

New generation of drugs protecting against neurotoxic industrial chemicals

Project description

Human brain is a great target for chemical terrorism, so NATO nations should be prepared to respond effectively to terrorist threats involving neurotoxic industrial chemicals. The main objective of the SPS.MYP G58852 project “New generation of drugs protecting against neurotoxic industrial chemicals” is to assess the therapeutic potential of AD4 and thioredoxin-mimetic peptides, blood-brain barrier permeable drugs targeting oxidative stress, apoptosis and inflammation, on acute neurotoxic syndromes induced by three common TICs (organophosphorus compounds, acrylamide, and organic mercury).

Tasks to be performed by the candidate

During the five months of the grant, the student will be involved in the development of a new zebrafish model of the three selected human acute neurotoxins. With this aim, the student will be trained in exhaustive handling of the model species, establishment of experimental setups strategies, the use video-tracking methodologies, including kinematic analysis of the movement, for assessing effects on the motor system, anxiety and cognitive function and in collection of biological samples. Furthermore, the student will vigorously participate in methods used to link the effects on these apical endpoints at molecular level, including changes in gene expression, neurochemical levels and enzymatic activities.

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