#9. Hydrogen-rich preservation solution attenuates lung ischemia-reperfusion injury after prolonged cold ischemia in a canine left lung transplant model

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**Background**

Molecular hydrogen ($H_2$) protects the effects of ischemia-reperfusion (I/R) injury in various organs.

**Antioxidative effect**
**Anti-inflammatory effect**
**Anti-apoptotic effect**

However, most of the reports are on inhalation of $H_2$.

**Background**

Our group has previously reported...

- the protective effects of $H_2$-rich solution on lung I/R injury in a rat left hilar clamp model


- the protective effects of $H_2$-rich preservation solution on lung preservation in a rat left LTx model

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**Background**

Advantages of $H_2$-rich preservation solution

- Easy to transport
- Possible to use both for flushing and immersing
- Safe to use
  - Since $H_2$ gas has flammable and explosive properties
- Efficient to deliver

$H_2$ molecular hydrogen, I/R: ischemia-reperfusion, LTx: lung transplantation

**Methods - Study design**

Donor canine

Graft preservation (23 hours, 4°C)

Retrieval of lung grafts

Recipient Canine

Left LTx (1 hour)

Reperfusion (Total 4 hours)

$H_2$ group: hydrogen group

CON group: control group

Clamp of right main PA

Sacrifice

45 minutes after reperfusion

$H_2$ molecular hydrogen, LTx: lung transplantation, PA: pulmonary artery

**Conclusion**

Our results indicated that hydrogen-rich preservation solution attenuated I/R injury in a canine left LTx model.

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