AVVISO DI SEMINARIO
SEMINAR ANNOUNCEMENT

Principles of astrogliopathology with special emphasis on Alzheimer's disease

Alexej Verkhratsky
Professor of Neurophysiology
Division of Neuroscience & Experimental Psychology
University of Manchester

20 April 2017
11:00 – 12:30

Monterotondo CNR Seminar Room, Building 21

Highlights

The common and prevailing set of neurological thoughts considers neurones as the primary substrate of pathological progression. This "neurone-centric" concept, however, undergoes a dramatic change. It has become universally acknowledged that integration and information processing in the brain occurs though close interactions of synaptically connected neuronal networks and complex fabric of neuroglial cells. There is compelling evidence demonstrating that astrocytes create the compartmentalisation in the CNS, and integrate neurones, synapses, and brain capillaries into individual and relatively independent units. Astrogial syncytia allow intercellular communication, accomplished through translocation of ions, metabolic factors and second messengers. Many levels of integration, both morphological and functional, presented by neuronal-glial circuitry ensure the spatial and temporal multiplication of brain cognitive power. Neuroglial cells contribute to all forms of neurological diseases and glial reactions, determine, to a very large extent, the progression and outcome of neuropathology. Astrocytes are specifically involved in various neurodegenerative diseases including Alzheimer's disease, Amyotrophic lateral sclerosis, Parkinson's disease and various forms of dementia. Astrocytes undergo both atrophy and reactivity, which are specific for different stages of the disease evolution. Astrogial reactivity represents the generic defensive mechanism, and inhibition of astrogliotic response often exacerbates neuropathology.

Host: Prof. Fabio Mammano