

## KSN 2017 Abstract

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### Collecting duct cell specific mitochondrial dysfunction influence to inflammation and fibrosis in UUO mice.

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**Objectives :** Unilateral ureteral obstruction (UUO) induced mitochondrial dysfunction resulting in increase of oxidative stress and inflammation in obstructed kidney. Although mitochondria play a role in UUO injury including tubulo-interstitial apoptosis, inflammation and fibrosis, the role of collecting duct cells was not evaluated. We evaluated whether collecting duct specific mitochondrial dysfunction affect the renal injury induced by UUO.

**Methods :** For generation collecting duct specific mitochondrial injury mice, CRIF flox/flox mice were bred with Hoxb7-Cre mice. For evaluation of the phenotype of mice, we observed mitochondria using electron microscopy in mice. For evaluation of influence of CRIF1 deletion on mitochondrial function, we measured O<sub>2</sub> consumption and membrane potential in control and silencing RNA treated mIMCD cells. For evaluation of effect on UUO induced renal injury, we divided mice into the following 4 groups: CRIF1 flox/flox(WT) group; CRIF1 flox/flox-Hob7 Cre (CRIF1-KO) group; WT UUO group; and CRIF1-KO UUO group. I evaluated oxidative stress, inflammatory, and fibrosis marker in urine and kidney tissue.

**Results :** There are no significant difference in phenotype between CRIF1-KO and WT mice. Renal expression of MCP-1, osteopontin (OPN), Numbers of F4/80 positive cells, TGF- $\beta$ ,  $\alpha$ -SMA, and Masson Trichrome stained area were significantly increased in CRIF1-KO-UUO kidneys compared with WT UUO kidneys., Urinary 8-OHdG was increased in CRIF1-KO-mice compared with WT mice. Also, Crif1-KO mice had significantly increase of 8-OHdG-positive cell recruitment compared to WT mice. CRIF1-KO-UUO-kidneys were shown more increase recruitment of 8-OHdG-positive cells compared to WT-UUO-kidneys

**Conclusions :** Collecting duct specific mitochondrial injury induced increase of oxidative stress, renal inflammation, and renal fibrosis in UUO mice

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**Keywords** : Unilateral ureteral obstruction, mitochondria, inflammation, renal fibrosis