

Puromycine aminonucleoside (PAN)-induced nephropathy

AN *IN VIVO* MODEL FOR FOCAL SEGMENTAL GLOMERULOSCLEROSIS

Model

Focal segmental glomerulosclerosis (FSGS) refers to a unique morphologic/histological pattern characterized by sclerotic (fibrotic) lesions in glomeruli that are focal (less than 50% of all glomeruli affected on light microscopy) and segmental (less than 50% of the glomerular tuft affected). Podocyte injury in the earliest morphological feature of FSGS.

Puromycine aminonucleoside (PAN) is a podocyte toxin inducing a loss and fusion of podocytes foot processes. In this model, nephropathy induced by repeated injection of PAN leading to chronic glomerulosclerosis and interstitial fibrosis.

Specie

Rat

Interest

The glomerular morphologic and moderate fibrotic changes are similar to those observed in human minimal change disease (MCD) and FSGS.

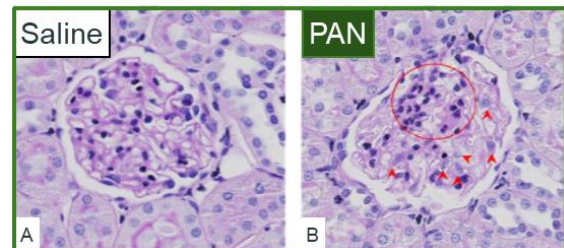
Model Description

- Nephropathy is induced by 2 injections of PAN with a 14-day interval.
- Standard protocol duration: 8 weeks
- Pathophysiological features: renal fibrosis and glomerular sclerosis

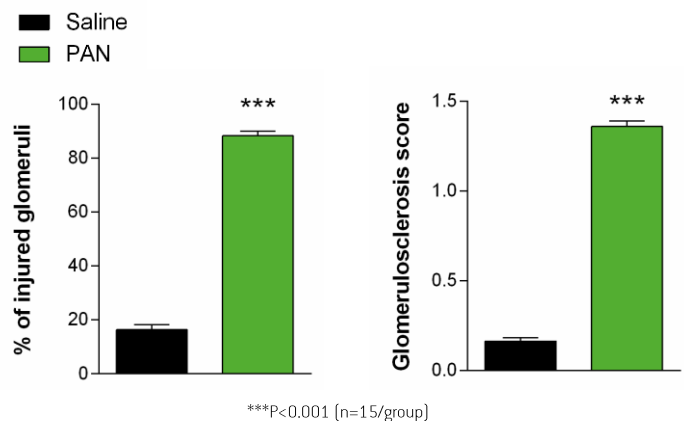
Evaluated Parameters

- Body weight
- Kidney weight
- Glomerular injury: glomerulosclerosis scores and % of injured glomeruli on Hematoxylin/Eosin (HE) or periodic acid-Schiff (PAS) stained kidney sections
- Renal fibrosis: fibrosis quantification on Red Sirius-stained kidney sections by image analysis (stained surface in % and in mm²) and by scoring

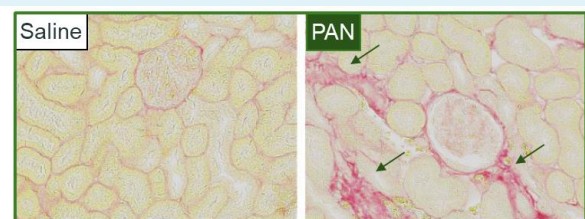
Glomerulosclerosis in PAN rats



- Normal control glomerulus.
- Focal mesangial cell hypercellularity (circle) with the presence of large and pale cells (arrows).



Kidney fibrosis in PAN rats



↑ Interstitial collagen accumulation (Sirius Red-stained area)

