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# Static cold storage using innovative kidney envelope for preservation of donor kidney

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## Study design

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- **Static cold storage is the most commonly used preservation method for donated kidneys.**
- **One the of mostly used donor organ preservation method currently includes ice, ice box and 3 plastic bags.**
- **However,**





## Study design

- We proposed a novel kidney envelope that were used directly covering the donated kidney during kidney preservation.
- An animal model including 4 pairs of pig kidneys were used in our study. Each pair of pig kidney were separated into 2 groups.
  - One kidney using the standard static cold storage method.
  - Another we add a kidney envelope covering the kidney before immersing in Histidine-tryptophan-ketoglutarate (HTK) solution.





## Study design

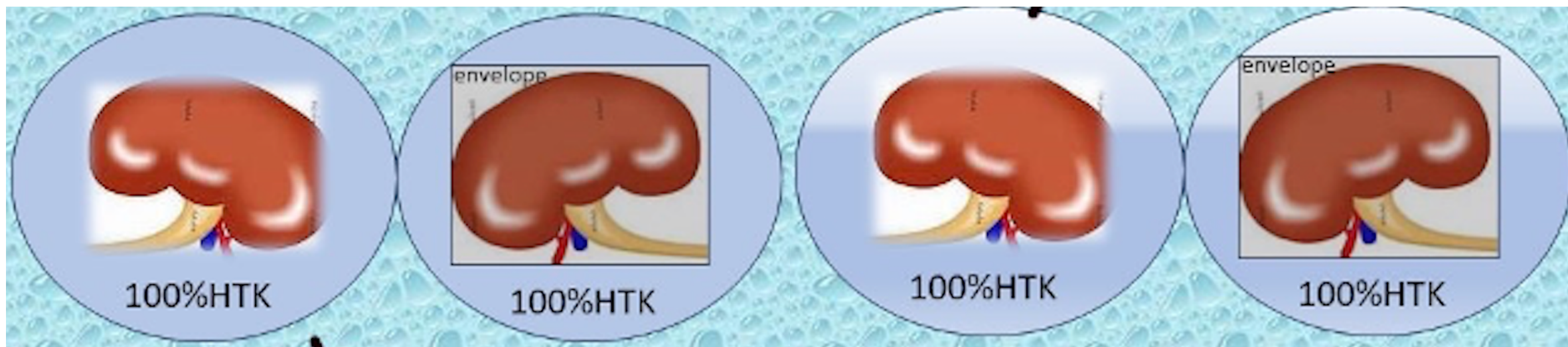
- Each pair of pig kidney was assigned into one of the four groups:
  - fully immersed in 100% HTK solution
  - partially immersed in 100% HTK solution
  - fully immersed in 50% HTK solution
  - partially immersed in 50% HTK solution



## Methods

- Experiment 1
- Fully immersed in 100% HTK

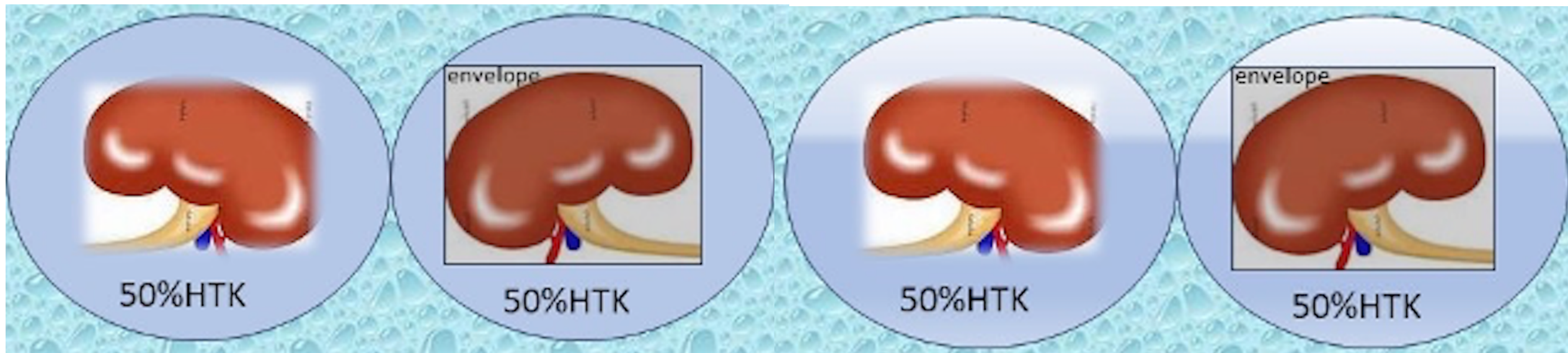
- Experiment 2
- Partially immersed in 100% HTK



## Methods

- Experiment 3
- Fully immersed in 50% HTK

- Experiment 4
- Partially immersed in 50% HTK





## Results

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- **The enveloped-covered kidney showed a better resistance against frostbite based on our experiment. I**
- **In the 2 fully immersed group, no grossly frostbite was noted. In the partially immersed groups, frostbite was noted**
- **In the 100% and 50% HTK solution group without kidney envelope, while no frostbite was noted in the enveloped group.**
- **Further pathology confirmation was needed**





## Conclusion

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- **The novel kidney envelope may be beneficial in preventing frostbite in static cold storage for kidney preservation based on our pig kidney model**
- **However, further pathology and larger scale of study was needed**

