NEUROSCIENCE AND PHYSIOLOGY SEMINAR SERIES

A ZEBRAFISH DRUG SCREEN IDENTIFIES HDAC INHIBITORS AND A DOPAMINE RECEPTOR AGONIST AS COMPOUNDS PROMOTING FUNCTIONAL RECOVERY AFTER SPINAL CORD INJURY

HOSTED BY:
NEUROSCIENCE &
PHYSIOLOGY

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Traumatic spinal cord injuries (SCIs) affect an estimated 250,000 patients worldwide annually, many occurring in lower-income countries. New therapies are critically needed, especially pharmacological treatments. Using an optimized larval zebrafish SCI model system, we screened a small molecule FDA-approved drug library containing 2747 compounds to test for potential regenerative effects on spinal cord injuries. SCI was performed at 5 days post-fertilization followed by a 2-day drug treatment beginning at 1-hour post-injury. Functional recovery was assessed using a visual motor response (VMR) assay at 2 days post-injury. Axonal labeling and fluorescence imaging were used to determine the level of axonal regeneration. After a partial screen of the library, we found that multiple histone deacetylase (HDAC) inhibitors and a dopamine receptor agonist improved functional recovery after larval SCI. Our findings suggest that several FDA-approved drugs enhance functional recovery in zebrafish SCI and may hold promise for treating injuries in humans in the future.

TUESDAY, MAY 6TH, 2025
12:00 PM, LILY 1-117

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