

Open Ph.D. projects

1.

Announcer: László Siklós

Doctoral School: University of Szeged, Doctoral School of Theoretical Medicine

Title of the research topic: Study of immune/inflammatory processes in models of neurodegeneration

Description of the research topic: The first component of the cellular immune response after an acute injury or after triggering a chronic degeneration in animal models is the activation of microglial cells, the resident immune cells of the nervous system. This microglial activation is moderated by cytokines and chemokines released by the injured cells, the local level of which is presumably proportional to the magnitude of the injury. The aim of the study is the characterization of differences in the level of cytokines and chemokines, the intensity and the duration of the microglial activation in different brain regions induced by acute injury or chronic stress conditions. The quantitative analysis of these changes would be performed by combination of light microscopic immunohistochemical and immunofluorescent methods. The ultimate aim is to understand the relationship between the natural resistance of the nerve cells and the level of the immune/inflammatory reaction following injury.

2.

Announcer: László Siklós

Doctoral School: University of Szeged, Doctoral School of Theoretical Medicine

Title of the research topic: Investigation of ultrastructural alterations and microanalytical changes associated with degeneration of motor neurons

Description of the research topic: The neurodegenerative diseases, associated with progressive and relentless destruction of nerve cells are mostly incurable. The death of degenerating cells is preceded by characteristic ultrastructural and microanalytical changes, which could be disclosed by conventional and specialized electron microscopic methods. The aim of the study is the characterization of cell-autonomous and non-cell-autonomous processes underlying neurodegenerative diseases with these techniques, which induced in experimental animals either by surgical intervention, or by exposition to acute or chronic stress conditions. Furthermore, the efficacy of different drug candidates is aimed to be characterized by ultrastructural and microanalytical evaluation of their effects in prophylactic or post-traumatic treatment paradigms.