

P020 The role of membrane trafficking during cytokinesis of *Drosophila* spermatocytes

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Membrane trafficking at the cleavage furrow plays a fundamental role in both animal and plant cytokinesis but the proteins involved and the underlying mechanisms are poorly understood. Rab11, a small GTPase that regulates several aspects of vesicular trafficking accumulates at the cleavage furrow of *Drosophila* spermatocytes and is essential for cytokinesis. Mutant spermatocytes form regular actomyosin rings, but these rings fail to constrict to completion, leading to cytokinesis failures. *rab11* spermatocytes also exhibit an abnormal accumulation of Golgi-derived vesicles at the telophase equator, suggesting a defect in membrane-vesicle fusion. These cytokinesis phenotypes are identical to those elicited by mutations in *giotto* (*gio*) and *four wheel drive* (*fwd*) that encode a PITP and a PtdIns 4-kinase, respectively. Double mutant analysis and immunostaining for Gio and Rab11 indicated that *gio*, *fwd* and *rab11* function in the same cytokinetic pathway, with Gio and Fwd acting upstream of Rab11. We propose that Gio and Fwd mediate Rab11 recruitment at the cleavage furrow, and that Rab11 facilitates targeted membrane delivery to the advancing furrow.