Brain Awareness Week at Science Centre Singapore

Date: 10 - 12 March 2016
Venue: Science Centre
Cost: *Free
*Admission to Science Centre is free for organised school groups, excluding international schools who are not members of Science Centre.

Target audience: Upper primary, secondary, tertiary students, undergraduates and public visitors (unless otherwise stated)

About Brain Awareness Week

Brain Awareness Week (BAW) is an international campaign, launched in 1996, dedicated to advance public awareness about the progress and benefits of brain research and to convey the wonders of the brain and nervous system and the far-reaching influences and outcomes of neuroscience research to the public. Founded and coordinated by the Dana Alliance for Brain Initiatives and its sister organisation, the European Dana Alliance for the Brain, BAW is a catalyst for public understanding of brain science.

The Dana Alliances are joined in the campaign by partners from around the world, including universities, hospitals, patient groups, government agencies, schools, service organisations and professional associations. In Singapore, Science Centre, in partnership with the Singapore Chapter of the Society for Neuroscience, organise activities as part of the Brain Awareness Week.

Programmes

<table>
<thead>
<tr>
<th>Activities</th>
<th>Date</th>
<th>Start Time</th>
<th>Duration</th>
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</thead>
<tbody>
<tr>
<td>Calorie restriction and ageing brain</td>
<td>10 March 2016</td>
<td>3.00 p.m.</td>
<td>45 min</td>
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<tr>
<td>The insect brain – small, compact &amp; powerful</td>
<td>11 March 2016</td>
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<tr>
<td>A live fireworks of calcium in excitable cells</td>
<td>11 March 2016</td>
<td>3.45 p.m. 12 March 2016 2.00 p.m.</td>
<td>30 min</td>
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<tr>
<td>Mum, my head hurts</td>
<td>12 March 2016</td>
<td>11.30 a.m.</td>
<td>1 h</td>
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<tr>
<td>Tuning in - brain &amp; body exhibition gallery trail</td>
<td>10 – 12 March 2016</td>
<td>Free and Easy</td>
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Talks

1. Calorie restriction and ageing brain
   by A/Prof Thiruma V. Arumugam (Yong Loo Lin School of Medicine, NUS)

   Date: 10 March 2016 (Thursday)
   Time: 3.00 p.m. – 3.45 p.m.
   Venue: Dalton auditorium
   Maximum capacity: 200 students
   Target audience: Secondary students
   *Registration is required. Please complete the booking form attached.

Synopsis

Humans evolved in environments where food was not available ad libitum, and so possess robust adaptive physiological and behavioral responses to periods of food shortage. Emerging research has shown that dietary energy restriction, by daily calorie reduction (CR) or intermittent fasting (IF), extends lifespan and decreases the development of age-related diseases. Dietary energy restriction may also benefit the brain, as suggested by experimental evidence showing that CR and IF protect neurons against age-related degeneration in animal models.

Recent findings by our group and others suggest the possibility that dietary energy restriction may protect against age-related brain diseases such as stroke, in part by inducing the expression of neurotrophic factors, protein chaperones, antioxidant enzymes, and anti-inflammatory cytokines.

About the Speaker

A/Prof Thiruma V. Arumugam (Garrie) obtained his Bachelor's of Medical Science (Hons) from the University of Sydney and a Ph.D. in Pharmacology from the University of Queensland. He moved to LSUHSC in Shreveport, Louisiana to complete a Post Doctoral fellowship with Professor D. Neil Granger on the role of T cells in stroke.

Dr. Arumugam then accepted a Visiting Fellow position in the laboratory of Professor Mark P. Mattson's at the National Institute on Aging, NIH, where he studied the novel mechanisms of ischemic stroke injury. From 2009 to 2013 he was employed at the University of Queensland and received the UQ Foundation Research Excellence Award. A/Prof Arumugam moved to NUS, Singapore in July 2013. A/Prof Arumugam has published more than 100 research articles.
2. The insect brain - small, compact & powerful
by Dr Koh Tong-Wey (Temasek Life Sciences Laboratory)

Date: 11 March 2016 (Friday)
Time: 3.00 p.m. – 3.45 p.m.
Venue: Dalton auditorium
Maximum capacity: 200 participants
Target audience: Secondary students
*Registration is required. Please complete the booking form attached.

Synopsis

“...not so large as the quarter of a small pin’s head...the brain of an ant is one of the most marvellous atoms of matter in the world, perhaps more so than the brain of a man.”
- Charles Darwin

Miniature, but capable of sophisticated computations, insect brains and the behaviours they control have fascinated many scientists and nature lovers. In this talk, you will hear how people learn about the ways ants and bees remember the way home, and how the brains of fruit flies store and retrieve memories.

About the Speaker

Dr Koh Tong-Wey spent his childhood setting up ant farms, rearing fighting spiders and watching caterpillars metamorphose into butterflies. During a summer internship in India, he was given the chance to study how fruit fly brains are wired properly. Since then, the study of insect brains has been his lifelong interest.

Dr Koh Tong-Wey has performed his research at Baylor College of Medicine (Houston, Texas, U.S.A.), Marine Biological Laboratory (Woods Hole, Massachusetts, U.S.A.) and Yale University (New Haven, Connecticut, U.S.A.). Currently, Dr Koh Tong-Wey is studying whether excessive nutrition accelerates brain degeneration in aging fruit flies at Temasek Life Sciences Laboratory in Singapore.
3.  Mum, my head hurts
by Dr Jeremy Lin, Associate Consultant (Division of Paediatric Neurology, National University Hospital)

Date: 12 March 2016 (Saturday)
Time: 11.30 a.m. – 12.30 p.m.
Venue: Mendel auditorium
Maximum capacity: 120
Target audience: Secondary students, junior college students, teachers and parents
*Registration is required. Please complete the booking form attached.

Synopsis

“Mum/Dad, my head hurts” is a common complaint by children and adolescents to their parents or caregivers. This talk will give parents, children and adolescents an overview of the common types of headaches in the paediatric population including tension headaches, migraines etc, so they can understand what types of headaches they have, possible causes for their headaches, common treatment options, practical management of these acute complaints at home and red flags to watch for to seek further medical attention.

About the Speaker

Dr Jeremy Lin is paediatrician with neurology training at the Department of Paediatrics at National University Hospital. As part of his daily job, he takes care of children with brain injury (cerebral palsy) and other chronic neurological conditions as well as manages many children and adolescents with headaches in the outpatient clinic.
Activities

1. A live fireworks of calcium in excitable cells

   Dates: 11 March 2016 (Friday) and 12 March 2016 (Saturday)
   Time: 11 March 2016 → 3.45 p.m. – 5.00 p.m.
      12 March 2016 → 2.00 p.m. – 5.00 p.m.
   Activity is ongoing. Participants can come in anytime within the stipulated time.
   Recommended duration: 30 min
   Venue: DNA Lab (Watson)
   Target audience: Students and public visitors
   *Registration is not required. However large groups are recommended to fill up your preferred date and time of visit in the booking form attached.

Synopsis

Besides building strong bones, we need calcium to stay active. It turns out that bursts of calcium at the right time and place trigger biochemical events that are critical to get things going in excitable cells like neurons and muscle cells. The live-imaging of the fruit fly larva will be used to illustrate the importance of calcium in muscle contraction.

For the fruit fly larva to move in a coordinated fashion, muscle contraction has to be followed by relaxation; hence, calcium has to dissipate after a transient rise. In order to visualise the transient rise and fall of calcium in the muscles, we will use an indicator which glows when calcium levels are high. As a result, audience will visualise calcium levels rising in muscles in synchrony with muscular contractions in the crawling larva.

2. Tuning in - brain & body exhibition gallery trail

   Dates: 10 – 12 March 2016
   Time: Free and easy (Trail booklet will be provided for the gallery trail)
   Venue: Tuning in - Brain & Body Exhibition (Hall F)
   Target audience: Students and public visitors
   *Registration is required in order for participants to receive the trail booklet. Please complete the booking form attached.

Please refer to http://www.science.edu.sg/events/Pages/brainawarenessweek.aspx for more information about the talks and activities.
BRAIN AWARENESS WEEK (10 – 12 March 2016) BOOKING FORM

Please fill in the required details and fax it back at 6561 6361 or email dnalab@science.edu.sg. You will be notified on your booking status via email. For enquiries, please contact Nalini at 6425 2441 or Charissa at 6425 2789.

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<td>Name of Teacher-in-charge:</td>
<td>Email:</td>
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<th>Date of Talk</th>
<th>Time</th>
<th>Tick if interested in this activity</th>
<th>Level and class</th>
<th>No. of Students</th>
<th>No. of Teachers</th>
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Please indicate here if you would like to attend the other Brain Awareness Week activities.

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<th>Please circle the preferred date</th>
<th>Please indicate preferred time</th>
<th>Level and Class</th>
<th>No. of students</th>
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*Brain Awareness Week activities are free. Science Centre admission fee applies for international schools who are not Science Centre members.

Science Centre admission charges for international schools:

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<tr>
<th>No. of students</th>
<th>Less than 20 per day (Teachers pay $5)</th>
<th>20 and above per day (Free admission for 2 teachers per group of 20 students)</th>
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<tbody>
<tr>
<td>Ages 12 and below</td>
<td>$8/student</td>
<td>$2/student</td>
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<td>Above 12</td>
<td>$12/student</td>
<td>$2/student</td>
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