



PROGRESS IN NEUROSCIENCE PINS



Seminar Series of the
Brain & Mind Research Institute
Weill Cornell Medical College (WCRC)
&

The Graduate Program in Neuroscience of
WCRC and Sloan Kettering Institute

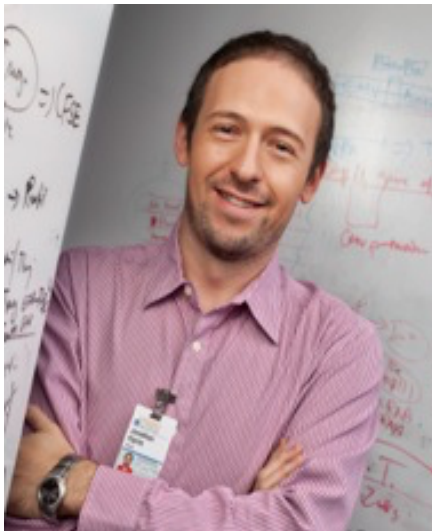
Thursday, 12/8/16, 4 PM, coffee at 3:45 PM

Uris Auditorium

“CNS lymphatic drainage in health and disease”

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Abstract



The central nervous system was considered to be devoid of classical lymphatic drainage. We recently challenged that paradigm by demonstrating the presence of a lymphatic vasculature in the surrounding of the brain called the meninges. We demonstrated that lymphatic vessels, expressing the markers for lymphatic endothelial cells (LEC; i.e Lyve-1, Prox1, podoplanin, VEGFR3 and CCL21) are located along the dural sinuses. They present features of initial lymphatics, and, importantly, drain fluids, macromolecules and immune cells from the cerebrospinal fluid and the CNS parenchyma into the deep cervical lymph nodes.

Our recent efforts are concentrated on understanding the role of meningeal lymphatic vessels in CNS function in health and disease. Our results suggest that the drainage into the deep cervical lymph nodes might play different roles at different stages of several neurological diseases. Understanding the function of the lymphatic drainage in CNS might shed a new light on neurological disorders and offer new therapeutic targets.

Recent Relevant Publications:

1. Gadani SP, Walsh JT, Smirnov I, Zheng J and **Kipnis J.** (2015) The glia-derived alarmin IL-33 orchestrates the post CNS injury immune response and promotes recovery. *Neuron*. Feb 18;85(4):703-9. doi: 10.1016/j.neuron.2015.01.013. Epub 2015 Feb 5.
2. Louveau A, Smirnov I, Keyes TJ, Eccles JD, Rouhani SJ, Peske JD, Derecki NC, Castle D, Mandell JW, Lee KS, Harris TH, **Kipnis J.** (2015) Structural and functional features of central nervous system lymphatics. *Nature*. Jul 16;523(7560):337-41. doi: 10.1038/nature14432. Epub 2015 Jun 1.
3. Filiano AJ, Xu Y, Tustison NJ, Marsh RL, Baker W, Smirnov I, Overall CC, Gadani SP, Turner SD, Weng Z, Peerzade SN, Chen H, Lee KS, Scott MM, Beenhakker MP, Litvak V, **Kipnis J.** (2016) Unexpected role of interferon- γ in regulating neuronal connectivity and social behaviour. *Nature*. 2016 Jul 21;535(7612):425-9.



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