# Histological endpoints in diabetic nephropathy

## Decision making endpoints

Gubra has developed and tested several preclinical models of diabetic nephropathy and chronic kidney disease. Major endpoints includes quantitative estimates of histopathological hallmarks based on stereological sampling, validated staining protocols and image analyses.

#### AAAV-Renin Unx db/db mouse model

The Gubra flagship ReninAAV UNx db/db mouse is a hypertensive, type 2 diabetic mouse model of diabetic kidney disease showing pronounced albuminuria and glomerulosclerosis, in addition to reduced GFR.

#### **Unilateral Ureteral Obstruction mouse model**

Specific immunohistochemical staining procedures and image analyses tool on stereologically sampled kidney sections allows unbiased detection of e.g. F4-80 inflammation in UUO models.

#### **Glomerulosclerosis AI**

At Gubra, we have developed AI-assisted detection of glomeruli in Periodic Schiff-acid stained sections for subsequent quantification of glomerulosclerosis. Histopathological scoring can be performed to assist the quantitative output.

### 5/6 Nx rat CKD model

F4/80 area fraction (%)

A standard rat model of chronic kidney disease showing profound glomerulosclerosis, tubulointerstitial fibrosis as demonstrate by e.g. marked collagen-3 deposition.





Renin











Image analyses of F4/80 and Col3 in CKD models

