An *MBoC* Favorite: Class VI unconventional myosin is required for spermatogenesis in *Drosophila*

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In celebration of MBoC*'s first 20 years, members of the Editorial Board, members of the ASCB Council, and others comment on their favorite* MBoC *papers from the past two decades.*

This paper is a beautiful example of how studies in *Drosophila melanogaster* can reveal unexpected functions of conserved proteins in multicellular organisms. *Drosophila* spermatogenesis takes place within a syncytial cytoplasm. At the end of spermatogenesis, individualization complexes (ICs) containing F-actin traverse the length of the spermatid cysts, reorganizing membranes and removing material not required in mature sperm. Previous experiments had implicated myosin VI in cellularization of the syncytial embryo. However, since mutations in the gene encoding myosin VI were unavailable, its in vivo functions were poorly understood. Hicks *et al*. (1999) isolated partial loss-of-function mutations in myosin VI and demonstrated that the incorporation of myosin VI at the leading edge of ICs is necessary to form the robust F-actin arrays required for proper IC movement and individualization. This laid the groundwork for subsequent studies (many in *MBoC*) dissecting myosin VI function in vivo, thereby illuminating principles that apply to a variety of specialized cells.

REFERENCE

Hicks JL, Deng WM, Rogat AD, Miller KG, Bownes M (1999). Class VI unconventional myosin is required for spermatogenesis in *Drosophila*. Mol Biol Cell 10, 4341–4353.

DOI: 10.1091/mbc.E12-02-0158
Molecular Biology of the Cell Volume 23 Page 1402.
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