**Introduction**

Understanding 4-AP’s Capabilities to Enhance Axonal & Glial Spinal Cord Regeneration After Injury Utilizing a Zebrafish Model

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What does the Zebrafish (Danio rerio) model look like?

![Image](https://example.com/image1)

- More than 15 million individuals worldwide are affected by spinal cord injuries.1
- Individuals with a complete spinal cord injury have an lesion to their sensory and motor tracks.
- An protective barrier to extending tissue damage but an obstacle to regeneration of the spinal cord is the formation of a glial scar.2

**Methods**

1. Understanding Glial and Axonal Bridging After Spinal Cord Injury
2. Effects of Low Dose 4-Aminopyridine on Glial and Axonal Bridging After Spinal Cord Injury

**Aim 1: Understanding Glial and Axonal Bridging After Spinal Cord Injury**

- SCI Fish 0dpi
- SCI Fish 4dpi

**Aim 2: Effects of Low Dose 4-Aminopyridine on Glial and Axonal Bridging After Spinal Cord Injury**

- Control (Glial Bridge)
- DMSO SCI
- 4-AP SCI

**Results**

- Control (Axonal Bridge)
- DMSO SCI
- 4-AP SCI

**Discussion**

- 4-AP treated zebrafish showed axonal bridging by 2 days post injury compared to DMSO zebrafish.
- Fewer 4-AP zebrafish experienced glial bridging during recovery.
- Overall survival for the DMSO transected zebrafish was 20% and 4-AP transected was 37.5%.

**Future Directions**

- Aim 1: A current pilot study includes examining drug toxicity of 4-AP in the zebrafish.
- Aim 2: A proposed future study will look at various dosing schedules of 4-AP.
- Aim 3: An investigation into 4-AP’s ability to enhance locomotive recovery earlier over the course of 7 days will be studied.

**Acknowledgements & References**

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