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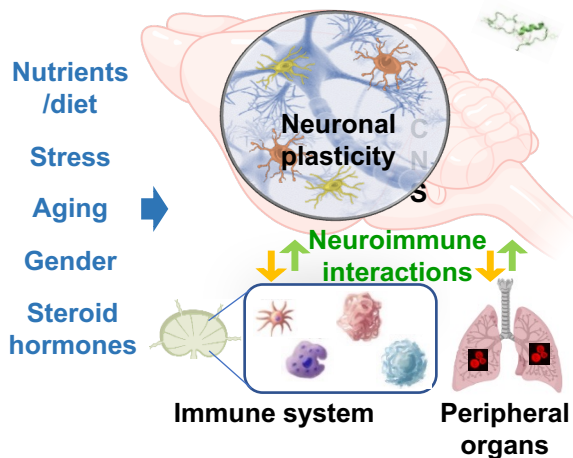
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Neuroinflammation in the central nervous system (CNS), which is present under neurodegenerative, autoimmune, and infectious diseases, alters the peripheral immune system and triggers the infiltration of peripheral immune cells into the CNS. These events impact CNS neuronal function and induce neuronal plasticity. Thus, deciphering neuroimmune signals in the CNS leads to determining the mechanisms of many diseases and identifying the therapeutic targets.



Research Interests

- How does CNS neuroinflammation impact peripheral immune systems?
- How do the infiltrated peripheral immune cells into the CNS trigger CNS neuronal plasticity?
- How do environmental (stress, toxicants, nutrients, etc.) and biological factors (steroid hormones, aging, etc.) impact CNS neuroimmune functions under physiological and disease conditions?

Current Projects

- Mechanisms of mood disorder, cognitive dysfunction, motor dysfunction, and/or chronic pain under autoimmune, infectious, and neurodegenerative diseases.
- Therapeutic efficacy to facilitate neurogenesis and gliogenesis in several diseases.
- Impacts of environmental and biological factors on several diseases.

Keywords

Neuroimmune interaction, CNS plasticity, biological and environmental factors, neurogenesis

Interest Areas for Collaboration/Future Work

Dr. Inoue is interested in working with researchers in many fields (immunology, neuroscience, nutritional biology, bioengineering, microbiology, chemistry, bioinformatics, and so on). We are currently doing many collaboration studies in different fields.