

Virtual DANDRITE Lecture

Thursday 2 July 2020
15.00 – 16.00

Online via Zoom

Please find Zoom link via the Outlook calendar invitation. If you have not received this, please write an e-mail to Kathrine: kh@dandrite.au.dk



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Feedback from retinal ganglion cells to the inner retina

Retinal ganglion cells (RGCs) are thought to be strictly postsynaptic within the retina. They carry visual signals from the eye to the brain, but do not make chemical synapses onto other retinal neurons. Nevertheless, they form gap junctions with other RGCs and amacrine cells, providing possible routes for RGC signals to feed back into the inner retina. I will discuss such feedback circuitry that we identified in the salamander and mouse retinas. First, using biologically inspired circuit models, we found suppressive effects among RGCs of the same response polarity. We then experimentally confirmed that such effects involved gap junctions and inhibitory transmission via amacrine cells, and this negative feedback helped lower the visual response gain without affecting the stimulus feature selectivity of RGCs. The principal neurons of the retina hence participate in a recurrent circuit as elsewhere in the brain, and are actively involved in visual computations rather than merely collecting postsynaptic signals from the inner retina.