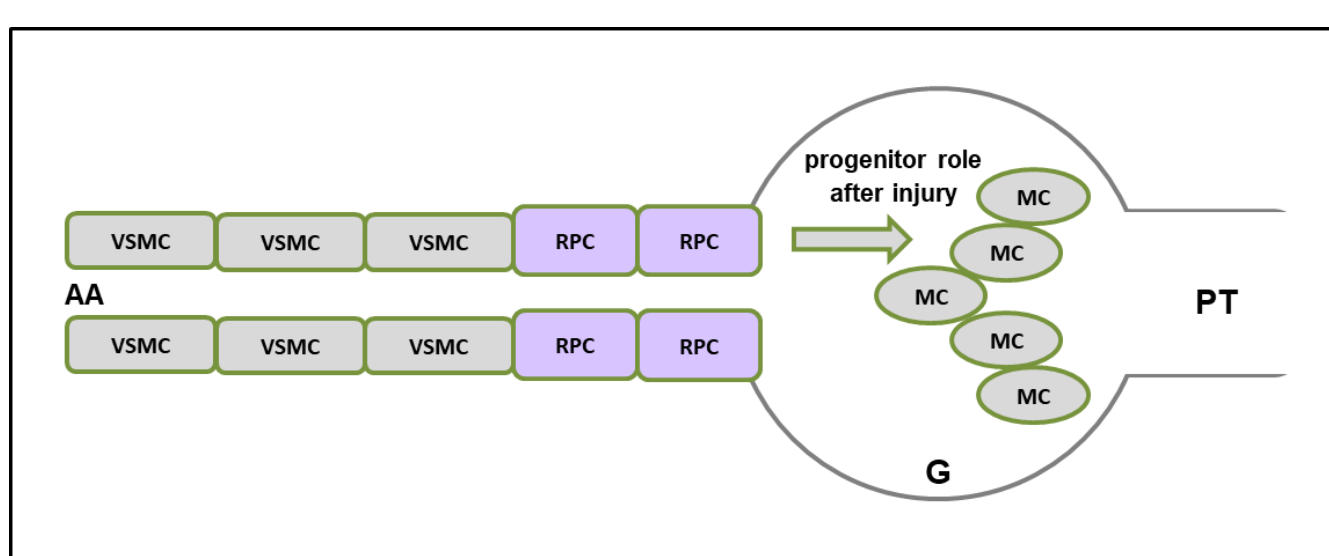
- stress
- salt intake
- diabetic kidney injury



modulation of central cAMP pathway in renin cells and resulting loss of renin positivity, but not loss of RPCs, leads to damage in endothelial cells

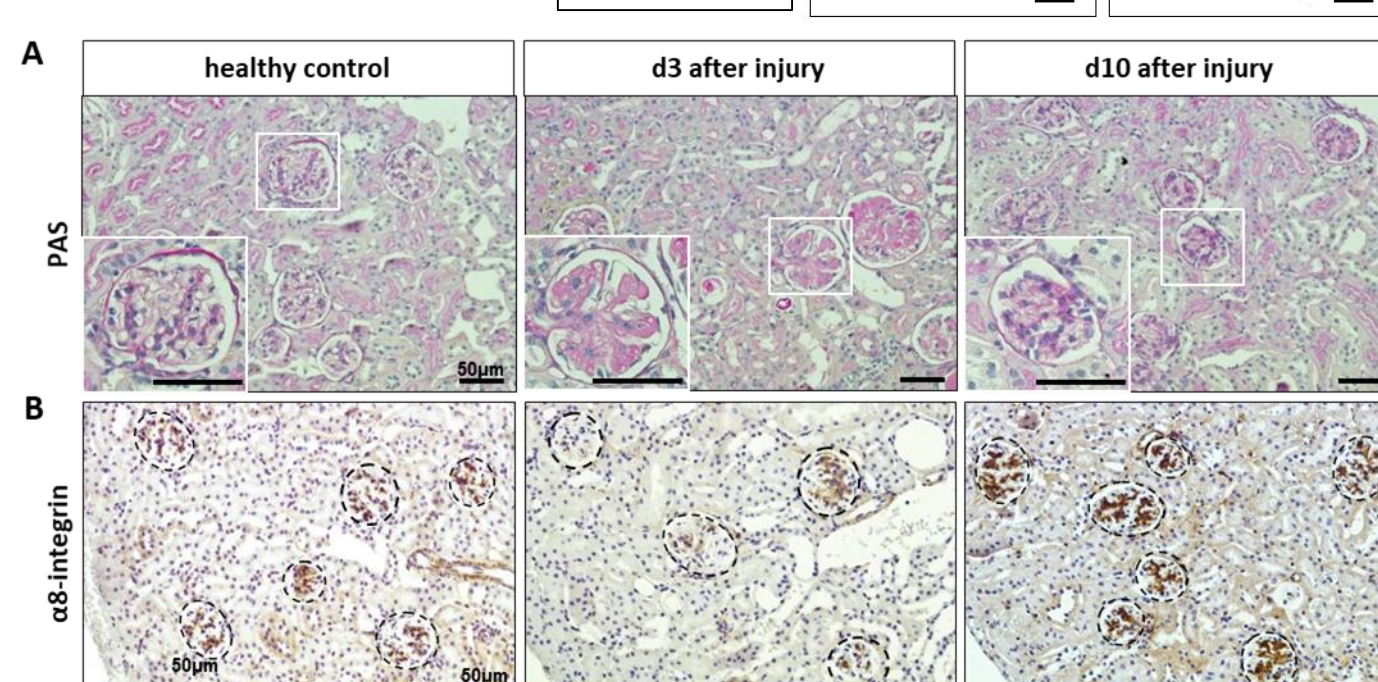
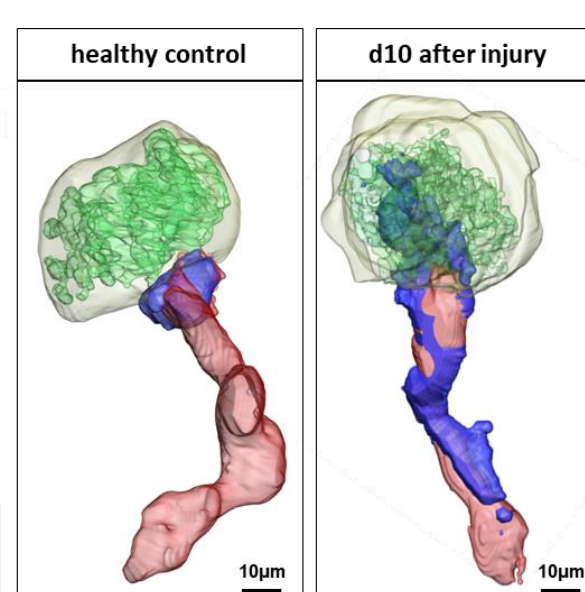


renin cells in renal regeneration



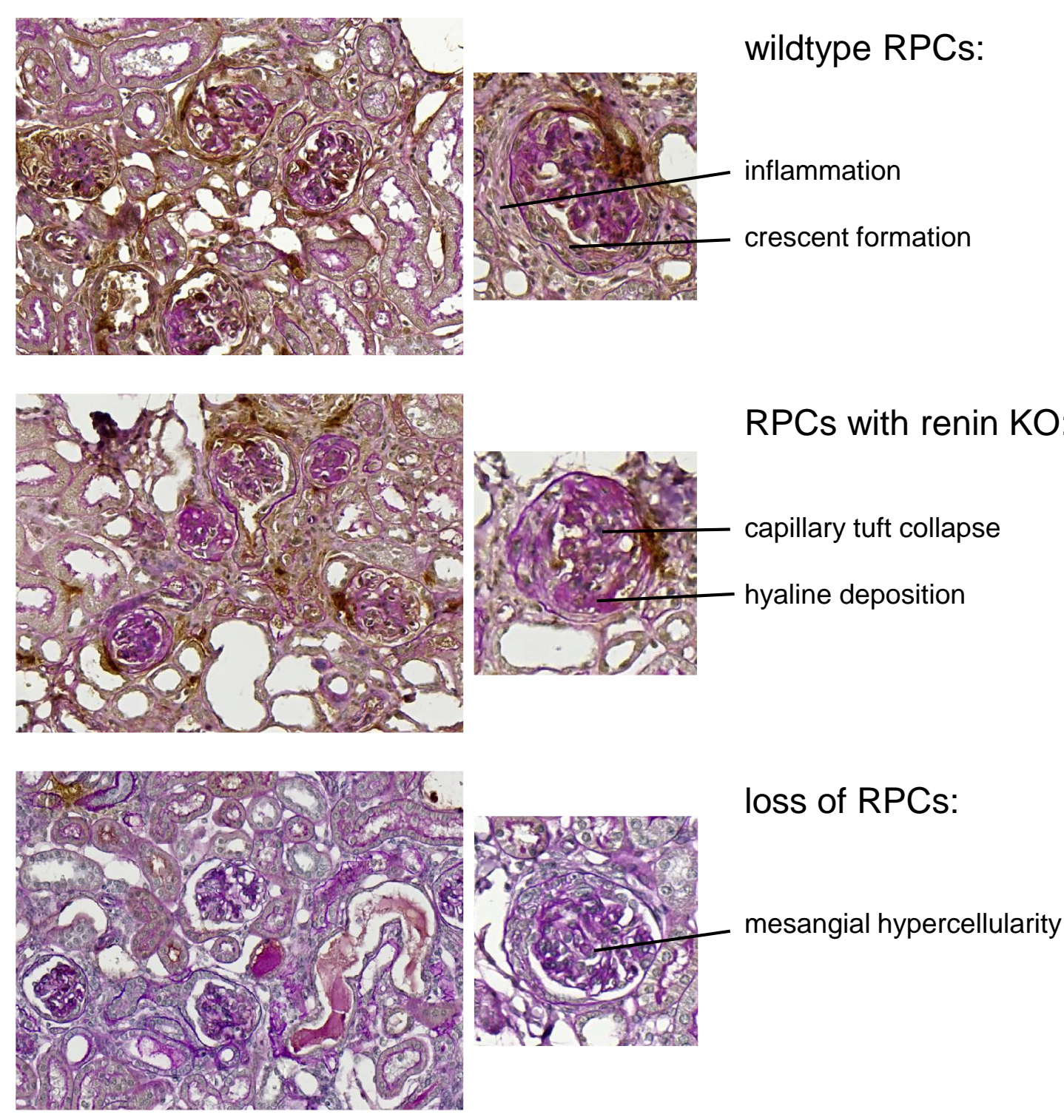
after mesangial damage:

cells of renin lineage migrate into damaged area and replace mesangial cells (including phenotypic switch and loss of renin positivity)



after glomerular basement membrane damage:

Modulation of RPCs leads to altered regeneration?



→ our studies aim to understand regenerative processes in the kidney, to find new aspects for improved treatments of patients with kidney diseases, e.g. glomerulopathies

MD projects about renin cells focus on:

- renin cells in renal physiology → phenotyping of mice with modulations in renin cells under basal conditions and/or (patho)physiological treatments
- renin cells in renal regeneration → phenotyping of mice after damage models (with/without modulation of renin cells)
- MD 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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