

TRP, TRPL and Cacophony Channels Mediate Ca²⁺ Influx and Exocytosis in Photoreceptors Axons in *Drosophila*

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In *Drosophila* photoreceptors Ca²⁺-permeable channels TRP and TRPL are the targets of phototransduction, occurring in photosensitive microvilli and mediated by a phospholipase C (PLC) pathway. Using a novel *Drosophila* brain slice preparation, we studied the distribution and physiological properties of TRP and TRPL in the lamina of the visual system. Immunohistochemical images revealed considerable expression in photoreceptors axons at the lamina. Other phototransduction proteins are also present, mainly PLC and protein kinase C, while rhodopsin is absent. The voltage-dependent Ca²⁺ channel cacophony is also present there. Measurements in the lamina with the Ca²⁺ fluorescent protein G-CaMP ectopically expressed in photoreceptors, revealed depolarization-induced Ca²⁺ increments mediated by cacophony. Additional Ca²⁺ influx depends on TRP and TRPL, apparently functioning as store-operated channels. Single synaptic boutons resolved in the lamina by FM4-64 fluorescence revealed that vesicle