The female specific RNA-binding protein, AUF1, increases peripheral hypersensitivity after repetitive ischemia with reperfusion injury

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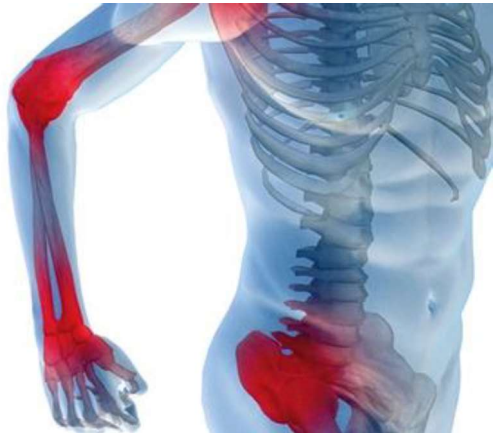
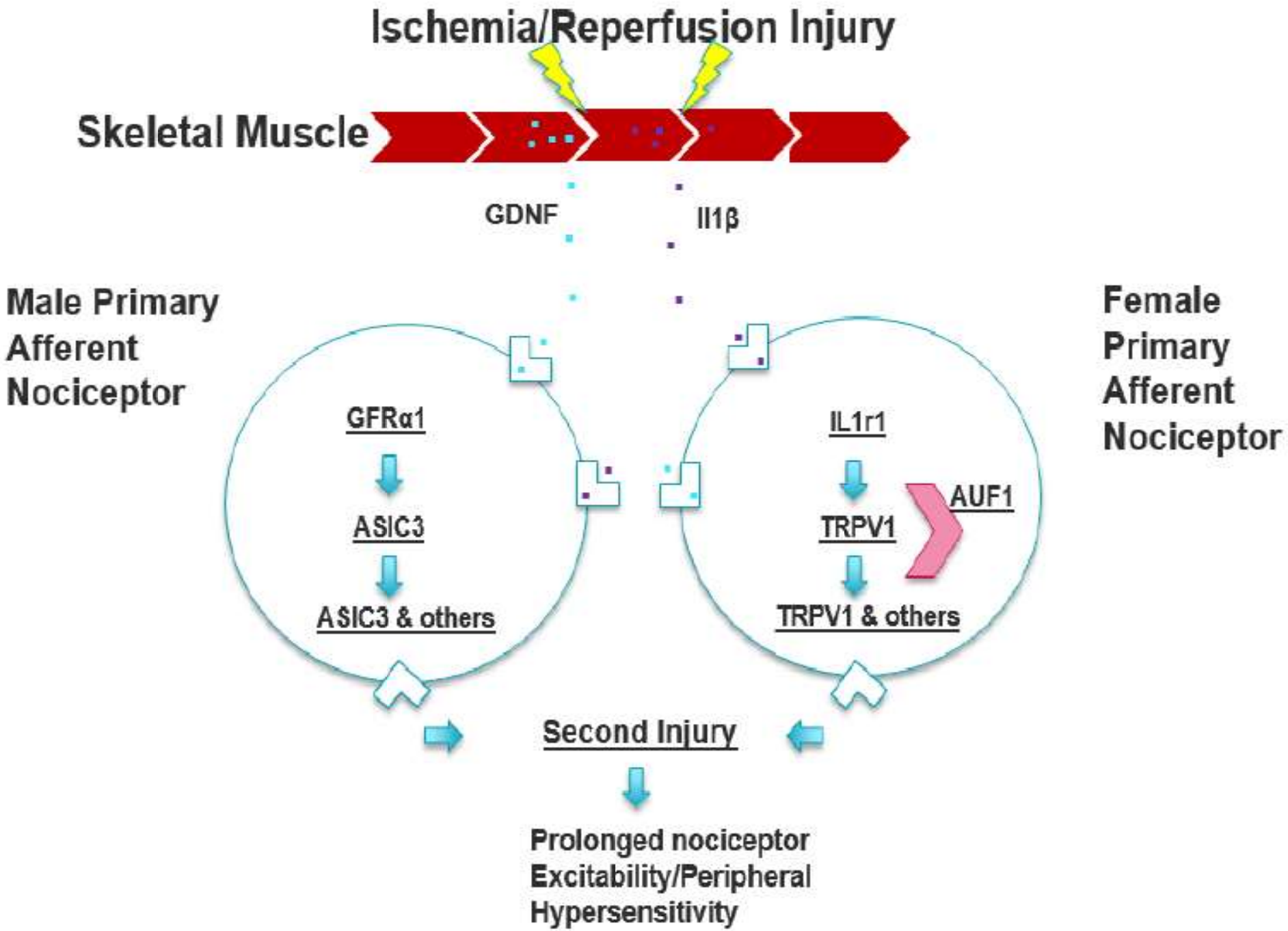
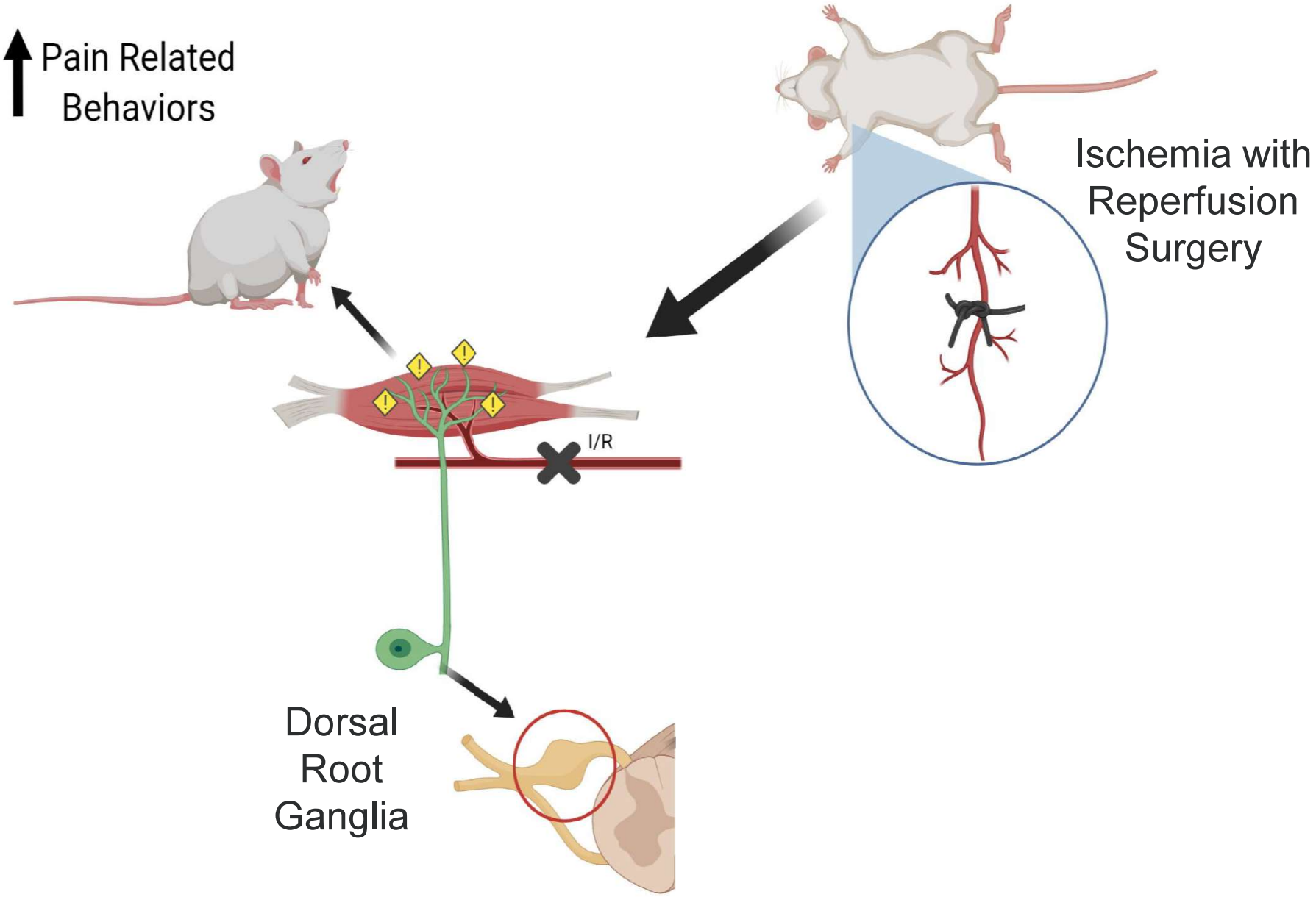
Background

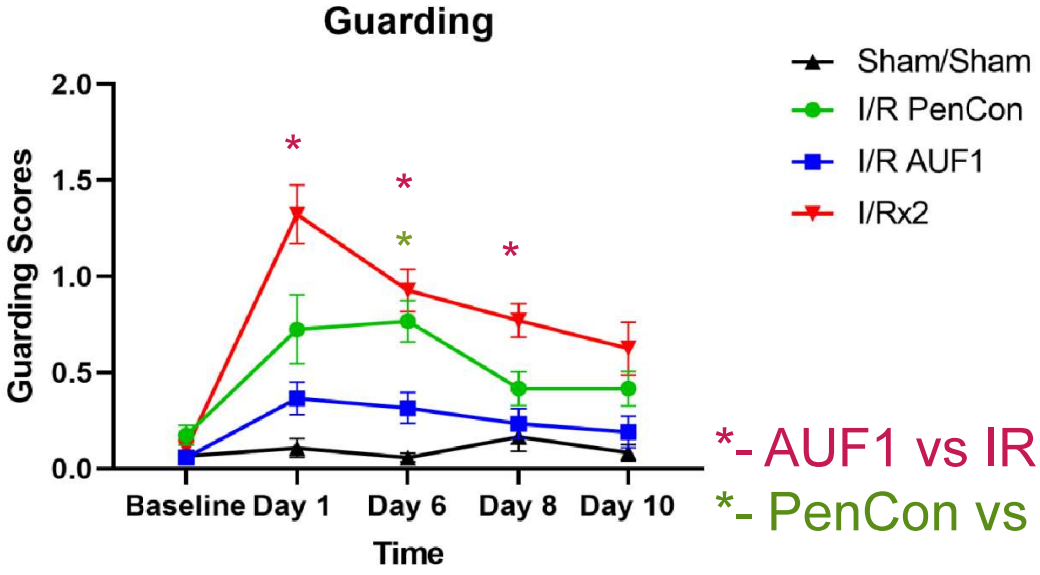
- Myalgia affects up to 33% of population (IASP).
  - **Higher prevalence** and higher hypersensitivity among females
- **Disease based myalgia**
  - Ischemia with reperfusion (I/R) injury
- Glial cell line-Derived Neurotrophic Factor (GDNF)
- **Rationale**: Finding if there is a sex specific difference in myalgia hypersensitivity.
- **Hypothesis**: Presence of AU-binding factor 1 in the female pain pathway can lead to a heightened sense of pain-like behavior in comparison to males in the rodent model.




Ischemia/Reperfusion Injury
Skeletal Muscle
GDNF
Il1β
Male Primary Afferent Nociceptor
Female Primary Afferent Nociceptor
GFRα1
ASIC3
ASIC3 & others
IL1r1
TRPV1
AUF1
TRPV1 & others
Second Injury
Prolonged nociceptor Excitability/Peripheral Hypersensitivity

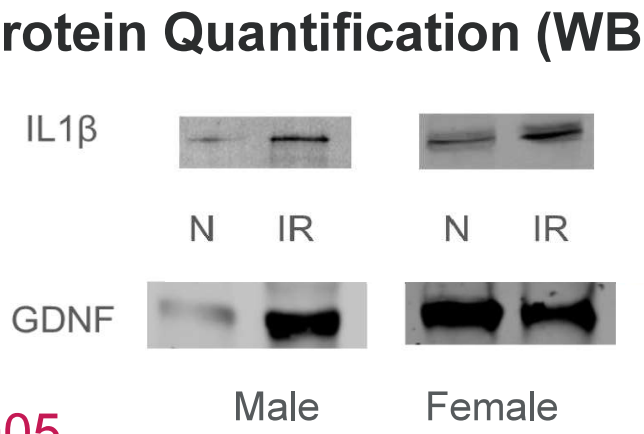

Pain Related Behaviors
Ischemia with Reperfusion Surgery
I/R
Dorsal Root Ganglia

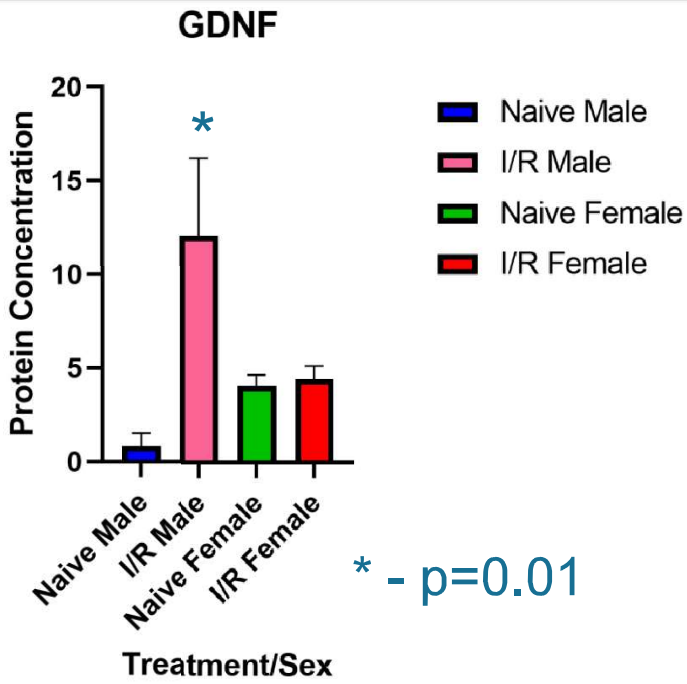
Results



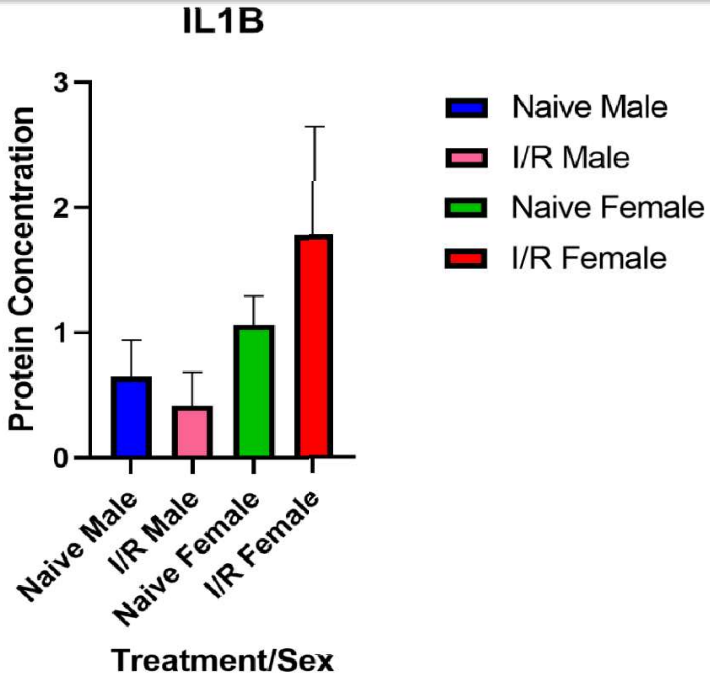
*- AUF1 vs IR p<0.005

*- PenCon vs AUF1 p<0.05

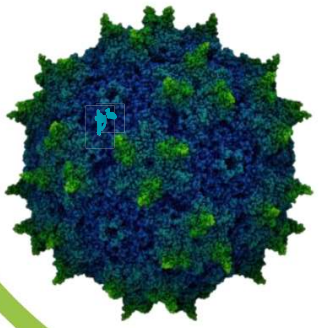




* - p=0.01



Future Direction



- **AAV** (adeno associated virus)
- Possibility of increasing AUF1 to increase Phosphorylated AUF1
- Stain muscles for females to see **GDNF**
- How does AUF1 block hypersensitivity?
- Old mice compared to neonatal mice

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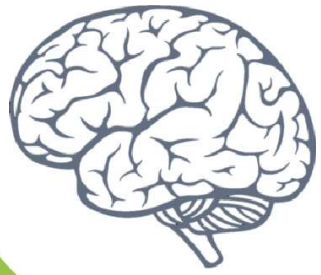

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