Cellular Prion Protein Alleviates Acute Kidney Injury by Interacting with TSPAN7 to Induce Formation of Migrasome

**Conclusion**
Fibroblasts are the main source of endogenous Prp\(^c\) in the kidney. After injury, rapidly activated fibroblasts secrete Prp\(^c\), which acts on the TSPAN7 protein in renal tubular epithelial cells, mediates the formation of migrasome, promotes the repair of renal tubular epithelial cells, and reduces AKI.

**Methods**
- **WT and Prnp\(^{-/-}\) mice**
  - Renal I/R injury model
  - Bilateral renal pedicle clamping for 35 min

- **Prp\(^c\) in the kidney**
  - Gene and protein expression
  - Localization
  - Source

- **Prnp\(^{hi}\)Fib and HK-2 cells**
  - Co-culture
  - H/R injury model

**Results**
- **WT mice**
  - \(\alpha\)-SMA, Vimentin
  - 12 hrs after I/R
  - Prp\(^c\) expression peak at 48 hrs

- **Post I/R injury**
  - WT mice
  - HK-2 cells
  - Apoptosis of HK-2 cells
  - Formation of migrasome

  - Prnp\(^{-/-}\) mice
  - kidney damage
  - Serum creatinine
  - Damaged
  - I/R induced TSPAN7 overexpression

- **Transwell co-cultured**
  - HK-2 cells
  - Prnp\(^{hi}\)Fib
  - H/R induced migrasome formation
  - Damage to renal tubular epithelial cells

- **The Prion protein**
  - Formation of migrasome
  - Damage to renal tubular epithelial cells

**Gene and protein expression**
- Number
- Markers
- Morphology

**Localization**
- **Prp\(^c\) bind to TSPAN7 directly, co-located in the migrasome**

**Source**
- **Migrasome**
- **Prnp\(^{hi}\)Fib and HK-2 cells**
- **WT and Prnp\(^{-/-}\) mice**

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