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Tetraspanins in flies

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Jonathan B Weitzman

Email: jonathanweitzman@hotmail.com

The tetraspanins form a large family of four-transmembrane-spanning proteins that are involved in a wide range of cellular functions in mammals. In the October 15 *Proceedings of the National Academy of Sciences* Fradkin *et al.* describe characterization of tetraspanin expression and functions in *Drosophila* (Proc Natl Acad Sci USA 2002, 99:13663-13668). The first tetraspanin gene to be identified in flies was *Latebloomer* (*lbm*), which is expressed in motoneurons and has been implicated in the formation of synaptic contacts at the neuromuscular junction. Analysis of the *Drosophila melanogaster* genome sequence revealed the existence of an additional 34 genes encoding tetraspanins. Fradkin *et al.* performed RNA *in situ* hybridization analysis of tetraspanin expression during *Drosophila* development. The genes show very different expression patterns, but fall into three groups that are expressed in the nervous system, the gut or the epidermis. In addition to *lbm*, two other tetraspanins are expressed in motoneurons. Fradkin *et al.* engineered a deletion of these three tetraspanin genes and observed an increase in the *lbm* synaptic phenotype. Analysis of other fly tetraspanins is likely to provide further insights into the function and genetic redundancy of this large gene family.

References

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2. *Proceedings of the National Academy of Sciences* , [<http://www.pnas.org>]
3. Genomewide analysis of the *Drosophila* tetraspanins reveals a subset with similar function in the formation of the embryonic synapse., [<http://www.pnas.org/cgi/content/abstract/99/21/13663>]
4. A neural tetraspanin, encoded by *late bloomer*, that facilitates synapse formation.