



Richard Hume Ph.D.

Professor
Chair, Department of MCDB
Department of Molecular, Cellular and Developmental
Biology
3095 Natural Science Building 1048
Ann Arbor, MI 48109
(734) 764-7427
rhume@umich.edu



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Research Interests

The major interests of this lab are the molecular basis of synaptic transmission and synaptic development. Several recent studies have focused on glutamate receptors because glutamate is the dominant excitatory transmitter in mammalian brain. However, the majority of current work is focused on a second system that also mediates excitatory transmission in mammalian brain. ATP (adenosine triphosphate) is released from many synaptic terminals, and one action of this ATP is to gate a class of ion channels referred to as P2X receptors. Genes encoding seven different P2X receptors have recently been identified in mammals and members of the P2X gene family are widely expressed in the central and peripheral nervous system. The major goals of current research in this lab include: 1) To identify the molecular motifs of P2X receptors that account for ATP binding, channel gating and modulation of channel function. 2) To test the importance of P2X receptors in synaptic development. 3) To understand the role that P2X receptor mediated signaling plays in the mature brain.

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