Consiglio Nazionale
delle Ricerche
CNR

Istituto di Biologia Cellulare e Neurobiologia
Institute of Cell Biology and Neurobiology
IBCN

AVVISO DI SEMINARIO

SEMINAR ANNOUNCEMENT

Principles of astrogliopathololology 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. Astroglial 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. Astroglial reactivity represents the generic defensive mechanism, and inhibition of astrogliotic response often exacerbates neuropathology.

Host: Prof. Fabio Mammano