**FP214** TISSUE PROTECTIVE ERYTHROPOIETIN RECEPTOR/B-COMMON RECEPTOR ASSOCIATED WITH PROPERDIN IN MOUSE RENAL ISCHEMIA-REPERFUSION INJURY AND REPAIR

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**INTRODUCTION AND AIMS:** Acute kidney injury (AKI) is a common problem associated with high mortality. Ischemia-reperfusion (IR) injury is one of the main causes of AKI. The heteroreceptor composed of EPO receptor (EPOR) and β-common receptor (βcR) is tissue protective. In addition, properdin is the only naturally occurring positive regulator of complement alternative pathway, stabilizing C3bBb and amplifying activation. Our previous study has demonstrated more severe renal damage in properdin deficient (PKO) mice than in wild type (WT) mice upon IR injury. The aim of this study was to explore the relationship between EPOR/βcR and properdin in kidney IR injury and repair.

**METHODS:** The bilateral occlusion of renal pedicles for 30 min was performed in WT male C57BL/6 mice (n = 5-7), followed by reperfusion for 6 h, 12 h, 24 h, 48 h, 72 h, and 1 week. In addition, βcR−/− mice were studied at 72 h (n = 8), with matched WT mice (n = 9). A sham control group was also included for both sets of studies (n = 4-5). The expression of EPOR/βcR was measured, as along with renal function, tubulointerstitial damage (TID) score, apoptosis, high mobility group box 1 (HMGB1), active caspase-3 protein, mitosis and proliferating cell nuclear antigen (PCNA).

**RESULTS:** In the time course model, the expression of EPOR/βcR gradually increased post IR injury from 6 h and reached a statistical significance at 72 h and 1 week compared to the sham control. The level of EPOR/βcR was not only positively associated with the injury marker of HMGB1 but also related to the repair related protein, PCNA. Moreover, properdin protein gradually increased from 6 h, peaked at 24 h and then declined, while its mRNA level remained low until 72 h and 1 week. Interestingly, properdin knockout mice demonstrated a further upregulation of EPOR/βcR in kidneys in contrast to the WT control at 72 h post IR. The upregulated EPOR/βcR was not only positively correlated with the level of renal functional and structural damage, apoptosis, HMGB1 and active caspase-3, but also significantly associated with mitotic figure and PCNA protein.

**CONCLUSIONS:** Increased EPOR/βcR in kidneys relates to both IR injury and repair activities. Moreover, properdin deficiency further increased the level of EPOR/βcR at 72 h post IR injury. The biological significance and the mechanism of EPOR/βcR associated with properdin in renal IR injury and repair need to be further investigated.