Dr. Herbert and Nicole Wertheim Leadership in Healthcare and Medicine Lectureship

Neuropilin 1 As a Modifier of the Immune Landscape in the CNS

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Professor of Pharmacological Sciences
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Date: April 17, 2019
Time: 12:00 - 1:00 PM
Venue: AHC 2-655

Biography

Stella Tsirka is a Professor of Pharmacological Sciences and serves as Vice Provost for Faculty Affairs at Stony Brook University. She received her PhD in Chemistry/Biochemistry from the University of Thessaloniki in Greece and completed postdoctoral trainings at UC San Francisco and Stony Brook University. Her laboratory's research has focused on uncovering the roles and communication of the immune-competent cells of the central nervous system (CNS), the microglia, with the brain parenchyma, as well as with other cells infiltrating the CNS. Using both models of neurological and neuropsychiatric diseases, as well by exploring physiological states, Dr. Tsirka's lab investigates ways to modulate the effects of microglia cells on their environment. In addition to her research efforts, Dr. Tsirka has been actively involved in mentoring and graduate education and serves in the Executive committee of the Neuropharmacology division of ASPET.

Abstract

Neuropilin 1 (NRP1) is a cell surface receptor expressed by endothelial cells, subsets of T cells, subsets of immune and cancer cells. NRP1 has the capacity to amplify signaling associated with its co-receptors VEGFR2, TGFβRI/II, PlexinA1, and cMET, allowing it to fulfill highly diverse signaling roles for cells. NRP1, its co-receptors, and many of its ligands have been shown to be highly regulated in autoimmune diseases and high-grade gliomas.

The focus of the presentation will center around NRP1's expression and signaling in experimental models of these pathologies, the modulation of immunosuppressive Treg populations, anti-tumorigenic polarization of innate immune cells, and effects on angiogenesis. We propose that NRP1 provides a significant new approach to modify the immune landscape in neuropathologies.

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