

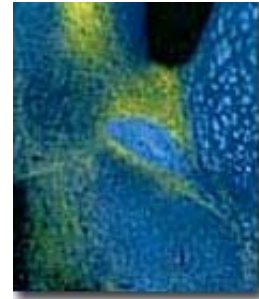


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Research Interests

The Wang laboratory focuses on the molecules which participate in neuronal injury, with a specific interest in how specific molecules protect the brain from ischemic injury (stroke).

We are investigating the molecular mechanisms of a unique stroke syndrome, Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy (CADASIL). This disorder is caused by mutations in the arterial gene Notch3. Our hope is that studying a stroke disorder caused by a single gene mutation will provide insight into the causes of common stroke. Current studies focus on the proteins that bind to Notch3 and which modulate its function. These proteins are providing insight into the mechanisms of pathogenesis of CADASIL and are shedding light on the fine tuning of Notch signaling.

Another goal is to discover how to modify the outcome of stroke by studying the genes activated by two endogenous agents: estrogen and bone morphogenetic protein-7 (BMP-7). We are investigating the molecular mechanisms of rapid actions of estrogen, and the functional consequences of these non-nuclear actions. BMP-7 is an unusual neuroprotective agent, in that it improves stroke outcome when administered days after the initial injury. We have identified sets of genes which are regulated by BMP-7, and are investigating whether these genes play a role in 1) delayed neuroprotective function; 2) dendritic growth. These studies are being performed collaboratively with the Dr. Pam Lein (OHSU). We hope that our studies will shed light on mechanisms of neuroprotection as well as cellular differentiation and plasticity of innervation.



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