



UNIVERSITÀ
di VERONA

Scuola di Dottorato
di SCIENZE DELLA VITA E DELLA SALUTE
Corso di dottorato in Neuroscienze, Scienze
Psicologiche e Psichiatriche e Scienze del Movimento

Neurotrophins and Brain Cholesterol Homeostasis

A special focus on Brain-Derived Neurotrophic Factor modulation of cholesterol trafficking between astrocytes and neurons

March 1st, 2019 - h. 14.00

Luisa Cigliano, PhD

Dipartimento di Biologia, Università di Napoli Federico II

**Candidata per la fascia dei Ricercatori per l'Area 05 - Scienze Biologiche
alle prossime elezioni per il rinnovo parziale del CUN**

Abstract

Despite the fact that the human brain consists only 2% of the entire total body weight, it contains about 20% of the total pool of cholesterol in the human body, making the brain the most cholesterol-rich organ. Cholesterol and lipids play an important role in signaling pathways, in maintaining membrane plasticity, synaptic integrity and neuron–glia interactions, but the mechanisms by which brain lipoprotein levels are regulated are not fully understood. Notably, disruption of brain cholesterol homeostasis has been associated with different neurodegenerative diseases, including Alzheimer's disease, as well as neurologic and psychiatric symptoms. Neurotrophic factors, by virtue of their growth promoting activities, have been shown to influence cholesterol metabolism in neurons and glial cells. Brain-derived neurotrophic factor (BDNF) was previously reported to elicit cholesterol biosynthesis and promote the accumulation of presynaptic proteins in cholesterol-rich lipid rafts, but no further data were available on its ability to modulate key physiological mechanisms involved in cholesterol homeostasis. We focused on this neurotrophin to investigate whether it regulates critical events in brain cholesterol metabolism, namely the cholesterol shuttling between astrocytes and neurons and the synthesis of Apolipoprotein E (ApoE), which is the strongest genetic risk factor for Alzheimer's disease. In this talk I will summarize some recent research findings of this line of inquiry, highlighting a novel critical role of BDNF in the modulation of cholesterol homeostasis.

Emphasis will be also given to recent results showing the effect of western diets, rich in sugars and/or fat, on BDNF signaling as well as on critical markers of brain functioning in rats of different age.

The seminar will take place at **14.00 – Aula Magna Gavazzi, via Bengasi 4**

Local organization and contact:

Prof. Leonardo Chelazzi, leonardo.chelazzi@univr.it
Dr Chiara Della Libera, chiara.dellalibera@univr.it
