Special Issue

Energetic Metabolism Impairment in Brain Dysfunction

Message from the Guest Editors

Alterations in energetic metabolism and redox homeostasis are thought to be central components of neurodegeneration that result in the impairment of important homeostatic processes in neurons. Importantly, both bioenergetics and redox homeostasis are coupled to neuro-glial energetic metabolism. Redox and metabolic homeostasis is carried out by a complex interaction between neurons, glia, and the extracellular microenvironment. Alterations of the neuronal environment and/or genetic mutations of key genes may result in different neurodegenerative conditions. Moreover, energetic metabolism impairment may lead to neurotrophins depletion, resulting in the activation of death pathways and the downregulation of survival pathways. In summary, the understanding of the complex mechanisms occurring during neurodegeneration, both as a consequence of the interaction of genetic background with the environment and as an alteration of neuron-glia crosstalk, may bring new insight into the complex scenarios of different neurodegenerative diseases and provide a basis for new therapeutic approaches.

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