

# Mitochondrial respiration in bladder mucosal and detrusor tissues from aged female mice

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## INTRODUCTION

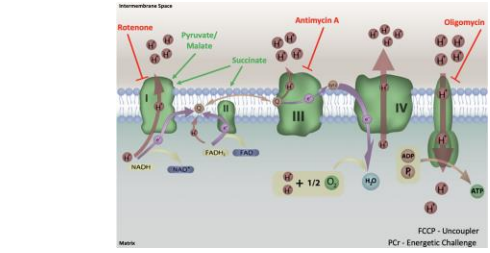
- Bladder dysfunction associated with aging is a common pathophysiology experienced by women worldwide.
- Little is known about aging and its effects on the bladder's ability to perform mitochondrial respiration.
- Our objective is to quantify the differences in mitochondrial respiration in bladder detrusor and mucosal tissues in young and old female mice.

## HYPOTHESIS

- We hypothesize that mitochondrial respiratory capacity will be decreased in the bladders of old female mice who present with decreased bladder function.

## METHODS

- Animals**  
 Female C57bl/6NJ mice. Young - 10 weeks (n=5), Old - 2 years (n=10).
- Void spot assays**  
 Used to determine *in vivo* bladder function in young and old mice. Each mouse was placed in a cage on filter paper. Filter paper was assessed using UV imaging and voids were measured using ImageJ software.
- High resolution respirometry**  
 Using Oroboros Oxygraph-2K Machines. Used to assess mitochondrial respiration in mucosal and detrusor tissue samples of old and young mice. O<sub>2</sub> flux was analyzed and normalized to dry tissue weight. Respiratory conductance was also analyzed.



- Substrates**
- Clamp** - creatine kinase, phosphocreatine, adenosine triphosphate, **CytC** - cytochrome C, **P/M** - pyruvate and malate, **Succ/Rot** - succinate and rotenone, **PCr** - phosphocreatine, **Oligo** - oligomycin (*inhibitor*), **FCCP** - carbonyl cyanide-p-trifluoromethoxyphenylhydrazone (*uncoupler*), **Rot/Anti** - rotenone and/or antimycin (*inhibitor*)

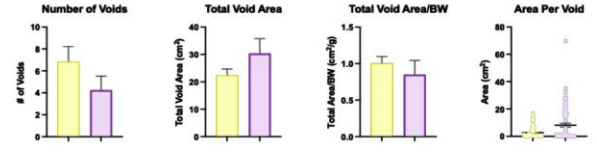
# Aging increases O<sub>2</sub> flux in bladder mucosal or detrusor tissue of female mice.

# There is increased respiratory conductance in the mucosal bladder tissue of aged female mice under complex I driven conditions.

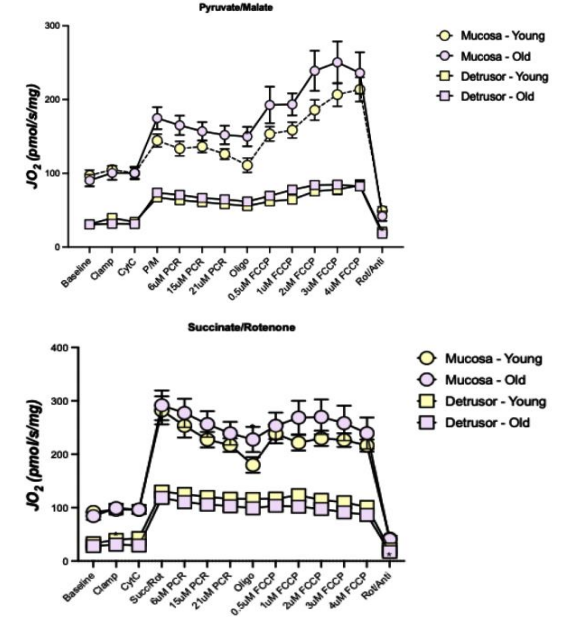


## RESULTS

1) No difference in *in vivo* bladder function between aged and young mice



2) In complex I and complex II driven conditions, aging increases O<sub>2</sub> flux in mucosal bladder tissues



3) There is increased respiratory conductance in the mucosal bladder tissue of aged female mice under complex I driven conditions

