

NTU, NNI and NHG launch Singapore's first brain bank to study neurological disorders



Nanyang Technological University, Singapore's (NTU Singapore) Lee Kong Chian School of Medicine (LKC Medicine), in partnership with National Healthcare Group (NHG) and National Neuroscience Institute (NNI), is launching Singapore's first brain bank.

Hosted at LKC Medicine, the brain bank aims to be a research repository for brain and spinal cord tissues from donors who have passed away.

Setting up a national brain bank resource for Singapore is a vision shared by researchers and clinicians in the neuroscience community. Conceptualised by a joint team from LKC Medicine, NHG, and NNI, the brain bank will open up new research possibilities that will generate new knowledge of brain diseases.

Named **Brain Bank Singapore**, the joint research centre is co-funded by the three partners.

Tissue donations from both healthy donors and from those with neurodegenerative conditions and neurological disorders will be stored and used for ethically approved research.

This research, which falls under one of LKCMedicine's key research pillars – Neuroscience and Mental Health – will facilitate greater understanding of the underlying mechanisms and symptoms of brain-related illnesses so that more effective treatments and cures can be developed.

Professor James Best, Dean of NTU LKCMedicine, said, “Together with our partners, we are already conducting robust research on dementia, as well as collecting baseline population health data from a large cohort of the population. Brain Bank Singapore is an elevated platform on which neuroscientists and clinician scientists can work together to find solutions that will address debilitating brain diseases in Singapore.”

Heading the Brain Bank Singapore as its Director will be LKCMedicine's **Professor Richard Reynolds**, who is also Professor of Cellular Neurobiology at Imperial College London, which jointly established LKCMedicine with NTU.

“We now know that genetic background is very important in determining the onset and course of neurodegenerative and neuropsychiatric disorders. It is essential that neuroscientists in Singapore have access to brains from patients with the appropriate genetic and ethnic background,” said Prof Reynolds.

Prof Reynolds has over two decades of expertise as the founding Director of the Multiple Sclerosis and Parkinson's Tissue Bank, an international brain tissue bank based in London, UK.

Working together with key colleagues from LKCMedicine and his counterparts **Dr Adeline Ng**, a Consultant Neurologist from NNI, and **Dr Jimmy Lee**, a Senior Consultant and psychiatrist from the Institute of Mental Health (IMH), Prof Reynolds spearheaded the setting up of Brain Bank Singapore.

NNI under the SingHealth Group, as well as NHG, LKCMedicine's primary clinical training partner, fit naturally as partners, sharing in the vision for research that transforms patient care and health outcomes.

Both organisations have been treating patients with neurological and neuropsychiatric disorders respectively for Singapore and have successfully completed impactful research studies in both fields.

NHG and its institutions, including IMH and Tan Tock Seng Hospital (TTSH), are integral to this partnership given their clinical experience in treating patients with neurodegenerative and neuropsychiatric conditions. NHG's shift towards preventive care and population health aligns with Brain Bank Singapore's worthy endeavour to discover new and improved treatment of neurological conditions in our population.

Professor Philip Choo, Group CEO of NHG, said, “Research into neurological conditions such as stroke, Parkinson's disease and dementia is timely for Singapore as our population continues to age. The National Healthcare Group (NHG) is thus privileged to partner the National Neuroscience Institute and Lee Kong Chian School of Medicine, NTU Singapore, to

establish the Brain Bank Singapore (BBS). It is our hope that establishing a robust data bank and conducting safe brain tissue research will expand our understanding of the underlying disease mechanisms of neurological disorders. With BBS, we seek better and more effective treatment strategies.”

With an ageing population – one in four here will turn 65 years old by 2030 – and an increased life expectancy of 84.8 years, age-related neurological disorders are expected to increase, accounting for a growing proportion of Singapore’s disease burden.

According to the report of the Burden of Disease in Singapore , neurological disorders rose from the eighth leading cause of Disability-Adjusted Life Years² (DALYs) in 1990 to the fifth in 2017.

Associate Professor Ng Wai Hoe, Medical Director, National Neuroscience Institute, said, “The impact of neurological diseases can be long and devastating, with patients experiencing neurological disability for many years. With the Brain Bank Singapore, we are one step closer to understanding brain disease. With this knowledge, we can make earlier diagnosis, improve care outcomes and raise the quality of life for our patients. This will help Singaporeans live long and live well.”

Brain Bank Singapore has recently begun brain donor recruitment after receiving approval from the SingHealth and NTU Institutional Review Boards. Over the next four years, the brain bank aims to recruit about 1,000 brain donors.

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