

**Title of Project:** Effect of a Standardised Herbal Formulation on Age-related Memory and Cognitive Decline in Mice

**(FOR Code/s):** 1104

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**Location of Project:** Campbelltown

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## **Project Background**

Aging increases vulnerability to health problems such as cognitive decline, which can negatively impact on both an individual's quality of life as well as the economic profile of countries worldwide. Age-related cognitive decline is associated with mild cognitive impairment (MCI), a heterogeneous disorder affecting people's attention, memory and other cognitive capacity. If unchecked, MCI patients can progress to dementia and other systemic diseases such as depression. In Australia, there will be 1.13 million dementia patients and the total associated cost to the Australian health system may exceed 3% of GDP by 2050.<sup>1</sup>

SLT (previously known as WNK) is a standardised herbal formulation designed for the treatment of vascular dementia and mixed dementia (Alzheimer's disease + vascular dementia). A series of pharmacological studies have demonstrated that the herbal formulation significantly improved learning and memory functions, pathogenic biochemical parameters in blood and brain tissue, and antioxidant capacity in various experimental dementia models.<sup>2-6</sup> This current study will further expand our knowledge on the use of SLT to prevent/slow down age related cognitive decline

## **Aim of Study:**

This study aims to evaluate the effects of SLT and its individual components on memory and cognitive function in aging mouse model.

## **Methods:**

Behavioural models in rodent are useful tools in the investigation of changes in memory and neurocognition associated with aging and neurodegenerative disease such as dementia. In the current study, the following behaviour tests will be undertaken to evaluate effects of SLT on learning, memory and neurocognitive function in aged mice:

- Novel object recognition test: This test is used to evaluate cognition, particularly recognition memory, in rodent models of CNS disorders and/or CNS aging
- Y maze spontaneous alternation test: This is a behavioural test for measuring spatial memory of rodents in order to explore new environments
- Open field/activity test: This test measures hyperactivity, exploratory activity, stereotyped rotation, anxiety and memory for context

## **Ethics Application Requirements:**

Animal ethics approval will be sought before the commencement of the project

## **Key References:**

1. Access Economics. *Keeping dementia front of mind: incidence and prevalence*, Canberra 2009.

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3. Xu L, Liu JX, et al. Effects of Weinaokang (WNK) capsule in tracephalic cholinergic system and capability of scavenging free radicals in chronic cerebral hypoperfusion rats. *China Journal of Chinese Materia Medica*. 2008; 33:531-534.
4. Liu JX, et al. Effect of combination of extracts of ginseng and ginkgo biloba (WNK) on acetylcholine in amyloid beta-protein treated rats determined by an improved HPLC. *Acta Pharmacologica Sinica*. 2004; 25:1118-1123.
5. Cong WH, Liu JX, et al. Effects of extracts of ginseng and ginkgo biloba on hippocampal acetylcholine and monoamines in PDAPPV7171 transgenic mice. *Chinese Journal of Integrated Medicine*. 2007; 27:810-813.
6. Zheng YQ, Liu JX, et al. Effects of crocin on reperfusion-induced oxidative/nitrative injury to cerebral microvessels after global cerebral ischemia. *Brain Research*. 2006; 1138:86-94