

## EDITORIAL

# NEUROSCIENCES IN UNIVERSITY SAINS MALAYSIA; THE WAY TO GO FORWARD IN MALAYSIA WITH VISION 2020

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### Introduction

The growth of neurosciences in Malaysia is unlike other Asian countries like Singapore, South Korea, China and Japan (1) where a rate of 6 to 20% is expected per annum.

A survey of Googles [www.google.com] indicated that there were only 621, 000 hits concerning scientific neuroscience publications from Malaysia of which 161 were from Universiti Sains Malaysia. Hits on publications on neurology were 345,000 and 115,000 for neurosurgery respectively when these two key words were associated with Malaysia. This is only 20% of what is published by Australia a developed country with a population nearly similar to Malaysia.

### National Strategies

The government of Malaysia has started its focus on biotechnology concentrating on agrobiotechnology as well as on human biotechnology since the launch of the National Biotechnology Policy recently in April 2005. This was done to direct Malaysian scientists and entrepreneurs to achieve the objectives set up by the Malaysian Biotech Corporation (MBC) hopefully by 2020. Currently there are 20 Malaysian scientists per 100,000 labour force and this is expected to grow at 3-6% per year. There are 5,200 Malaysian scientists in the United States of America (USA) and 1, 567 scientists in Australia respectively (2) of whom at least 1% are involved in the neurosciences.

Recently, publications have surfaced in one international journal examining the impact of biotechnological sciences especially the neurosciences in Malaysia. Interested Malaysian neuroscientists overseas were invited to collaborate at local or international level to improve research and development in Malaysia (3,4). The

establishment of a national institute in the neurosciences was even suggested by a Malaysian neuroscientist based in Japan (4). Unfortunately, the number of neuroscientists in Malaysia are small and diversified. The number of fundamental and applied neuroscientist registred with International Brain Research Organization (IBRO) are 11 [www.ibro.com] of whom less than five are from Universiti Sains Malaysia (USM)

### USM Strategies

USM has set upon producing human resources in this field when it initiated the Master of Science (Neurosciences) and PhD by research in the field of neurosciences in 2002. This came after USM's five years experience in conducting the Master's of Surgery (Neurosurgery) and the establishment of the Department of Neurosciences in the School of Medical Sciences in 2004. An advanced postgraduate Masters of Neurology degree programme is being proposed for the 9<sup>th</sup> Malaysian Plan, beginning 2007.

Unfortunately, having a respectable structure and resources without the scientists interested in brain sciences can dampen research in this field. The Right Honorable Vice Chancellor of the Universiti Sains Malaysia Dato' Prof. Dzulkifli Razak with his far sightedness did the right move by initiating a Brain Research and Information Network Cluster exactly a year ago [www.brainnetwork-usm.org] where different workshops on different neuroscience research themes were organized. This network consists of a group of 80 researchers ranging from the social sciences to the clinical sciences, from all three campuses, networked together to initiate diverse research proposal with the assistance of the Research Creativity and Management Office of this university [www.usm.my/r&d].

This neuroscience group plans to be united

under a common roof where a proposal for a Brain Sciences Institute has been forwarded to the Economic Planning Unit. It has also thus far initiated collaboration with the Cuban Neurosciences Center, University of Ghent, Belgium and those from the Max Planck Institute for Psychiatry as well as other local and overseas institutes of higher education.

### **Research and It's focus**

Major research outputs in neurosciences from USM are expected from the fundamental or applied neurosciences group within 2-4 years. At this current moment grants are being requested from the Ministry of Science, Technology and Innovation (MOSTI), non-governmental organization such as The National Cancer Council (MAKNA) and overseas funds. The USM brain research cluster groups hope to come out with major research topics in neuroinformatics, mental health and rehabilitation, neural instrumentation, brain mapping, interventional strategies in neurological diseases, teaching-learning strategies in children and adults as well as fundamental neurosciences.

The focus of neurosciences in Malaysia has to be supplementary and not repetitive. We should also remember that technological know how needs to be transferred to these young Malaysian researchers handling complex instruments and scientific methodologies. Previous research needs to be evaluated, as results already published may not be able to be duplicated in a Malaysian lab. Models of neuroscience research needs to be made relevant to those actual nervous system diseases common in Malaysia. Most models are different and do not extrapolate directly to the human nervous system. Diseases that needs focusing in the neurosciences in Malaysia range from smoking and drug addiction, learning disabilities, viral neurological infections, hemorrhagic strokes, ethnopharmacology, the human brain mapping project, behavioral sciences, new imaging techniques and rehabilitation. Invertebrate transgenic models ranging from the worm *Caenorhabditis elegans*, fruit fly *Drosophila melanogaster*, zebra fish, *Danio rerio* to yeast like *Saccharomyces cerevisiae* may be used for some of these researchs.

### **Conclusion**

Most developed countries in the West have surpassed Malaysia in the knowledge gained from neurosciences research with more than 50 journals

dedicated to clinical, applied and fundamental neurosciences. We are practically 15 years behind the United States of America and the development of a full-fledged Malaysian neuroscientist takes at least 8 years regardless of where he/she is trained an overseas institution (8).

The vision 2020 of the government of Malaysia is to have 60 – 80 scientists per 10,000 labour force of whom 10 should be fundamental or applied neuroscientists. USM will hopefully be able to assist this development in a major way by an establishment of an Institute in the area of Neurosciences.

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### **References**

1. Mun-Chow Lai and Su-Fei Yap, Technology Development in Malaysia and the Newly Industrializing Economics: A Comparative Analysis Asia Pacific Developmental Journal, 2004; **11(2)**: 1 – 28,
2. National Innovation Agenda: Harnessing Creativity and Ingenuity for wealth creation. Fusion 2004; **8**: pg: 4 – 18. ([www.might.org/my/publication/fusion8.pdf](http://www.might.org/my/publication/fusion8.pdf))
3. Cyranoski D. Malaysian Biotechnology: the valley of ghosts: Nature. 2005; **436(7051)**:620 –1.
4. Cyranoski D. Breaking open a closed system. Nature. 2005; **436(7052)**: 884 –5
5. Levice MS, Cepeda C, Hickey MA, Fleming SM, Chesselet MF, Genetic mouse models of Huntington's and Parkinson's disease: illuminating but imperfect. Trends Neurosc 2004 Nov; **27(11)**: 691 – 7.
6. Shulman JM, Shulman LM, Weiner WJ, Feany MB, From fruit fly to bedside: translating lessons from *Drosophila* model of neurodegenerative disease. Current Opinion in Neurology. 2003; **16(17)**: 443-9.
7. Population, Employment and Human Resource Development: In The Eight Malaysian Plan, Government of Malaysia Press, Chapter 4, 2001; **4**: 87 – 129.

8. Nor Hayati Othman, Research Activities in Malaysia from the Perspectives of USM Medical School; The Reality and The Strategy: Editorial, Malaysian Journal of Medical Sciences, 2004; **11**: pg: 1 – 8