HONOURS PROJECT 2017

Project Title: The development of targeted novel gene therapy for motor neuron disease

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Location of Project: 6E140, Human Physiology, Flinders Medical Centre

Outline of Project:
Motor Neuron Disease (MND) is a devastating neurodegenerative disorder, causing relentless and incapacitating motor disability and death. There are no effective treatment or cure placing tremendous burden on families, carers and the health system.

We have developed a method of targeting therapy to motor neurons, using antibodies to the receptor p75NTR as targeting agents\textsuperscript{1, 2}. This approach is novel to our laboratory, where we modify the antibody to carry plasmid DNA which then delivers the plasmid DNA specifically to motor neurons in vivo from the circulation. Using this method we have proof of concept that we can deliver control green fluorescent genes specifically to motor neurons. We now wish to deliver therapeutic genes for growth factors that can support the health of motor neurons such as glial derived growth factor (GDNF) and insulin-like growth factor-1 (IGF-1).

The honours project will be involved in testing the level of GDNF and IGF-1 delivered to motor neurons in mice. Immunohistochemistry, ELISA and western blotting will be used.

Key References: