

Brain Awareness Week 2011

Research Institute for Medicines and Pharmaceutical Sciences (iMed.UL)

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The Research Institute for Medicines and Pharmaceutical Sciences (iMed.UL), at the Faculty of Pharmacy, University of Lisbon, Portugal and its investigators actively participated in the Brain Awareness Week 2011, by both visiting schools at their locations and receiving students in an organized event at iMed.UL. The activities outreached a total number of 240 students, and involved 13 investigators.

From March 15th to 18th, the investigators visited 6 different schools in the Lisbon area and interacted with a total of 175 students, from educational levels 1 to 4. The activities were divided into 3 main themes, selected for each school according to student/teacher preference, educational level and investigator expertise:

- a) **The brain and its components.** The students were instructed about the different components of the brain and on how they interact to perform functions.
- b) **Neuronal death and neurodegeneration.** The students were provided with simple information on how neurons degenerate and die and how this may contribute to neurodegenerative diseases.
- c) **Neuronal stem cells.** The students were taught the basics of neural stem cell biology, how neural stem cells differentiate and what potential therapeutic use they may encompass.

On March 14th, the iMed.UL received 65 students from Lisbon area high schools.

The day started with simple but catchy introductory lectures on basic information about the brain and neurosciences in general, in a lecture format. The lectures were divided into four main themes:

- a) **Not only neurons exist in your brain!** What are the other cells that exist in the brain? How can one distinguish between them and how do they communicate? Students understood interactions between different cells to make the robust and efficient structure that is called brain.
- b) **Why do neurons die?** Part of our neurons die as we get old; others die at any age, as a consequence of certain diseases, head trauma, alcohol consumption, or others. How do neurons commit suicide? Is there an associated cell death program? Can neurons committed to die be rescued? Students were initiated into this research area.

- c) **Do you really want to take that drug?** Key and simple information about the effects of licit and illicit drugs, including caffeine, nicotine, alcohol, ecstasy and cocaine were given in this lecture.
- d) **Your brain as you get older...** This lecture focused on neurodegenerative diseases, such as Parkinson's and Alzheimer's disease. Students heard about symptoms and specific features, how these diseases affect society, and what are current and future therapies.



Following the introductory lectures, students were invited to perform simple experimental tasks, and experience the daily life of a neuroscientist. They were divided into small groups and passed through different work stations, under the following themes:

- a) **Guided “brain anatomy tour”.** Students were guided on rodent brain dissections, microscopic observations of different brain regions, including those affected in neurodegenerative diseases. Students were instructed on how to isolate neurons and other brain cell types from rodent brain, and observed primary brain cell cultures.
- b) **Neuronal cell staining.** Students observed neuronal cells stained with fluorescent dyes to characterize cell morphology. The presence of committed to die cells and normal cells was also evaluated under the microscope.
- c) **Ultrastructure of brain slices.** Students observed the ultrastructure of brain slices from animals treated with different drugs.
- d) **Neuroscience laboratories.** Students visited neuroscience laboratories and interacted with neuroscientists on their daily activities.

