

## UWA technology licensing/ partnering opportunity:

### Arginine-rich neuroprotective peptides

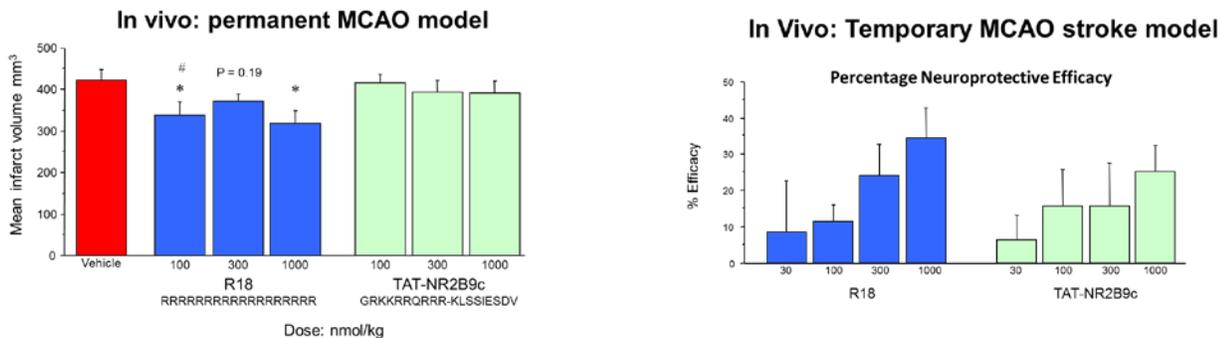
Researchers at the University of Western Australia Centre for Neuromuscular and Neurological Disorders have revealed intrinsic neuroprotective properties of arginine-rich peptides, presenting the possibility of a new class of neuroprotective molecules for the treatment of a range of neurological disorders, including stroke.

**Problem:** Stroke is one of the leading causes of death and disability worldwide. One in six people will have a stroke in their lifetime. The risk of AIS increases with age as well as other co-morbidities such as diabetes, obesity, high cholesterol and/or blood pressure. Globally, it is estimated that stroke affects about 16 million people annually (Di Carlo, 2009), typically causing death in 20% and disability in 50% of survivors.

Current treatment options remain limited to restoring blood flow. Despite considerable research, there are no marketed treatments capable of protecting the brain from damage following stroke. **Specifically, there are no clinically effective stroke neuroprotective agents currently available.** Therefore, the search for widely applicable and effective treatments for diverse patient populations remains an urgent unmet need.

**Solution:** We have demonstrated that arginine-rich peptides have potent neuroprotective properties in *in vitro* injury models that mimic the effects of stroke, as well as *in vivo* after both permanent and transient middle cerebral artery occlusion (MCAO) induced stroke in the rat (Meloni et al., 2015; Milani et al., 2016).

Importantly, these peptides dose-dependently provide neuroprotection following intravenous (IV) administration several hours after stroke onset (mimicking the clinical situation), that was more potent than the current candidate in phase III clinical trials, TAT-NR2B9c (GRKKRRQRRR-KLSSIESDV) peptide (NoNo, Inc.).



**Stage of development:** Preclinical validation of this neuroprotective compound has been demonstrated in two *in vivo* models and *in vitro* models to date. A CRO will be used to validate these preclinical results.

Further preclinical experimentation addresses the STAIR Priorities, specifically using appropriate trial design in aged rats, with cerebral delivery, and use of animals with a brain type more like humans and pre-IND toxicity and safety studies. A plurifunctional agent this peptide's mechanism of action and toxicity has been assessed.

**Intellectual Property:** The IP position is solid with well-enabled and commercially relevant claims. The patent application: PCT/AU2014/050326 entitled "Neuroprotective peptides" (includes poly-arginine and arginine-rich peptides) entered national phase into US, EU, China and Japan jurisdictions on 30 April 2016.

#### The Team:

**A/Prof Bruno Meloni** has >20 yrs experience as a research scientist in the field of stroke/cerebral ischaemia.

**Clinical Prof Neville Knuckey** is a neurosurgeon, whose main area of expertise is the development and use of stroke, global cerebral ischaemia, perinatal hypoxia and traumatic brain injury models.

**Clinical Prof David Blacker** is an acute stroke clinician/neurologist who has previous experience initiating neuroprotection clinical stroke trials in Western Australia (e.g. minocycline).

**UWA is seeking a commercial partner to in-licence and develop this technology as a neuroprotective therapy for stroke and potentially other neurological disorders.**

#### **Commercial correspondence**

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