

# 'Volume dial' neurone may aid spinal disease

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(PhysOrg.com) -- Scottish researchers have discovered a new class of neuron that may lead to new therapies for spinal injury.

The discovery of a neurone in the [spinal cord](#), that controls the strength of signals sent by motor [neurons](#) to muscles, was made by Dr Gareth Miles of the University of St Andrews.

The finding could have important implications for conditions such as [Motor Neuron Disease](#) and Spinal Cord Injury where muscle weakness or paralysis occurs.

Dr Miles and fellow researchers in North America describe the novel neurone as a “volume dial” that controls how strongly muscles contract during walking.

Dr Miles commented, “Walking is initiated by relatively simple ‘start’ signals which are relayed from the brain to the spinal cord. Networks of neurons in the spinal cord are then responsible for controlling the complex pattern of muscle contractions which allow us to walk.”

Although scientists have long known that a major type of spinal neuron - the motor neuron - sends signals directly to muscles to make them contract, the identities of other neurons in the spinal cord which control movement have been much more difficult to decipher.

Dr Miles explained, “Importantly, this novel neurone allows the strength of muscle contractions to be adjusted to allow us to move in different

ways or in different environments.

“It is hoped that by turning up the “volume dial” formed by this new class of neurons, it will be possible to stimulate [motor neurons](#) to send stronger signals to muscles to overcome the loss of movement associated with injury and disease.”

The work of Dr Miles and his colleagues, including Dr Laskaro Zagoraiou, Dr Turgay Akay and Professor Thomas Jessell of Columbia University in the USA, and Professor Robert Brownstone of Dalhousie University, in Canada, is published by the scientific journal *Neuron* today (December 10th issue).

In an unusual move marrying science with art, the renowned British artist John Hoyland has allowed one of his paintings “Halo” to be used as a representation of the scientific advancement for the front cover article.

Provided by University of St Andrews

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