Katerina Akassoglou Joins GIND

Katerina Akassoglou, PhD, has accepted an appointment as associate investigator in the Gladstone Institute of Neurological Disease. Before joining Gladstone, she was an associate professor of pharmacology at UC San Diego, where she will maintain an adjunct associate professor appointment. Her research focuses on neurovascular mechanisms that regulate inflammatory, degenerative, and repair processes in human disease, particularly multiple sclerosis.

"Dr. Akassoglou is a superb investigator who will bring new expertise to complement our research in the GIND," said Lennart Mucke, GIND director. "I am very pleased and excited that she has joined us."

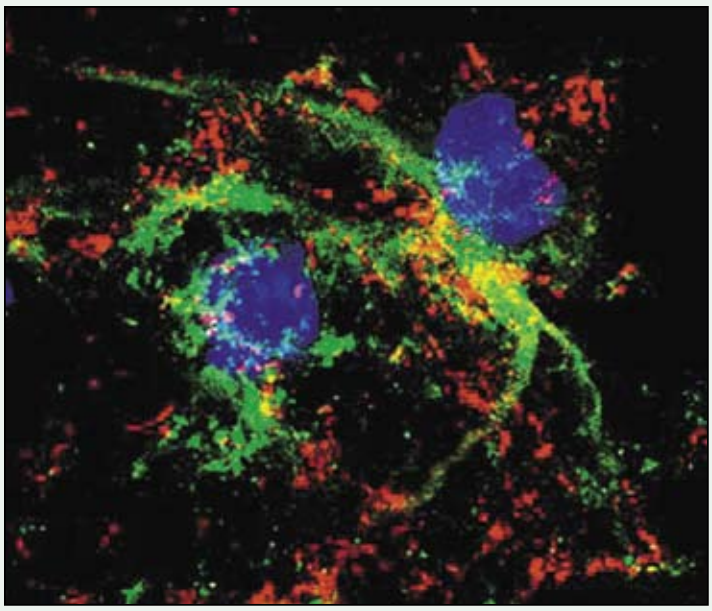
The major impact of Dr. Akassoglou's work has been in neurobiology, inflammation, and tissue repair, with a view toward designing novel therapeutic approaches. For her pioneering work on fibrin and fibrinogen and their roles in various neuropathological states, she was recognized by the White House as a recipient of the 2006 Presidential Early Career Award for Scientists and Engineers, the highest honor bestowed by the United States government on outstanding scientists and engineers beginning their independent careers. Earlier this year, she received the John J. Abel Award, which is given annually to a young investigator for original, outstanding research contributions in the field of pharmacology. She is the fourth woman to receive the Abel award since it was established in 1947.

Dr. Akassoglou focuses on the molecular and cellular mechanisms that are dictated by the extracellular environment after vascular damage and that regulate degenerative and repair processes upon injury or disease. Studies in her laboratory have suggested that bi-directional molecular mechanisms of communication between the blood and the brain may determine the degree of damage and the regenerative potential of tissues within and outside of the nervous system. Her lab integrates animal modeling, histopathology, microscopy, tissue culture, and biochemistry techniques as a multifaceted experimental approach to addressing the biological complexity of disease and repair mechanisms and to identifying novel targets for therapeutic interventions.

Dr. Akassoglou identified fibrin as an inhibitory protein that delays nerve regeneration after sciatic nerve injury and showed that fibrin degradation correlates with nerve regeneration, while decreased proteolytic activity in the nervous tissue exacerbates damage. Fibrin, derived from the blood protein fibrinogen, is deposited in the nervous tissue after injury or disease associated with blood-brain barrier leakage. In multiple sclerosis, fibrin deposits correlate with inflammation and demyelination. Dr. Akassoglou showed that fibrin contributes to the progression of disease by interacting with receptors on neural cells that can induce inflammation and inhibit repair. The ultimate goal of her studies is to modulate these interactions in a therapeutic manner for tissue repair and regeneration.

In addition to the clinical importance of her work for understanding multiple sclerosis and demyelination, she has developed peptide strategies that are extremely promising as therapeutics. Her interest in tissue regeneration led her to discover an unexpected role played by a neurotrophin receptor in cell differentiation that is critical for tissue repair. Dr. Akassoglou also discovered that this receptor, which is upregulated after tissue injury, blocks fibrinolysis.

"I am very excited to join the interdisciplinary and interactive scientific community of Gladstone and UCSF," she said. "Gladstone's academic model is innovative. The infrastructure and commitment to biomedical research are unique and inspiring. My lab



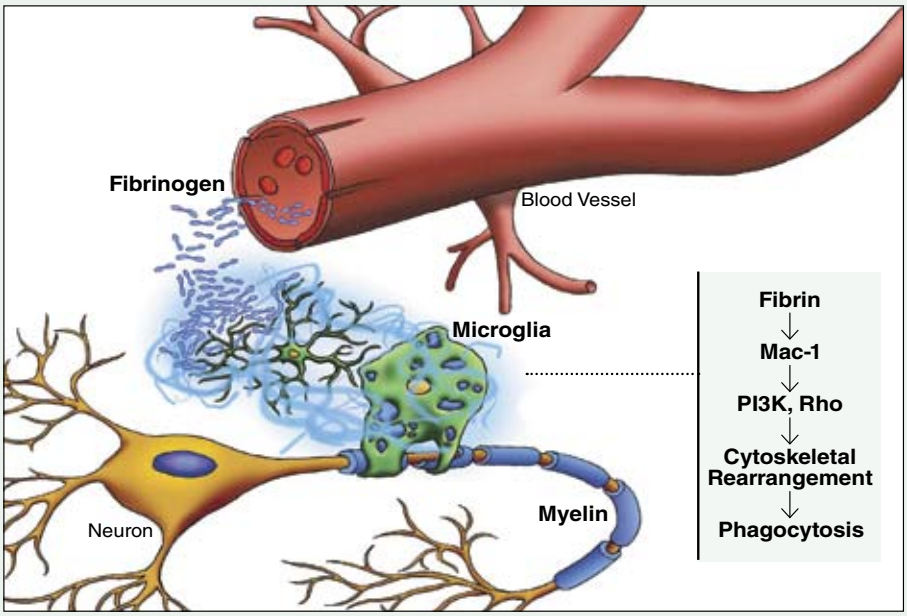
Fibrinogen deposition correlates with plaques in multiple sclerosis, and fibrinogen signaling activates microglia. The myelin sheath around axons within the spinal cord was damaged in a mouse model of multiple sclerosis. Confocal microscopy shows that activated microglia (green) are surrounded by fibrin (red).

Members of the Akassoglou lab: (l to r) Christian Schachtrup, Natacha LeMoan, Dr. Akassoglou, Bernat Baeza Raja, Dimitrios Davalos, and Tanya Joswig (inset).

has enthusiastically welcomed this opportunity and we all look forward to continuing our research at Gladstone."

Dr. Akassoglou received a BS in biology and a PhD in neurobiology at the University of Athens, Greece, and was trained in neuropathology at the University of Vienna, Austria, before completing her postdoctoral work at the State University of New York at Stony Brook. After research associate positions at Rockefeller University and New York University, she joined the faculty at UC San Diego.

"Dr. Akassoglou's outstanding track record and diverse interests clearly make her an excellent addition not only to the GIND, but also to the other institutes, and to the wider UCSF community," said Dr. Mucke. "We are very excited to have her here."



A possible model for the role of fibrin-induced activation of microglia in inflammatory demyelination. When the blood-brain barrier is broken, fibrinogen can leak into the parenchyma of the central nervous system. The fibrinogen is converted to fibrin and induces local activation of microglia by activating several components of signaling pathways, such as the Mac-1 integrin receptor and Rho. This cascade results in phagocytosis that contributes to tissue damage in inflammatory demyelination.