June 2, 2016

On the topic of: The CONNECTOME: structure, function and evolution.

ELSC cordially invite you to the lecture given by:

Prof. Yaniv Assaf

Dept. of Neurobiology, George S. Wise faculty of life sciences Sagol School of Neuroscience Tel Aviv University

On the topic of:

The CONNECTOME: structure, function and evolution.

The lecture will be held on Thursday, June 2nd, 2016 at 17:00, at ELSC: Silverman Bldg., 3rd Wing, 6th Floor, Edmond J. Safra Campus

Light refreshments at 16:45

Abstract:

At every aspect of our lives - function determines structure. Just as new roads are built between developing cities, network wires are laid to adjust to faster communication demand and social networks are formed under a common goal of individuals, also the brain needs to remodel it's connectome to adapt to the daily and continuous change in functional demands. The connectome refers to several functional and structural characteristics of brain connectivity that span from the micron level (neural circuits) to the macroscopic level (long scale pathways). This complex network (which includes the white matter but not only) is responsible for the information passage through different regions. If the integrity of the connectome is affected, the brain functions abnormally. Hence, the connectome is intrinsic to everything that the brain does. Without the ability to explore the connectome in-vivo, it was traditionally considered to be stable and fixed. Indeed, most effort in white matter research was invested in describing the geographical appearance of the network and the areas it connects. Magnetic resonance imaging (MRI) and specifically diffusion MRI opened, for the first time, a window into the in-vivo physiology of white matter and the connectome. By measuring micro-structural features of white matter there is a new opportunity to explore also its physiology and dynamics. In the presentation we will demonstrate how the connectome can be measured and what are its macro and micro-structural features, we will describe its evolutional characteristics by comparing connectomes of 100 different mammals and we will the role of the connectome in brain...
plasticity and how dynamic this feature is.

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