

Developing a Non-Surgical Mouse Model of Neuropathic Bladder

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Introduction

- Accurately diagnosing urinary tract infections (UTI) is difficult in children with neuropathic bladder is difficult
- Mouse studies could help identify improved methods to diagnose UTI
- Spinal cord injury model is technically difficult and results in inconsistent phenotypes
- Chrm3-/- (muscarinic acetylcholine receptor 3 KO) may have a neuropathic bladder phenotype

Methods

Mice

- Experimental mice: B6N.129S6-Chrm3^{tm1Jwe}/J (muscarinic acetylcholine receptor 3 knock-out) with background strain C57BL/6N.
- Littermate control mice are of the same background strain (C57BL/6N)
- Experiments conducted at 4-5 months of age.

Assessment of Voiding Behavior

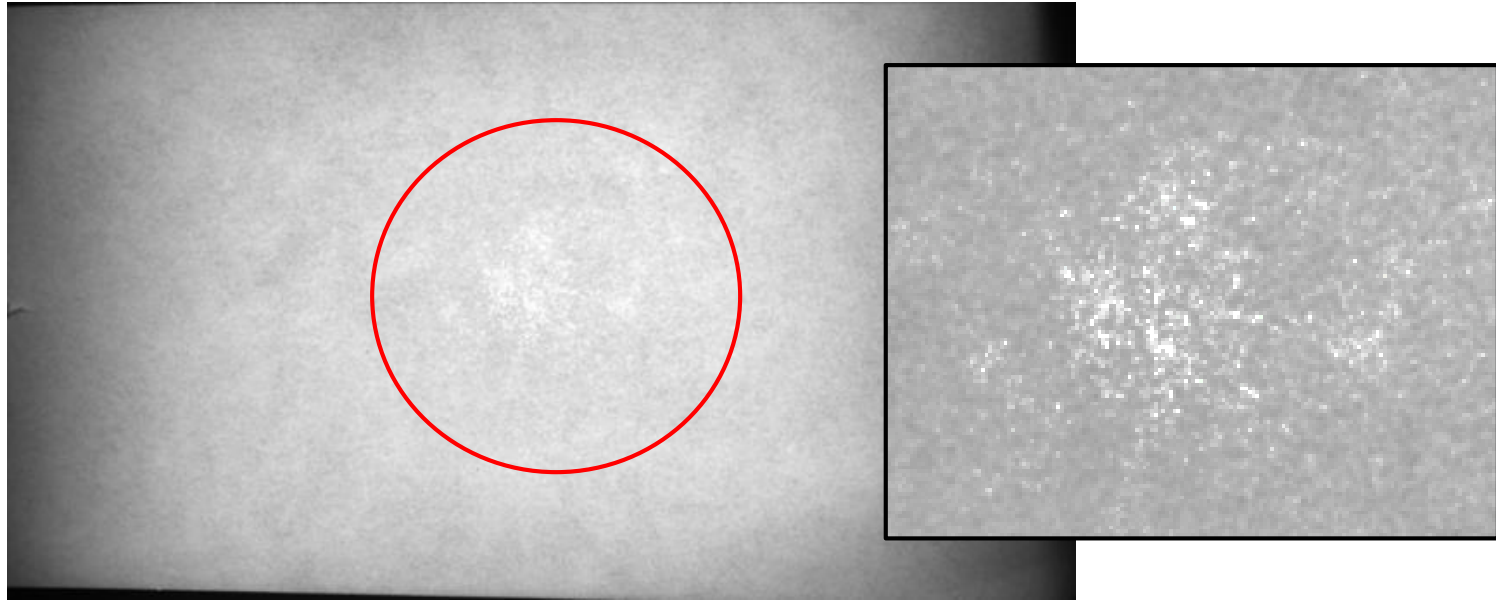
- Voided spot assays
- Voided volumes

Assessment of Bladder Dynamics

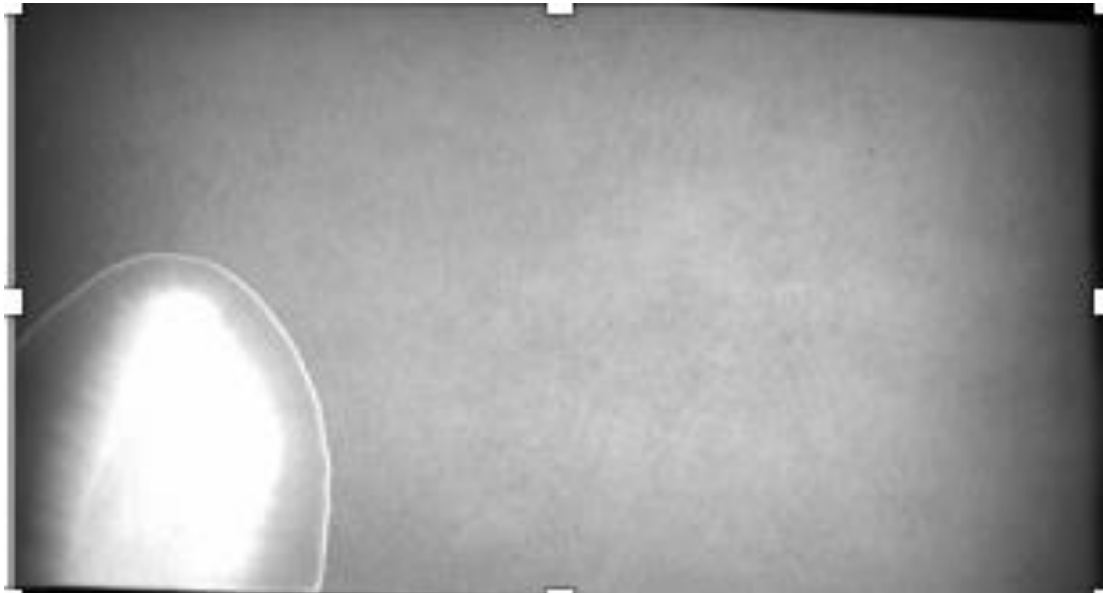
- Sedated cystometry

Voided Spot Assays

Chrm3-/-

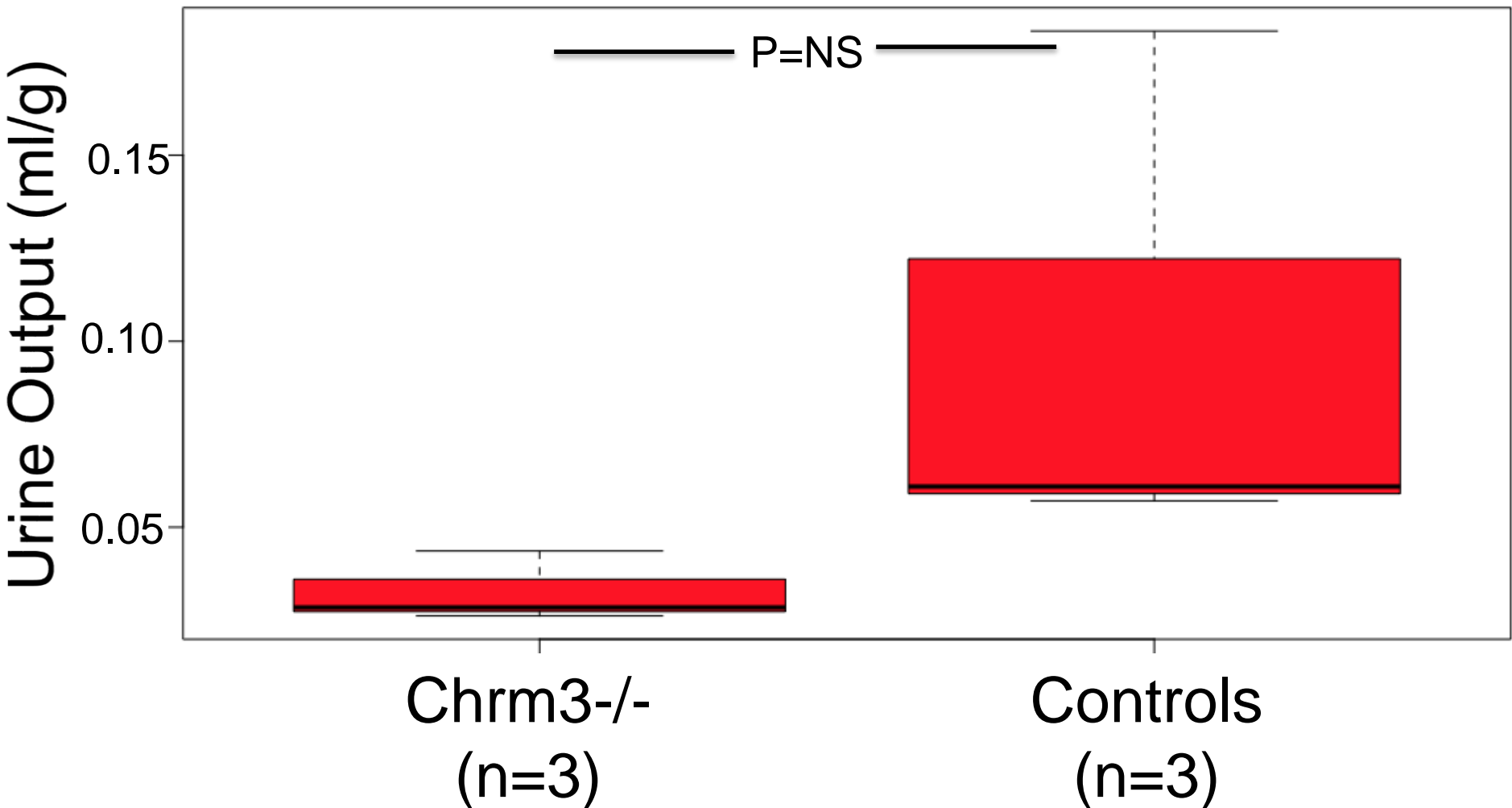


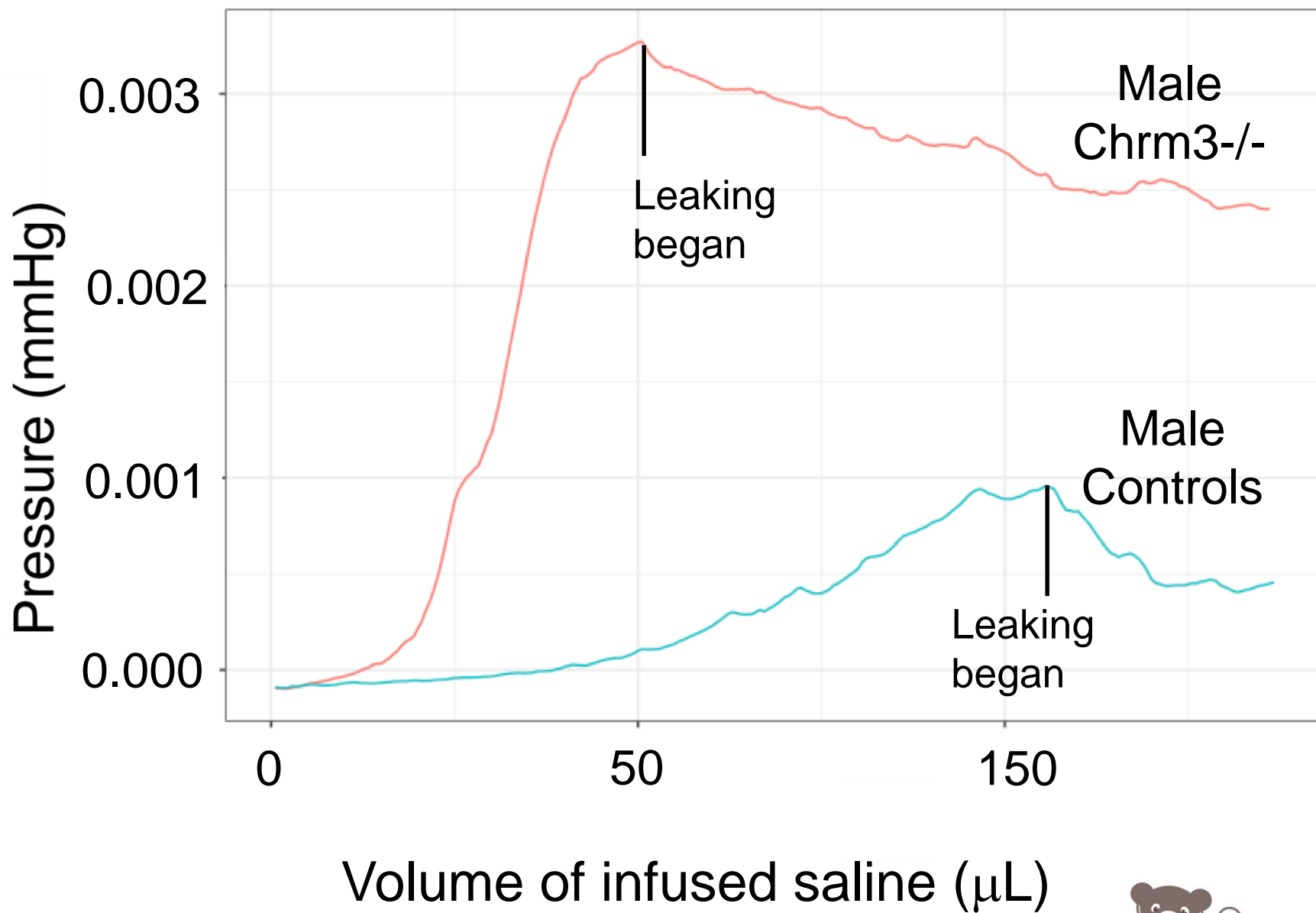
Controls



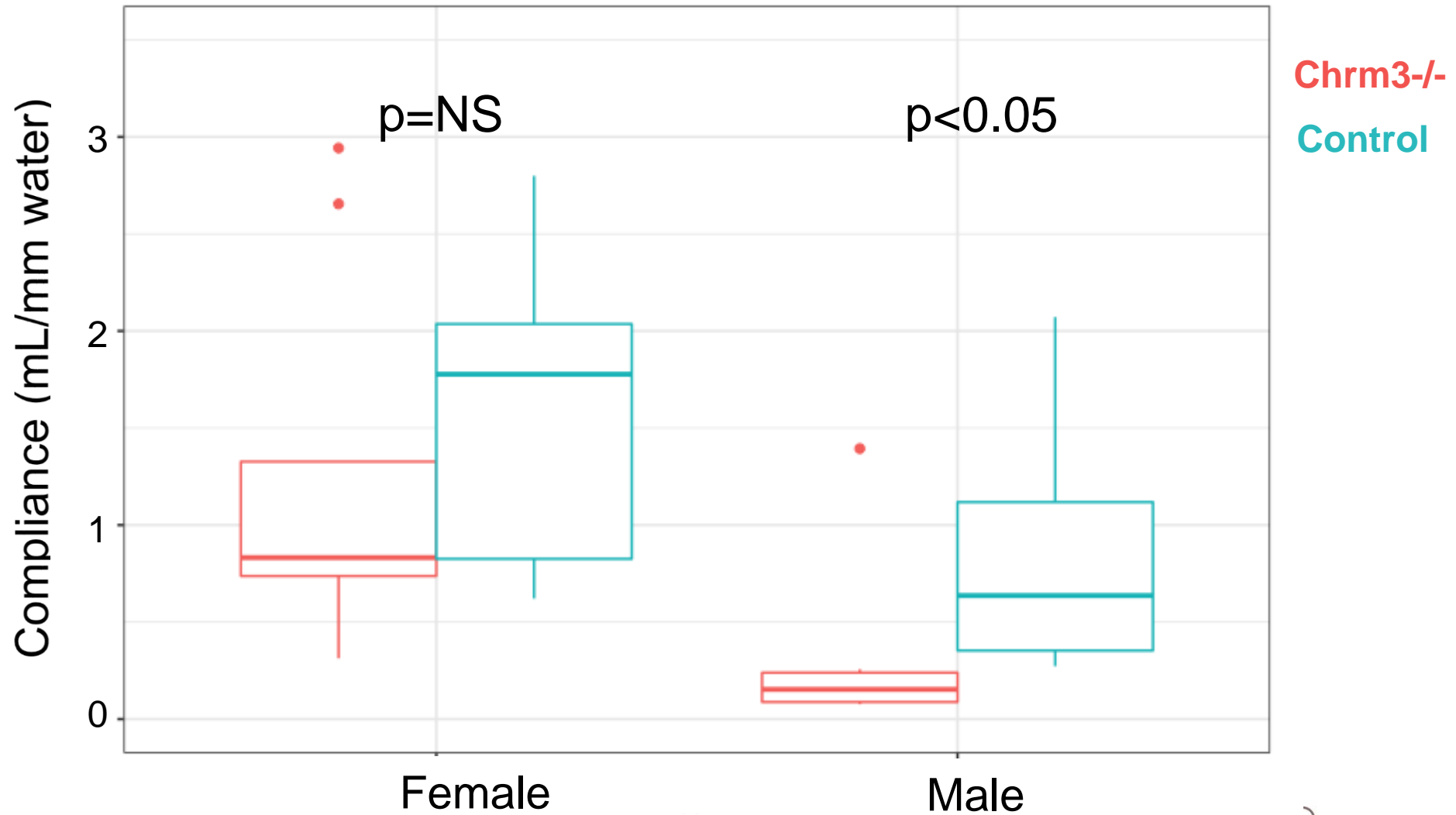
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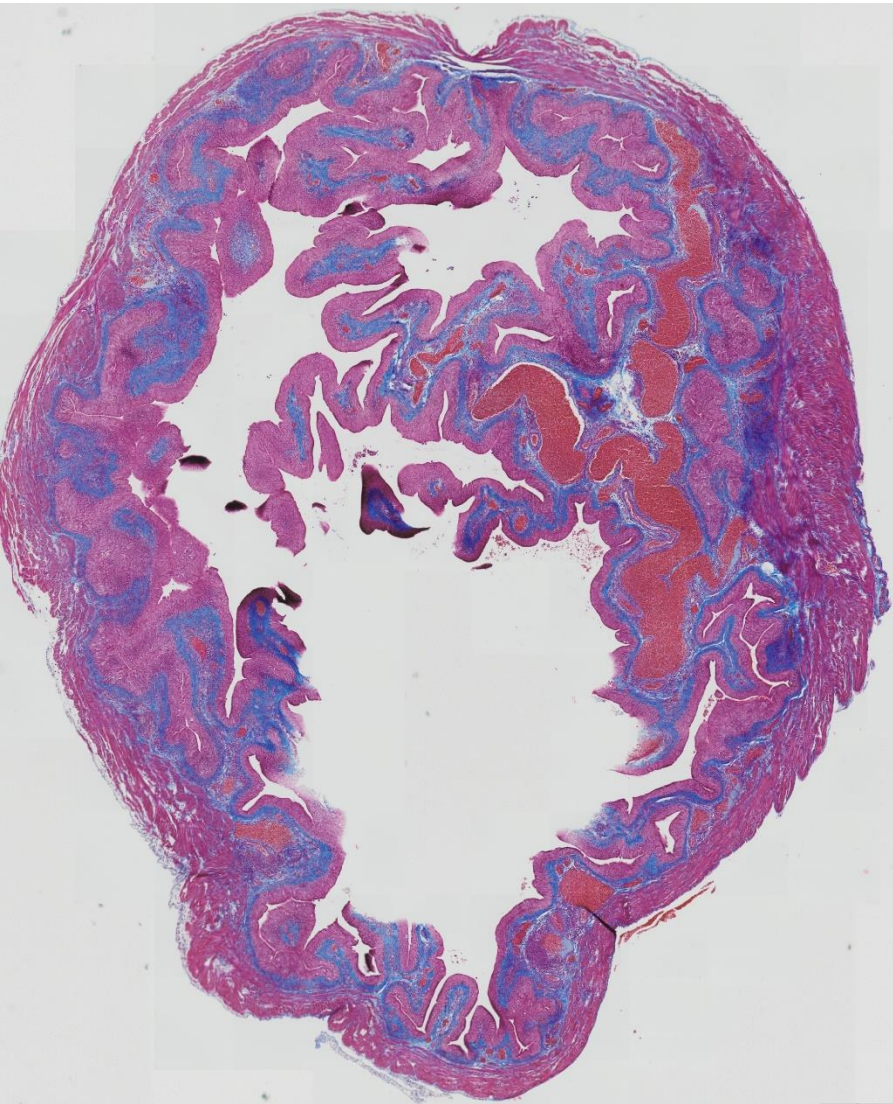
Voided Volumes in Females



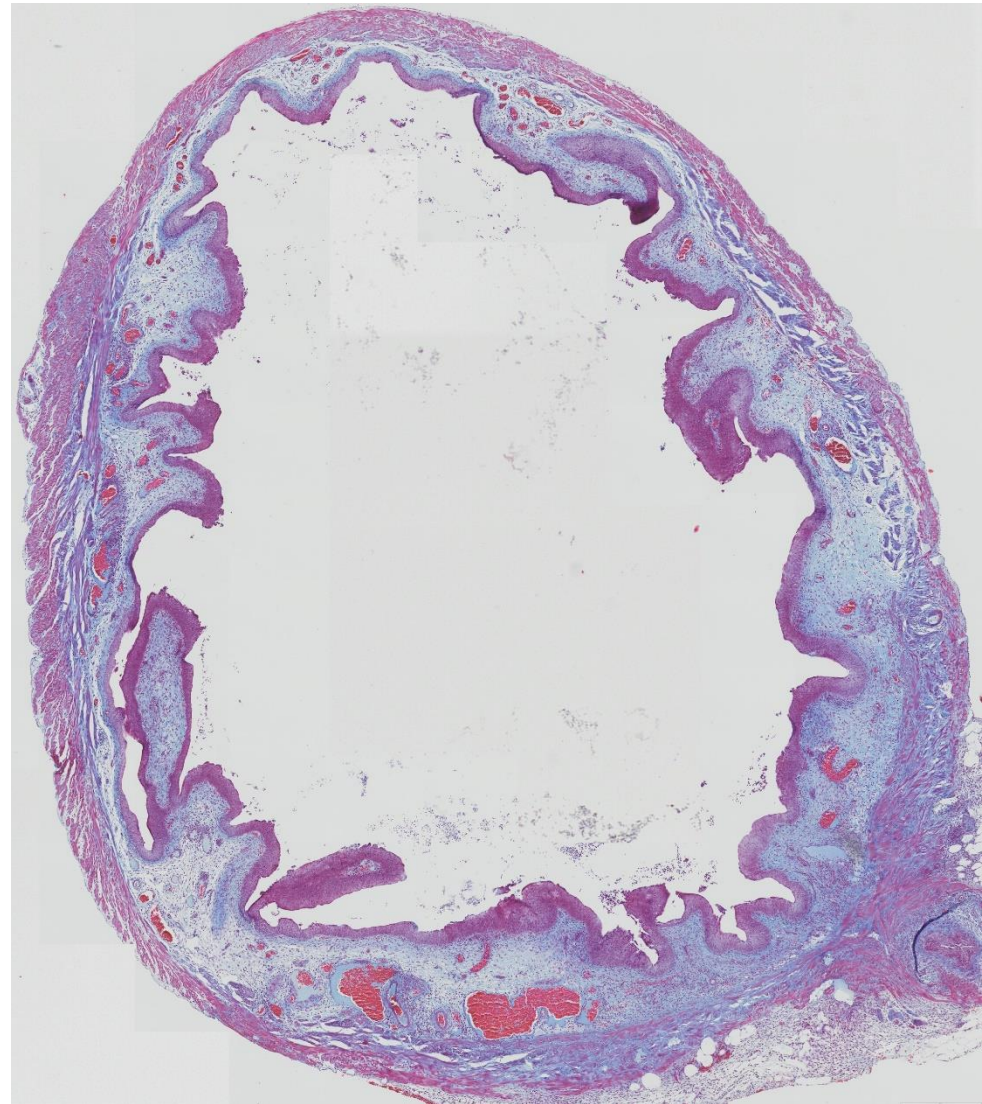


Detrusor Compliance





Controls



Chr3^{-/-}

Conclusion

The Chrm3^{-/-} mouse exhibits a neuropathic bladder phenotype, and may be useful for work focused on improving UTI diagnosis in children with neuropathic bladders

Thank you!

Questions?

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