

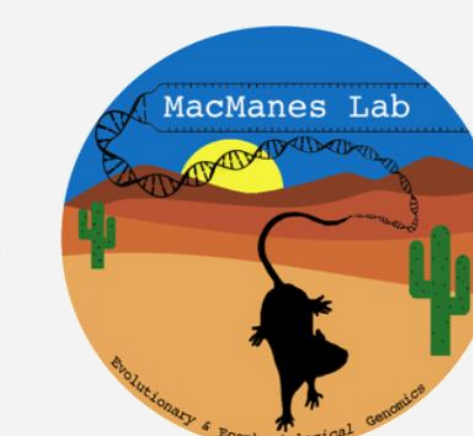
Using Spatial Transcriptomics to Understand Renal Function in Desert Rodents



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BACKGROUND

Peromyscus eremicus is endemic to deserts in southwestern North America and possesses adaptations that allow it to survive its entire life without water. These adaptations are not well understood on physiological or genomic levels.



Lacher et al 2019

RESEARCH GOAL:
To examine gene expression by creating a spatial transcriptome library of the kidney of *P. eremicus*, an organ intimately involved with water retention.



EXPERIMENTAL DESIGN

SPATIAL TRANSCRIPTOMICS PIPELINE:

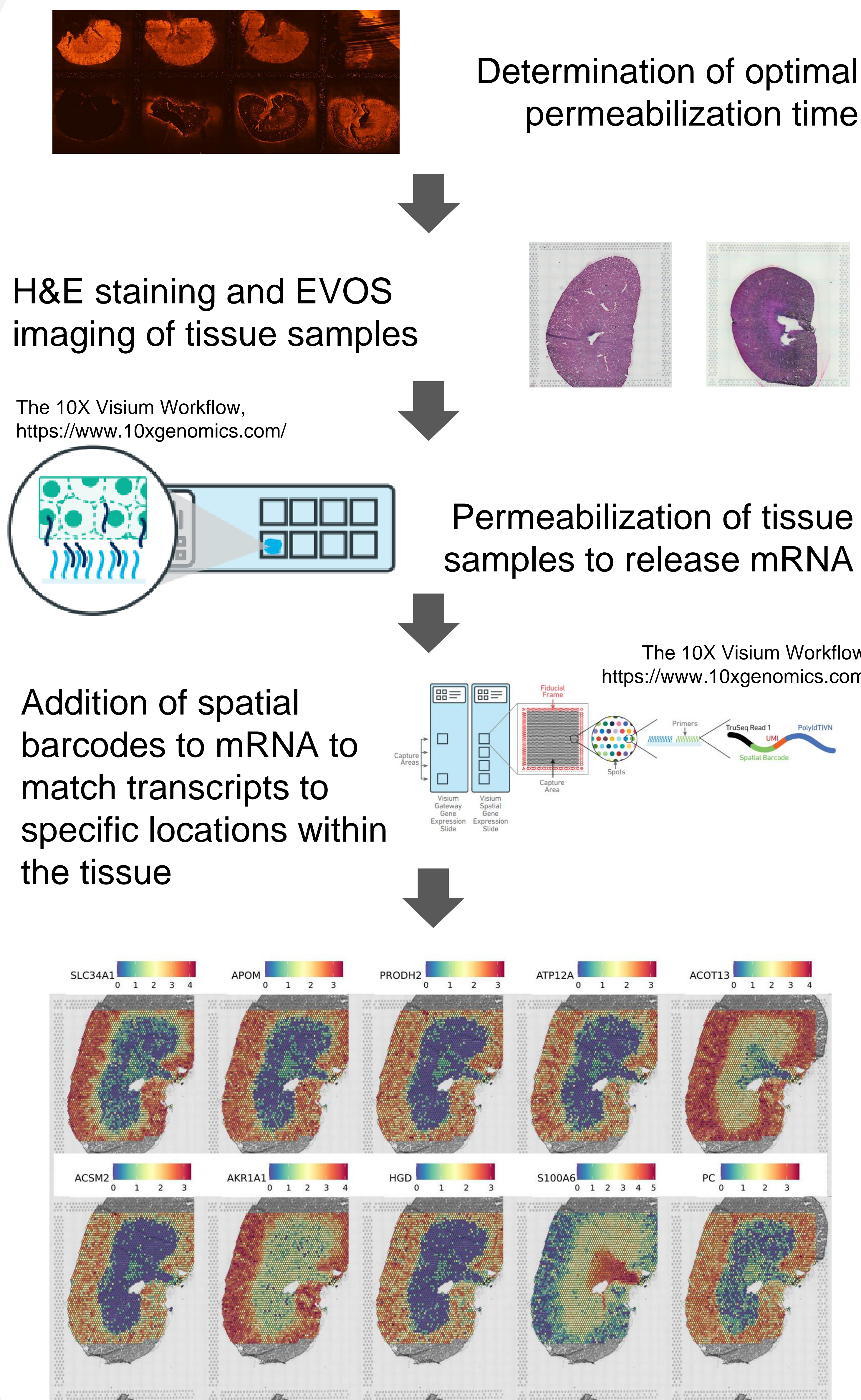
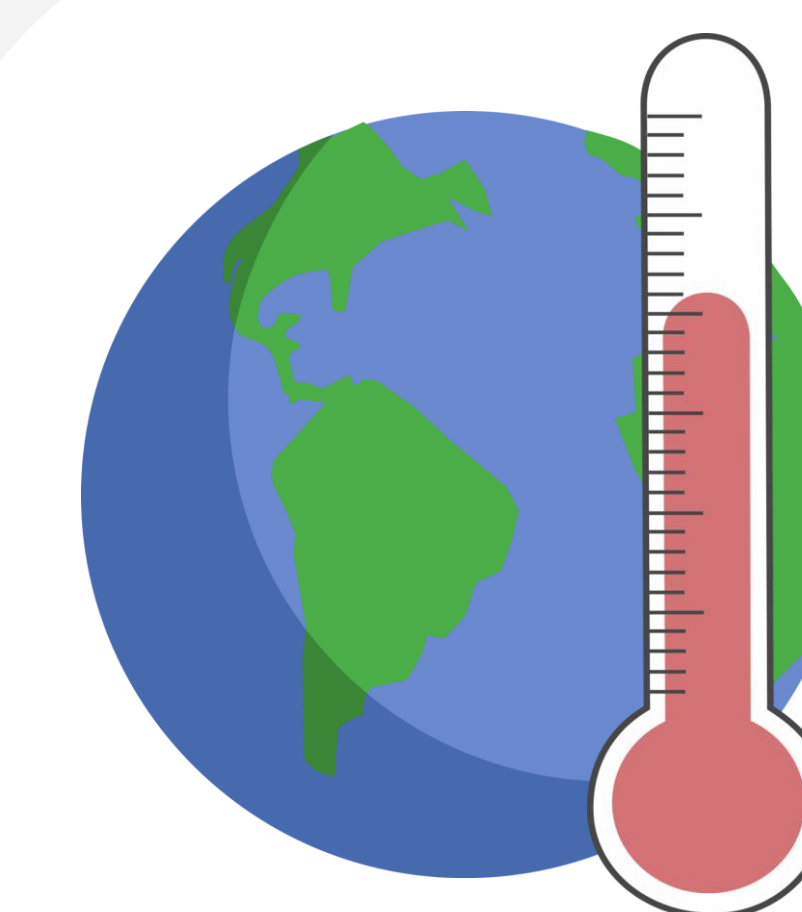


Figure 1. Spatial maps of 10 genes in the kidney of *P. eremicus*

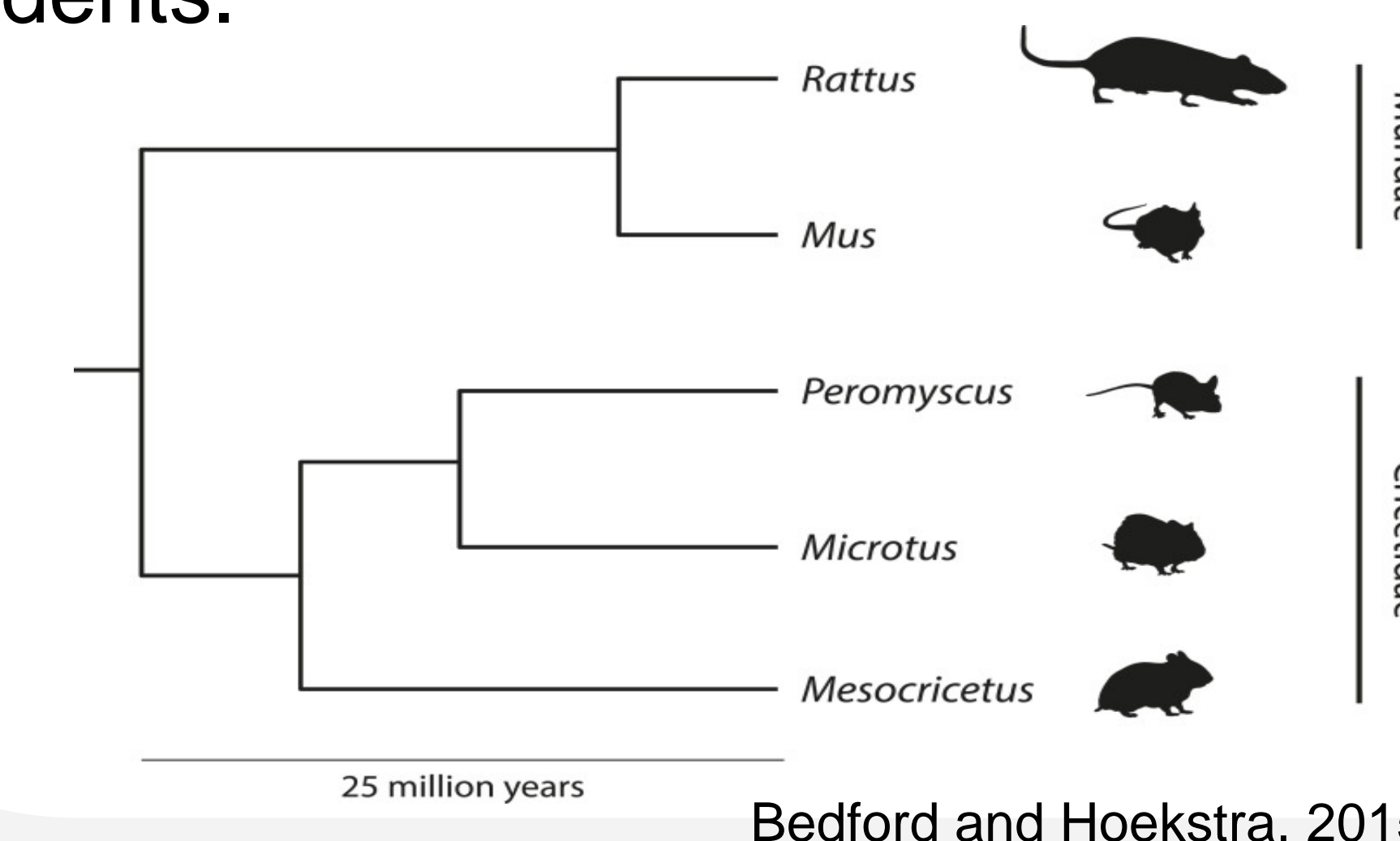
FUTURE PLANS



As the earth experiences increasing desertification due to climate change, studies of adaptations in species that can thrive without water may inform future directions of ecological and zoological research..

NEXT STEPS:

- Creations of spatial kidney maps of dehydrated and non-dehydrated *P. eremicus*, looking for differentially expressed genes.
- Comparisons of the spatial kidney map of *P. eremicus* with those of non-desert-adapted rodents.



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