

NX210c: Subcommissural Organ-Spondin-Derived Peptide Enhances Behavioural Functional Recovery and Tissue Preservation in Cervical Traumatic Spinal Cord Injury

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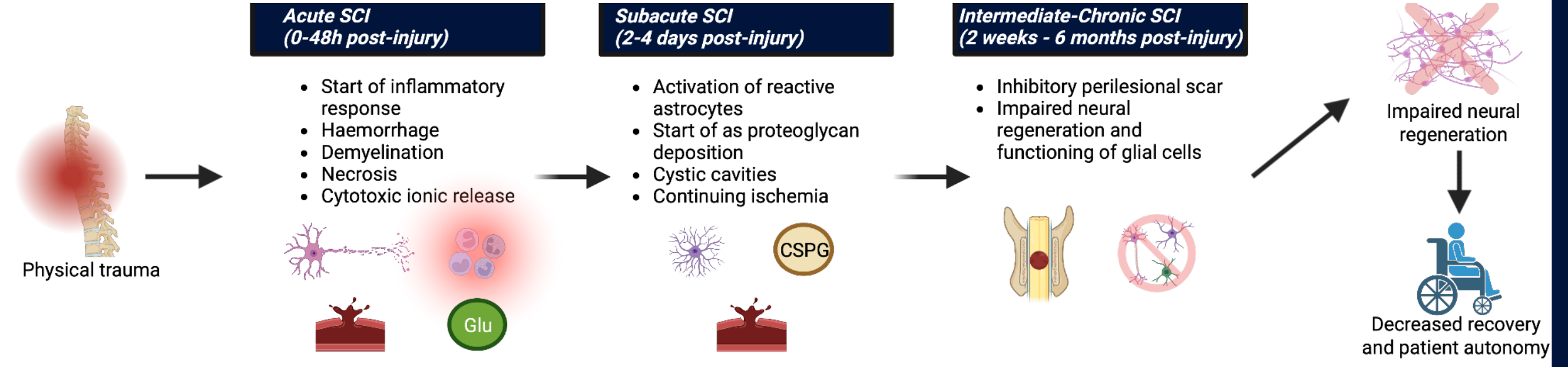
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Background

Spinal Cord Injury (SCI)



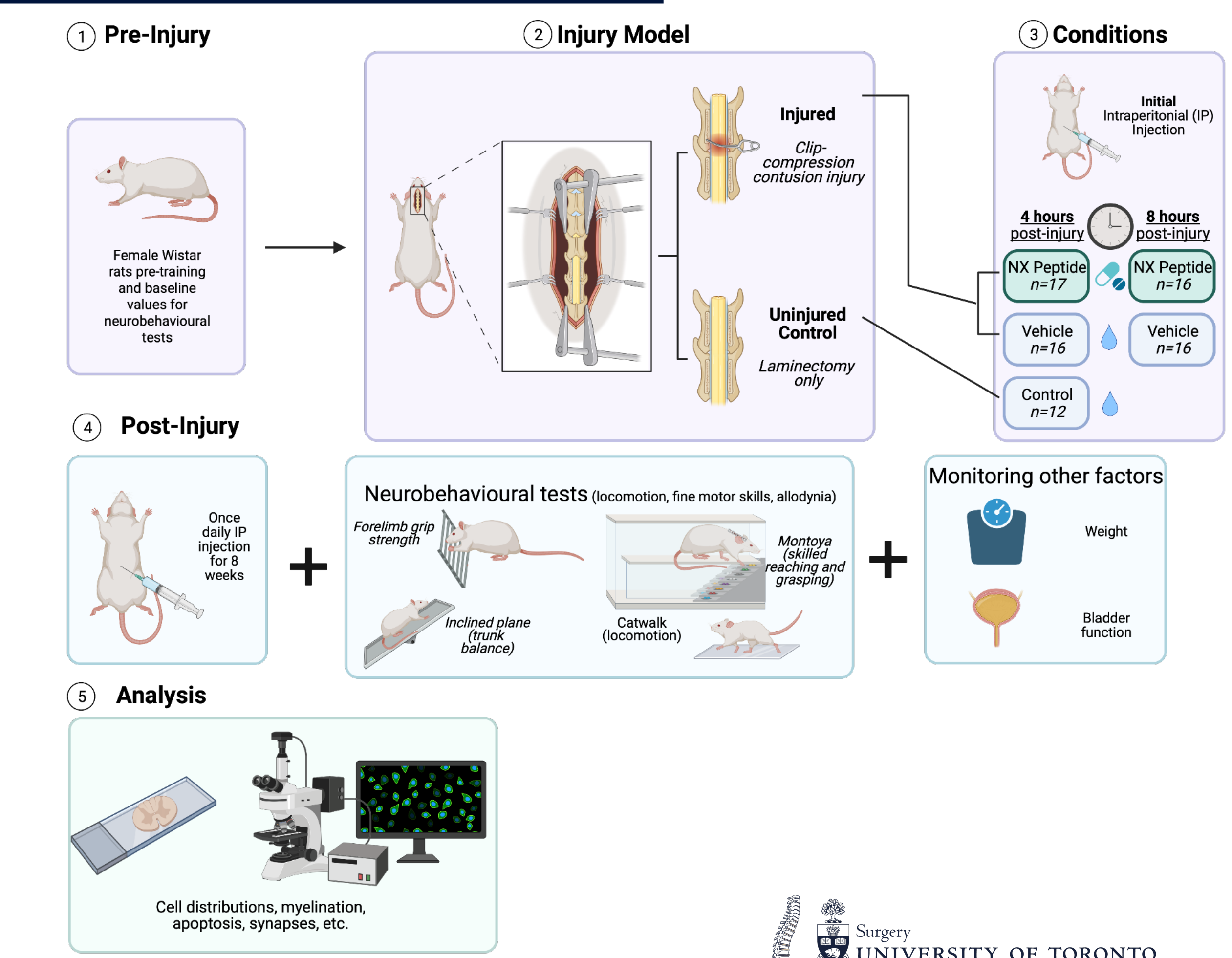
NX210c

NX210c is a 12 amino acid peptide derived from the sub-commissural organ (SCO)-spondin, a protein proposed to be involved in vertebrate spinal cord regeneration

Purpose

To examine the neuroprotective and regenerative properties of the NX peptide in a pre-clinical cervical SCI model

Methods



NX210c may provide a **multi-faceted approach** to treat acute cervical traumatic SCI, ameliorating **motor function, bladder control, and weight recovery** while also contributing to improved **white matter preservation, reduced cavity size, and neuronal survival**, altogether aiming to enhance patient **quality of life and autonomy**

Results and Conclusions

1. Early administration of NX210c increased forelimb strength (grip strength) and improved several aspects of locomotion (Catwalk gait analysis) (n=16-17 per treatment group, n=12 for uninjured shams)
2. When delaying first administration to 8h post-injury, NX210c promoted weight gain, accelerated bladder control recovery from 15 to 8 days post-injury, and reduced sensorimotor deficits (n=16-17 per treatment group, n=12 for uninjured shams)
3. Luxol Fast Blue, Hematoxylin, and Eosin (LFB/H&E) histology (n=6/group) demonstrates higher white matter preservation and reduced cavity size at the injury site with NX210c treatment beginning at 8h post-injury compared to vehicle
4. Immunohistochemistry of neuron soma counts (NeuN) (n=6/group) shows higher neuronal counts for the delayed NX210c 8h treatment group at and caudal to the injury site, compared to corresponding vehicle

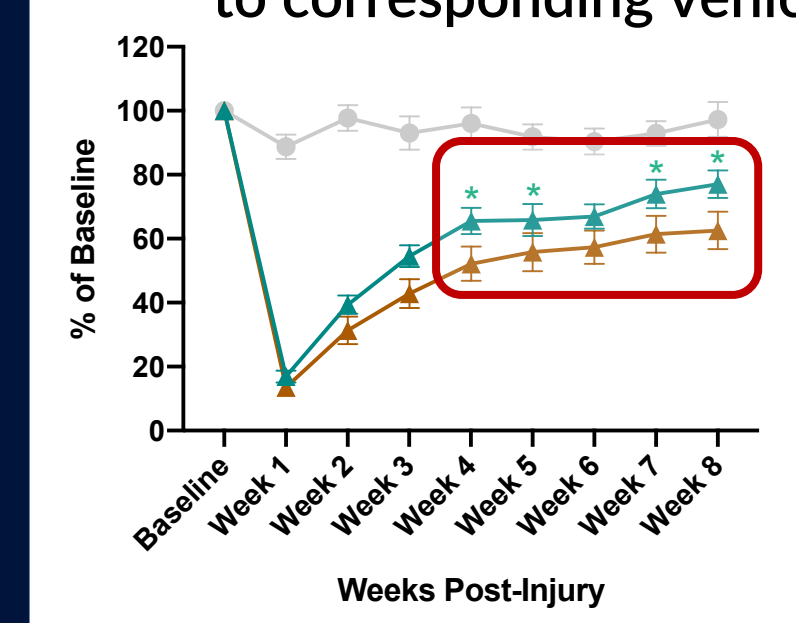


Figure 1: forelimb grip strength comparing NX210c and vehicle at 4h initial injection timepoint

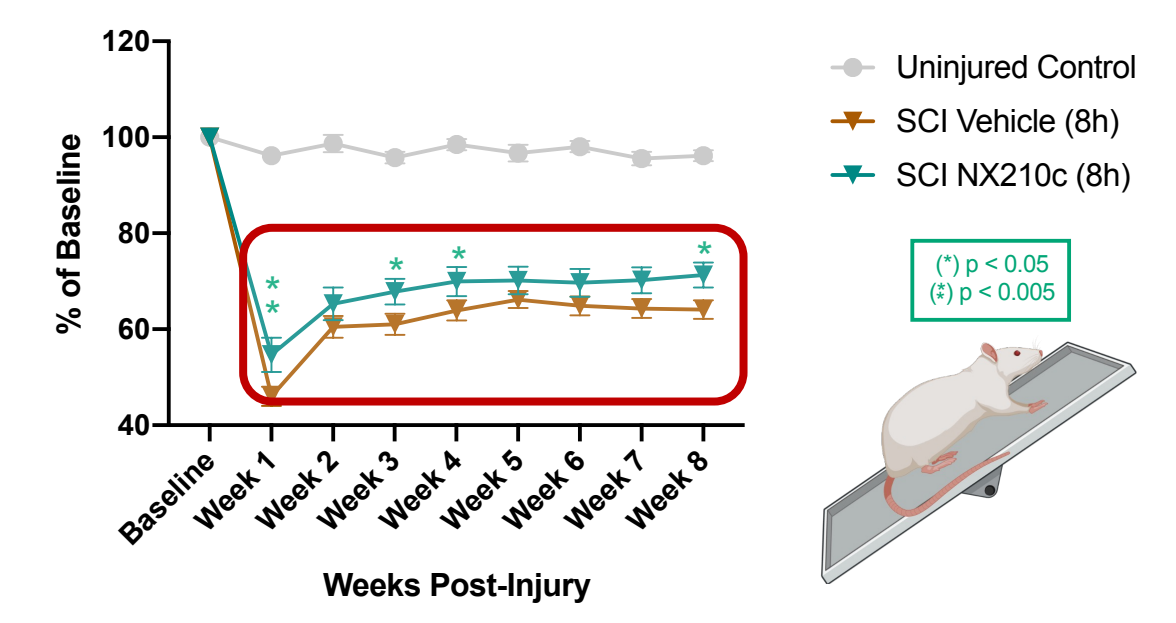
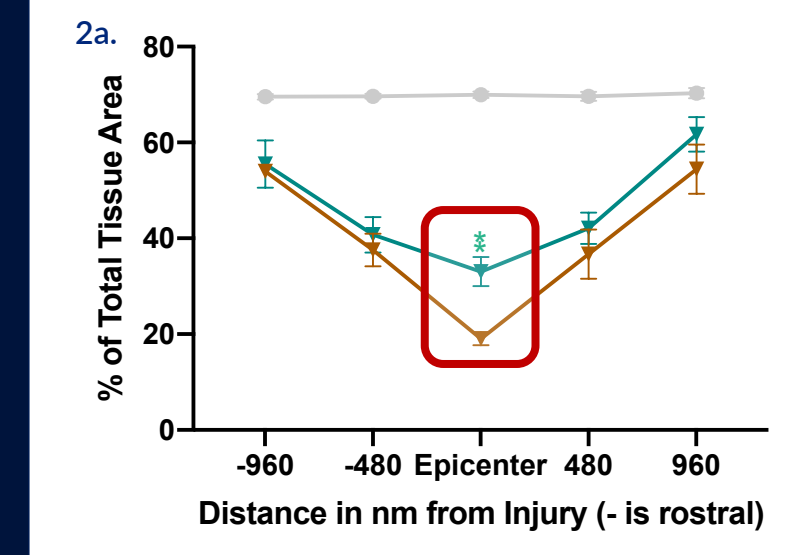
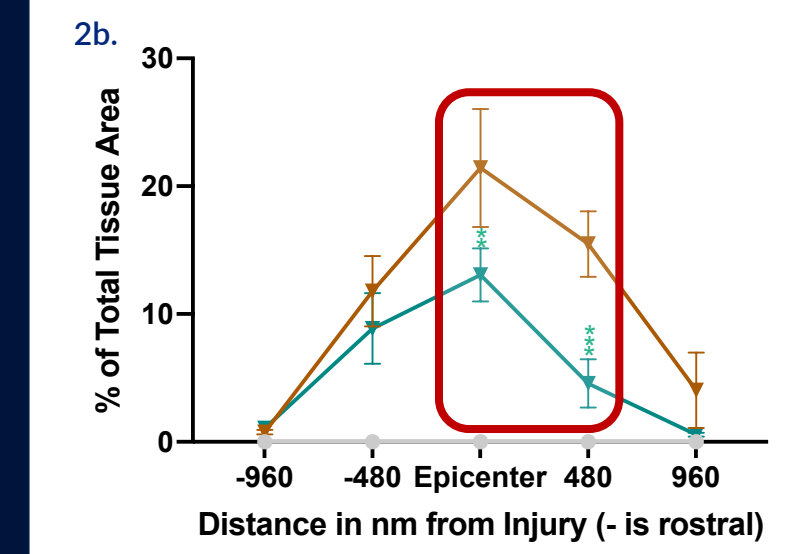


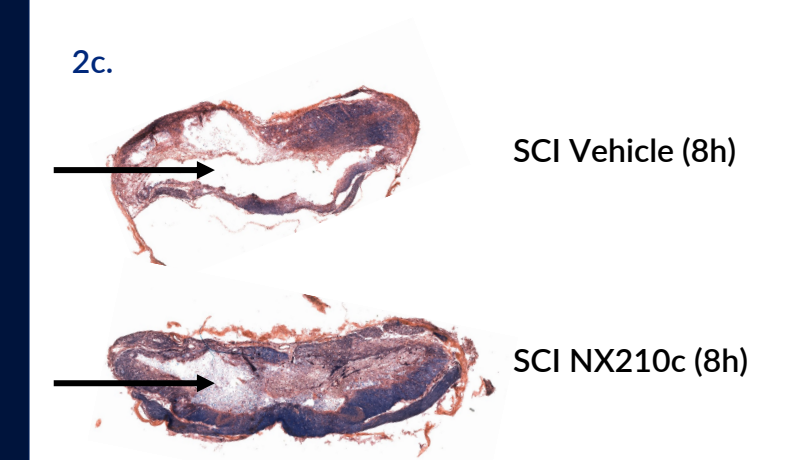
Figure 3: trunk balance (inclined plane) comparing NX210c and vehicle at 8h initial injection timepoint



2a. Figure 2: LFB/H&E analysis, demonstrating better white matter preservation (2a), reduced cavity size (2b), along with a visual of reduced cavity size (2c) for NX210c compared to vehicle at 8h initial injection



2b.



2c.

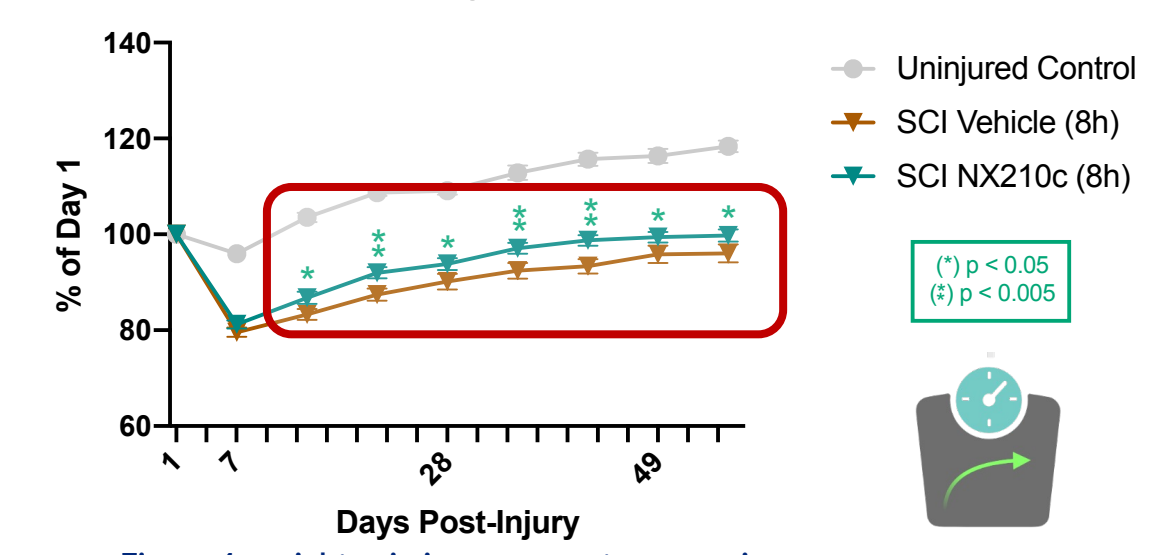
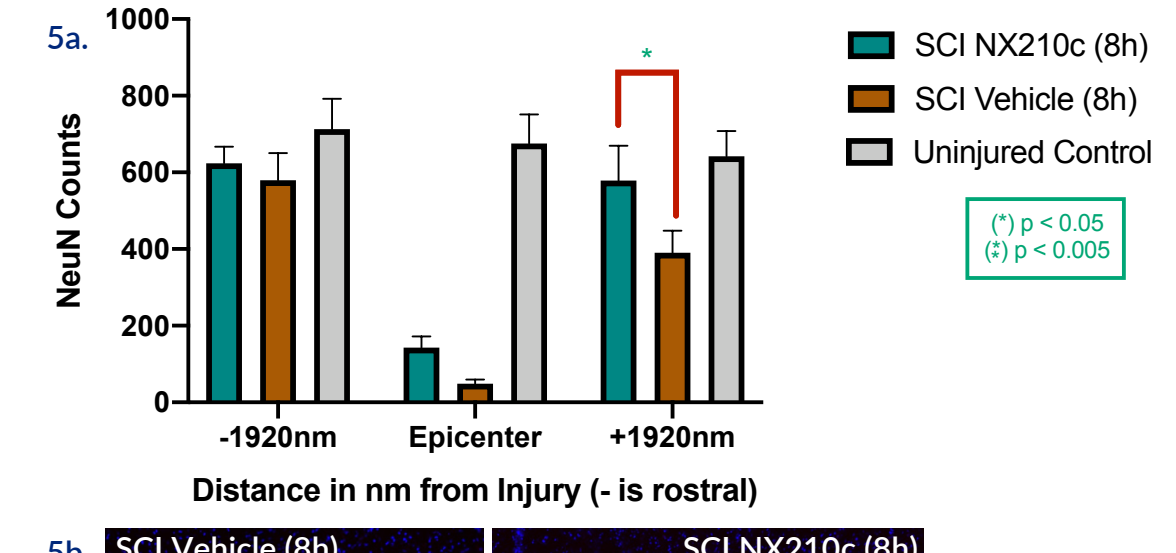
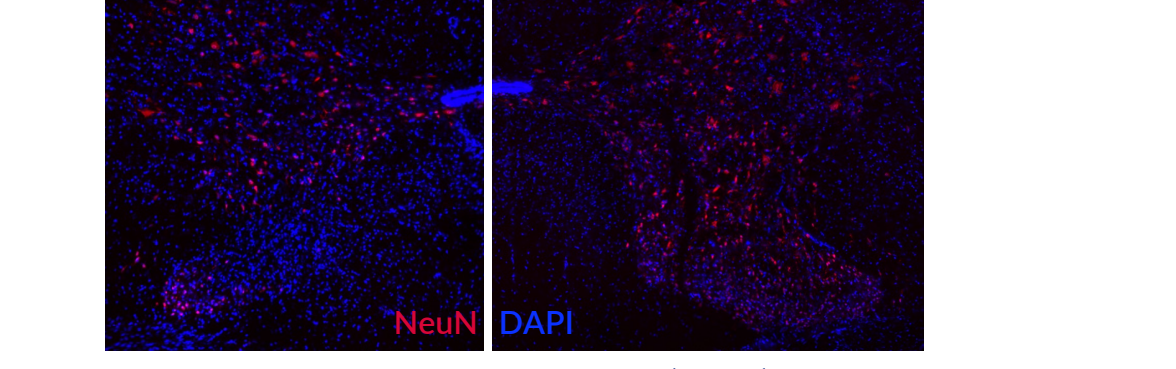


Figure 4: weight gain improvements comparing NX210c and vehicle at 8h initial injection timepoint



5a.



5b.