POSTER ABSTRACT SUBMISSION – POSTGRADUATE + POSTDOCTORAL

11th Brain Sciences UNSW Symposium – Minding the Brain: translating research to practice.

Monday 21 April 2016, 0830 – 1800h, Leighton Hall, The Scientia Building, UNSW Australia.

Poster Abstract Submission: it is **essential to register** to attend the Symposium **BEFORE** submitting an abstract. Abstracts will only be considered for registered participants. **ABSTRACT SUBMISSION HAS NOW CLOSED**

Poster presentations: Posters need to represent research in some aspect of brain sciences but do not need to be centred on the Symposium themes. They may be designed specifically for this one-day Symposium or they may have been presented elsewhere recently. Only the former will be eligible for consideration for Best Poster Awards.

Poster Format: AO size i.e. 84cm x 119 cm with portrait orientation.

Best Poster Award: In order to be eligible for consideration for the Best Poster Award, the abstract/poster will report on research that has not been presented previously. PhD students and postdoctoral scientists will both be eligible for the single poster prize. 1st prize = $500; runner up prizes, each = $250. Winners of awards in the previous two years may be highly commended but not compete for prizes.

Abstract Guidelines and Format:

Abstracts must adhere to the following guidelines, in order to be accepted for presentation.

General:

- The lead author will be the presenter and have registered to attend the Symposium
- Abstracts need to refer to research in the field of brain sciences research
- Abstracts will be read by a broad audience and should be written with this in mind
- Sufficient details of experiment/research (incl. sample size, data) included in abstract to allow assessment of scientific content
- Abstracts should contain clear Background, Methods, Results, & Conclusions sections, that can be specified under these subheadings

Format: (see example below)

- Length: max. of 250 words (excluding title) and all fonts as Calibri 12
- State on the 1st row and above the title if abstract/poster is "*Research being presented for the 1st time*" and hence eligible for a Best Poster Award
- Title of abstract, authors and affiliation to be included at top of page
- Title in lower case (not capitals) and bold
- Author list below title separated by a single line space; presenter's name in bold, other authors in plain text
- Author affiliations below authors separated by a single line, in italics and including School/University/Institute. When more than one affiliation, link to authors using numbered superscripts
- Left-justified throughout abstract i.e. no indentation
- Subheadings (if used) as Background, Methods, Results, & Conclusions; in bold immediately followed by colon (:) and text. Separated by a single line space from section above.
- All text as single line spacing

An example of correct format for abstracts is given on the following page:

Research being presented for the 1st time.

Targeting the full length of the motor end plate regions in the mouse forelimb increases the uptake of Fluoro-Gold into corresponding spinal cord motor neurons

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Background: Viral-mediated gene therapy can take advantage of the muscle-motor neuron topographical relationship to shuttle therapeutic genes into specific populations of motor neurons in the various mouse models of motor dysfunction that are currently available. In this context, motor end plates (MEPs) are highly specialized regions on the skeletal musculature that offer direct access to pre-synaptic nerve terminals, henceforth to the spinal cord motor neurons. However, knowledge of the relationship between a muscle and its motor neurons is lacking for the mouse forelimb.

Methods: The MEP regions for nine forelimb muscles were characterized using acetylcholinesterase histochemistry. This MEP knowledge was then used to guide a series of intramuscular injections of Fluoro-Gold (FG) in order to characterize the distribution of the innervating motor neurons.

Results: Analysis revealed that MEPs are typically organized orthogonally across the muscle fibers extending throughout the full width of each muscle. Targeting the MEP region gave rise to labeled motor neurons that are organized into columns spanning through multiple spinal cord segments and exhibit considerable overlap with neighboring columns. Moreover, the present analysis suggests that targeting the full width of the muscles' MEP regions with FG increases the somatic availability of the tracer.

Conclusions: Targeting the entire MEP region ensures a greater uptake of the tracer by the pre-synaptic nerve terminals, hence maximizing the labeling in spinal cord motor neurons. This investigation has positive implications for future studies involving the somatic delivery of therapeutic genes into motor neurons for the treatment of various motor dysfunctions.