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Detection of general initial signs of internal protective mechanisms in samples from brain and the other anatomic organs: A pilot study**Iskra Ventseslavova Sainova***Bulgarian Academy of Sciences, Bulgaria*

Among the separate components, showing influence between the brain and the other anatomic organs, are proposed the specific inter-molecular interactions, as well as the mechanisms, providing balance between them. In this relation, appropriate experimental animal in vivo-models, which show how these pathways could prevent the development of multifactor neurodegenerative disorders, but on the other hand, prevention of pathology development. In the current pilot study are compared data from light microscopy assay of histological slides from brain and other anatomic organs from inoculated with infectious agent experimental rats, as well as from control healthy animals. The results obtained are compared and supported with the data from biochemical simulations of healthy and disease pictures from samples of extracts from brain and other organs of experimental rodents. A possibility about detection initial signs of disease was shown, when the changes are still on intra-cellular level and internal cellular protective mechanisms are activated – as changes in the cellular shape, but also in cytoskeleton and extra-cellular matrix components. Taking in consideration the literature data, as well as the known things about the immune cells, the main idea is related with development of methods, allowing non-immune types of cells, to acquire immune characteristics in appropriate internal/genetic, epigenetic and/or external conditions, as well as in various combinations of factors from the three categories.

Biography

Iskra Ventseslavova Sainova is a researcher and scientist at the Bulgarian Academy of Sciences, Bulgaria. Her academic focus lies in the investigation of internal protective mechanisms across various anatomical organs, with particular emphasis on brain function. She has contributed to studies aimed at detecting early signs of these protective responses, providing valuable insights into cellular and molecular reactions that occur in response to stress, injury, or disease. With an educational background in biomedical sciences and a deep commitment to advancing medical research, Dr. Sainova's work bridges fundamental science with clinical applications. Her research methods involve examining tissue samples from the brain and other organs to identify biomarkers and other indicators that reflect the body's innate defense mechanisms. Through her pilot studies, she aims to lay the foundation for developing novel diagnostic tools and therapies that can improve the early detection of neurodegenerative conditions and other systemic diseases.