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Australia conducts new research on brain and spinal cord repair

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To initiate regenerative programs in the nervous system



A new research from the Australian Regenerative Medicine Institute (ARMI) at Monash University has identified novel cell types and RNA signals that may assist with brain and spinal cord repair.

Tissues and organs have different capacities to regenerate after injury or disease. Identifying cell types and signals that can promote repair is particularly important for organs that repair poorly such as the brain and spinal cord.

Using zebrafish models, researchers identified ribonucleic acid (RNA) as an injury-induced damage signal that triggers recruitment of neurons and neural tissue repair, mobilising a previously unknown brain neuron reservoir that is in standby mode for repair which has implications for ageing and degenerative diseases.

The findings showed that blocking or enhancing the recruitment of these immature neurons halted or sped up circuit and functional recovery, respectively, demonstrating the power of these cells in boosting neural repair.

The lead author, Associate Professor Jan Kaslin says: “Brain and spinal cord injuries are devastating events that have a life-long impact on the patients’ life with wide-reaching socio-economic effects. At present, there are no effective treatments or strategies to improve healing of the nervous system."

Understanding that the RNA released from injured cells can act as an early damage signal to initiate regenerative programs in the nervous system is important as they can be harnessed for healing