

# CRO services for chronic kidney disease

**Renal fibrosis** complicates various forms of chronic kidney disease (CKD) as an end-stage manifestation of renal injury. Of particular importance is excessive extracellular matrix deposition in the tubulointerstitium, which is often associated with renal function impairment and poor prognosis.

**Unilateral ureteral obstruction (UO)** is a well-characterized disease model for renal fibrosis. The UO model encompasses key pathophysiological features of CKD; interstitial fibrosis, tubular atrophy and inflammatory cell infiltration within a relatively short period, which makes this model attractive as an *in vivo* high-throughput screening system.

**SMC**, a Tokyo-based biotech company also known as the leading nonclinical CRO for nonalcoholic steatohepatitis (NASH), has re-validated UO-induced renal fibrosis as an *in vivo* drug screening system. Our expertise in fibrosis is now experienced in CKD R&D.

## SMC's services in UO renal fibrosis model

### Animal:

- ☐ Female C57BL/6 mice (8- to 10-week-old)

### UO model:

- ☐ Surgery: the ureter will be ligated in a single kidney
- ☐ Control: sham-operated mice and/or the contralateral kidney
- ☐ Standard treatment period: 7 days (day 0 – day 7)

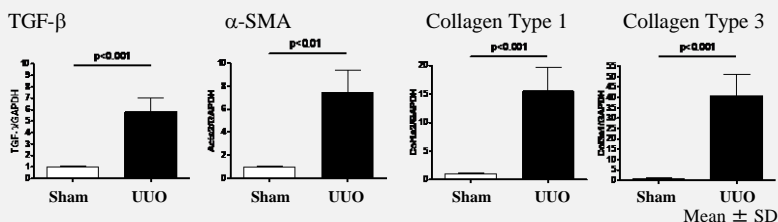
### Major endpoints:

- ☐ Fibrosis score (Sirius red/ER-TR7/Collagen Type 1, 3)
- ☐ Kidney collagen content (hydroxyproline assay)

### Additional endpoints:

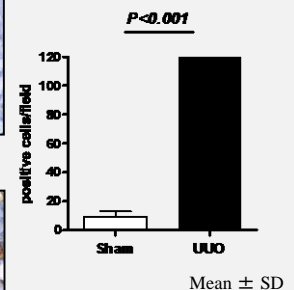
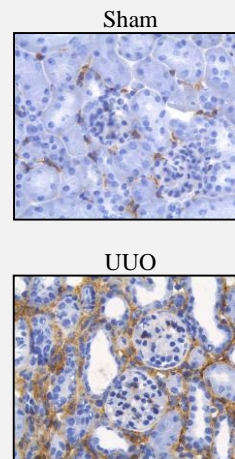
- ☐ Inflammatory cell infiltration (F4/80)
- ☐ Gene expression (quantitative RT-PCR)
- ☐ Histology (PAS and HE staining)

## Gene expression analysis



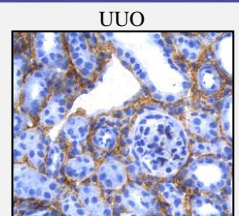
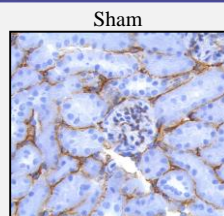
Fibrosis-related genes are upregulated in the kidney after UO (day 6).

## Histological analysis (fibrosis)



F4/80: macrophage marker (brown, x400)

## Histological analysis (inflammation)



ER-TR7: fibroblast & reticular fiber marker (brown, x400)  
Fibroblasts accumulate in the interstitial region of the kidney after UO (day 7).



For more information, please contact us below.

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