Heller Lecture - Prof. Marla Feller

December 20, 2011

Title of the lecture: "From waves to vision: the development of functional circuits in the retina"

Heller Lecture Series in Computational Neuroscience

Prof. Marla Feller
Associate Professor, Department of Molecular and Cell Biology & Helen Wills Neuroscience Institute
University of California, Berkeley

On the topic of
"From waves to vision: the development of functional circuits in the retina"

Location: ELSC-ICNC Center Silverman Bldg., 3rd wing, 6th floor
Date&Time: Tuesday December 20, 2011, at 17:00

Abstract:

A common feature of developing circuits is the spontaneous generation of patterned activity. The Feller lab studies this phenomenon in the developing retina, where prior to the maturation of vision, the retina exhibits propagating bursts of action potentials termed retinal waves. I will present recent studies from my lab in which we use a variety of physiological and modeling approaches to elucidate how the synaptic mechanisms for generating spontaneously correlated signals evolve as the retina reaches its mature wiring state. In addition, I will describe the maturation of circuits in the retina that detect motion in the visual field.
These direction selective circuits are intact at the onset of vision, indicating that the precise retinal circuitry mediating direction selectivity is "wired-up" prior to normal visual experience. Hence direction-selective circuits emerge at a time during development when the retina itself is undergoing a remarkable transformation from intrinsically generated retinal waves to visually evoked responses.

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