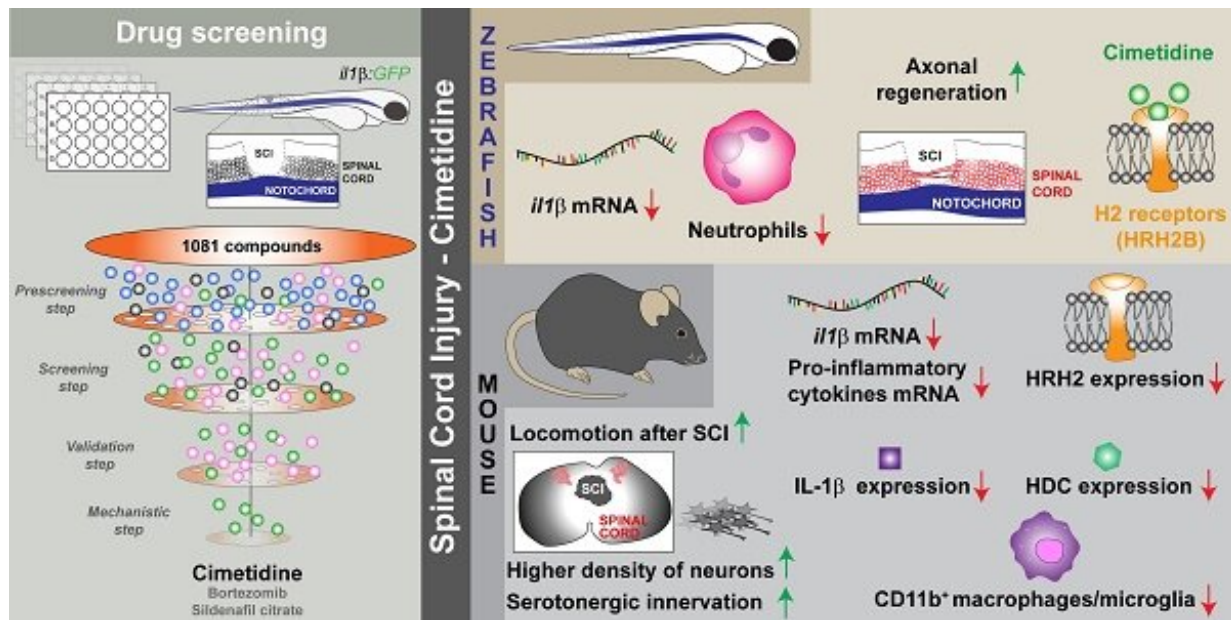


Drug discovery could aid spinal injury recovery

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Graphical abstract. Credit: *Theranostics* (2023). DOI: 10.7150/thno.81332

Scientists investigating potential drugs to improve recovery from spinal cord injury have uncovered a promising route to new treatments.

Researchers tested more than 1,000 potential drugs and identified that an existing one—cimetidine—improved spinal repair in zebrafish.

The drug also helped improve recovery of movement and reduce the

extent of spinal cord damage when tested in spinal-injured mice.

The findings, now published in the journal *Theranostics*, shed new light on the biological pathways involved in recovery from spinal cord injury, experts say.

Sudden impacts on the spinal cord—for example, those caused by a [car accident](#)—can lead to life-long injuries.

Healing can be inefficient due to inflammation caused by an overreaction of the body's [immune system](#), which normally protects against infections.

Drugs that reduce inflammation by suppressing the whole immune response also inhibit the immune cells which promote repair.

The University of Edinburgh-led study tested multiple drugs in [zebrafish larvae](#) for their ability to prevent excessive inflammation during an immune response.

Scientists discovered that cimetidine acts by helping to regulate levels of histamine—a chemical released by the immune system which is involved in inflammatory reactions—in the body.

The findings have enabled the team to pinpoint a specific signaling pathway that moderates the immune response after spinal injury to support repair.

Zebrafish model

Experts say that other drugs that work in a similar way could also be tested for their ability to support recovery from spinal injury. They caution, however, that further studies are needed to investigate their

impact in human clinical trials.

The study highlights the usefulness of zebrafish in the [drug discovery](#) process, researchers say.

The research team included scientists from the University of Edinburgh, the Research Institute of the McGill University Health Centre and Technische Universität Dresden.

"The ability to screen a large number of drugs using the [zebrafish model](#) has revealed an important target for future research into [spinal cord](#) repair. Our findings open the door to potential new treatments that can moderate inflammation and improve recovery from spinal injury," said Professor Catherina Becker

More information: Ana-Maria Oprea et al, Drug screening in zebrafish larvae reveals inflammation-related modulators of secondary damage after spinal cord injury in mice, *Theranostics* (2023). [DOI: 10.7150/thno.81332](#)

Provided by University of Edinburgh

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