DEPARTMENT OF BIOLOGY | UNIVERSITY of WASHINGTON

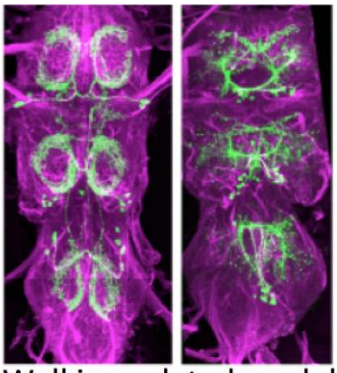
Biology Seminar

By: Dr. James Truman

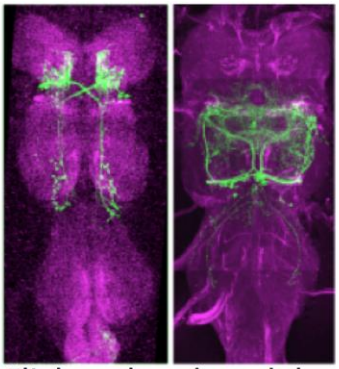
Janelia Research Campus | Senior Fellow, UW Department of Biology | Professor Emeritus

https://www.janelia.org/lab/truman-lab

Neuronal lineages: a key to understanding nervous system function and evolution in insects and crustaceans



Walking-related modules



Flight-related modules

Monday, October 16, 2017 | 12:00pm
HCK 132 Refreshments at 11:45am

In dominating most terrestrial, marine and aerial environments, insects and crustaceans have evolved complex behaviors controlled by a sophisticated, versatile nervous system. Our work on the segmental nervous system of Drosophila over the past 10 years has shown that the insect CNS is built from a set of functional modules. Each module is comprised of a cardinal class of interneurons that arises from a specific stem cell and that typically forms a particular component of the circuitry controlling either walking or flight. The set of stem cells that make a segmental ganglion, though, is highly conserved throughout the insects and, indeed, even into their crustacean ancestors. We are shifting from flies to other insects and to crustaceans to determine how conserved is the function of these neural modules through evolution. For example, do the flight modules change in insects that fly differently from Drosophila and, indeed, what do these modules do in primitive insects and crustaceans that have no wings? Also, for the walking related modules, how have they diversified to accommodate the sensory-motor challenges that arose as Crustacean appendages evolved to support diverse functions in swimming and in aquatic and terrestrial walking?

Seminar Speaker Host: David Perkel