1 Recommendations New Finding

Fizzy-Related dictates A cell cycle switch during organ repair and tissue growth responses in the Drosophila hindgut.

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RECOMMENDATIONS ABSTRACT COMMENTS

Rated ★★ Very Good 18 Sep 2018

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Classified as

New Finding

In this clever and very nice paper from the lab of Don Fox, Cohen and colleagues describe how specialized cell cycles are used at different times in the Drosophila life cycle to drive regeneration and maintain tissue integrity after damage. They focus on damage-induced regeneration in one region of the intestine (the hindgut pylorus). Damage to this region triggers regeneration – in larvae this involves an increase in cell number by mitosis to restore tissue mass, but in the adult this regeneration is driven by increased endocycling and increased cell ploidy, without a change in cell number. Using some clever genetics, Cohen et al. show that these different regenerative cell cycle responses involve regulation of the mitotic factor Fizzy-related and, interestingly, that the endocyle-driven mode of regeneration in adults is essential for restoring and preserving tissue integrity. This paper highlights how different programs of cell cycle regulation, and particularly endocycles, can be employed to restore tissue mass and function after damage, and the paper also highlights the utility of fly genetics as a tool to understand mechanisms of cellular and tissue regeneration.

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