

An MBoC Favorite: Regulation of the vitellogenin receptor during *Drosophila melanogaster* oogenesis

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Unlike mosquitoes, which produce yolk-loaded eggs only after a blood meal, *Drosophila* egg production is not invariably coupled to nutrition. Before this study, precisely why the immature egg stages do not accumulate yolk by endocytosis was unknown. By following the expression patterns of the *Drosophila* transmembrane vitellogenin receptor, *Yolkless*, the authors found transcripts and receptor protein are already present in very immature egg chambers, much earlier than yolk granules. The striking result was the altered subcellular localization of *Yolkless* when yolk storage begins; at this juncture, *Yolkless* exits the endoplasmic reticulum (ER) and traffics to the oolemma, permitting endocytic uptake and storage of yolk. Several *yolkless* alleles encode protein that remains trapped in the ER. This elegant study revealed why only a subset of maturing egg chambers are actively vitellogenic, yet the nature of the signal and the underlying mechanism that permits *Yolkless* egress from the ER still remain to be established.

REFERENCE

Schonbaum CP, Perrino JJ, Mahowald AP (2000). Regulation of the vitellogenin receptor during *Drosophila melanogaster* oogenesis. *Mol Biol Cell* 11, 511–521.

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