

Blocking a protein could be key to treating spinal cord injuries

5 June 2013

Queensland scientists will begin clinical trials of treatment for spinal cord injuries after discovering dramatic improvements in balance and coordination when blocking a protein.

Researchers at the [Queensland Brain Institute \(QBI\)](#), the Queensland Institute of Medical Research (QIMR), and the University of Melbourne showed that blocking protein EphA4 could rapidly restore the balance and limb coordination of models with spinal injuries.

QBI Director and study co-leader, Professor Perry Bartlett said the research confirmed and expanded on previous studies showing that blocking the action of this protein receptor prevented the loss of nerve tissue following injury and promoted repair.

Professor Bartlett and QIMR Professor Andrew Boyd identified the role of EphA4 in 1998.

They showed that the EphA4 protein was critical to the development of the nerves which control walking and other complex muscle functions.

Subsequent studies showed that after a spinal cord injury, the production of the EphA4 protein was increased and this protein acted to stop severed nerve endings from regrowing through the injury site.

Professor Boyd's laboratory at QIMR, working with Professor Bartlett's lab at UQ, then developed a "decoy" protein, to block, or inhibit EphA4 function.

This has been used to improve recovery of function after spinal cord injury in animals.

"That first discovery back in 1998 opened up a clear path to a potential treatment for any diseases or injuries involving motor nerves," Professor Boyd said.

"The idea would be to use the 'decoy' treatment immediately after spinal cord injury to try to improve the patient's recovery.

"And as a neurologist or neurosurgeon will tell you, if you could improve function even marginally for a quadriplegic, you could make a massive difference to their life."

The Chair of SpinalCure Australia Joanna Knott, said, "This news is extremely encouraging in the spinal cord injury field and we have followed the discoveries of the EphA4 receptor with interest. This team of researchers will certainly put Australia on the map especially when the clinical trial begins."

The paper can be viewed in the online edition of Journal of Neurotrauma at <http://online.liebertpub.com/doi/abs/10.1089/neu.2012.2729>.

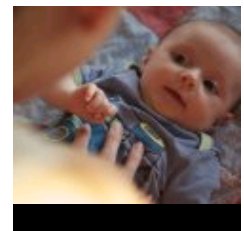
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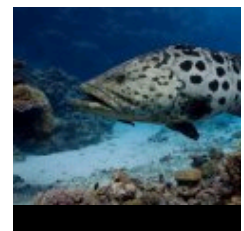
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