



## Michael Hortsch Ph.D.

Associate Professor  
Department of Cell and Developmental Biology  
3063 Biomed. Sci. Res. Building (2200)  
Ann Arbor, MI 48109  
(734) 615-0256  
[hortsch@umich.edu](mailto:hortsch@umich.edu)  
[My website](#)



 [Download](#) this page

### Research Interests

Work in this laboratory addresses the role of cell adhesion molecules (CAMs) in the development, differentiation and functioning of nervous systems. In particular we are studying the structure-function relationship and the physiological role of the *Drosophila* neural CAM Neuroglian and its vertebrate homologues, all members of the L1 family of neural CAMs. Of special concern are their interactions with with receptor tyrosine kinases that result in the activation of cellular second messenger pathways and ultimately in the initiation of neurite outgrowth, cell differentiation and gene expression events. Thereby we hope to understand how mutations in genes encoding L1 family members can cause a variety of neurological phenotypes in *Drosophila*, as well as in humans.

### Selected References

M. Hortsch: Structural and functional evolution of the L1-family: Are four adhesion molecules better than one? *Mol. Cell. Neurosci.* 15: 1-10, 2000.

M. Hortsch, K.L. Paisley, M.-Z. Tian, M. Qian, M. Bouley, and R. Chandler: The Axonal Localization of *Drosophila* Ankyrin 2 Protein Isoforms Is Essential for Neuronal Functionality. *Mol. Cell. Neurosci.* 20: 43-55, 2002 (Featured on the cover).

R. Islam, S.-Y. Wei, W.-H. Chiu, M. Hortsch, and J.-C. Hsu: Neuroglian activates Echinoid to antagonize the *Drosophila* EGF receptor signaling pathway. *Development* 130: 2051-2059, 2003



R. Islam, L.V. Kristiansen, S. Romani, L. Garcia-Alonso, and M. Hortsch: Activation of EGF Receptor Kinase by L1-mediated Cell Adhesion. *Mol. Biol. Cell* 15: 2003-2012, 2004.

Wei, M. Hortsch, and S. Goode: Neuroglian Stabilizes Epithelial Structure during *Drosophila* Oogenesis. *Dev. Dynamics* 230: 800-808, 2004 (Featured on the cover).

C. Faivre-Sarrailh, S. Banerjee, J. Li, M. Hortsch, M. Laval, and M.A. Bhat: *Drosophila* contactin, a homolog of vertebrate contactin, is required for septate junction organization and paracellular barrier function. *Development*, 131: 4931-4942, 2004.

L.V. Kristiansen, E. Velasquez, S. Romani, S. Baars, V. Berezin, E. Bock, M. Hortsch, and L. Garcia-Alonso: Genetic Analysis of an Overlapping Functional Requirement for L1- and NCAM-type Proteins During Sensory Axon Guidance in *Drosophila*. *Mol. Cell. Neurosci.*, 28: 141-152, 2005 (Featured on the cover).

A. Carhan, F. Allen, J.D. Armstrong, M. Hortsch, S.F. Goodwin, and K.M.C. O'Dell. Female Receptivity Phenotype of icebox Mutants Caused by a Mutation in the L1-type Cell Adhesion Molecule Neuroglian. *Genes, Brain and Behavior* 4: 449-465, 2005. (Erratum with final list of authors 5: 432, 2006)

T.A. Godenschwege, L.V. Kristiansen, S.B. Uthaman, X. Shan-Crofts, P. Carruccio, M. Hortsch, and R.K. Murphey. A Conserved Role for *Drosophila* Neuroglian and human L1-CAM in Central Synapse Formation. *Current Biology* 16: 12-23, 2006.

K. Nagaraj and M. Hortsch. Phosphorylation of L1-type Cell Adhesion Molecules - Ankyrins away! *Trends in Biochem. Sci.* 31: 544-546, 2006.

Find more publications by [Dr. Michael Hortsch](#)  
Last updated 5/7/2007 Click here to [update](#)

00535