GENESIS™
DRUG DISCOVERY & DEVELOPMENT

PharmOptima™

Optic Nerve Crush

About Optic Nerve Crush

Central nervous system trauma and neurodegenerative disorders can trigger a cascade of cellular and molecular events culminating in neuronal apoptosis. The Optic Nerve Crush model provides an effective tool for analyzing the pathogenic mechanisms associated with neuronal injury signaling *in vivo*. Optic nerve crush has been used as a model for neuronal injury, including glaucoma, traumatic optic neuropathies, neurodegeneration and CNS injury. Crush injury to the optic nerve severs the retinal ganglion cell (RGC) axons leading to the gradual death of RGC neurons in the retina. The model provides a means of studying neuronal outcomes following injury, including survival, apoptosis, regeneration and associated biomarkers. Applications include traumatic optic neuropathy, glaucoma and neurodegenerative disease.

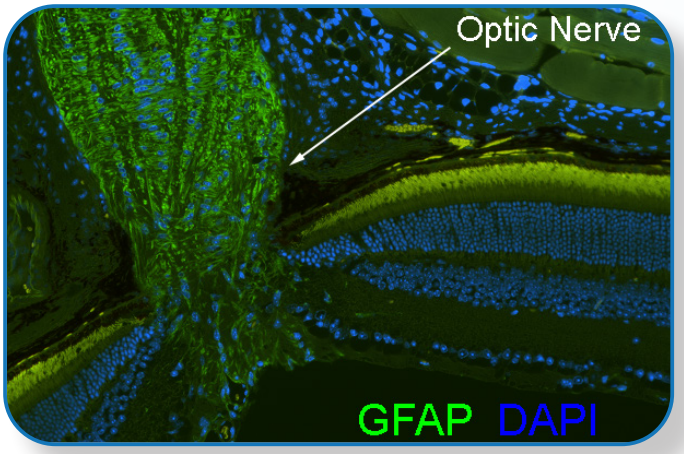

Figure 1. Optic nerve.

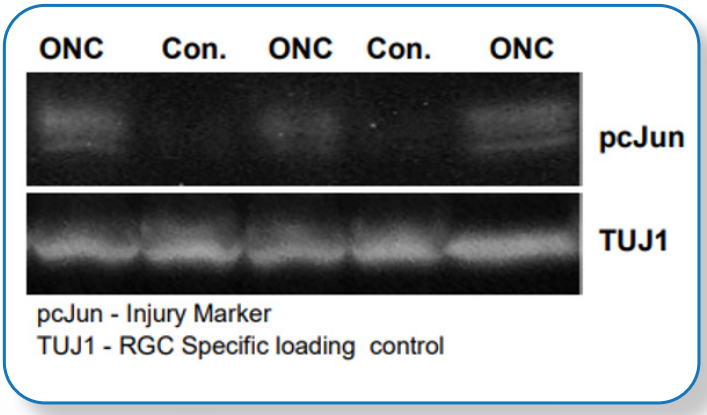

Figure 2. Western Blot of Retinal Tissue 3 days following Optic Nerve Crush (ONC) compared to uninjured control. Upregulation of injury marker pcJun, demonstrates activation of signaling pathways important for neuronal outcome following ONC.

Optic Nerve Crush Use in your Research Program

Optic nerve crush allows for evaluation of drug intervention following neuronal injury at the cellular and biochemical level. Immunocytochemistry can be used to monitor therapeutic effect and immunoassays developed to track biomarkers following treatment.

PharmOptima is a Michigan CRO with biochemistry, bioanalytical and in-life units that deliver customized experimental designs to address your project's needs. We also specialize in novel assay development with an expanding repertoire of scientific services; our scientists bring their expertise to your laboratory challenges.

Contact: info@pharmoptima.com

Dual leucine zipper kinase-dependent PERK activation contributes to neuronal degeneration following insult:
https://pubmed.ncbi.nlm.nih.gov/28440222/

Longitudinal Morphological and Functional Assessment of RGC Neurodegeneration After Optic Nerve Crush in Mouse:
https://www.frontiersin.org/articles/10.3389/fncel.2020.00109/full

An Optic Nerve Crush Injury Murine Model to Study Retinal Ganglion Cell Survival:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3169247/