Fly 4:4, 338-338; October/November/December 2010; © 2010 Landes Bioscience

Specific cell ablation in Drosophila using the toxic viral protein M2(H37A)

Victoria K. Lam, Tsuyoshi Tokusumi, Donna Cerabona and Robert A. Schulz*

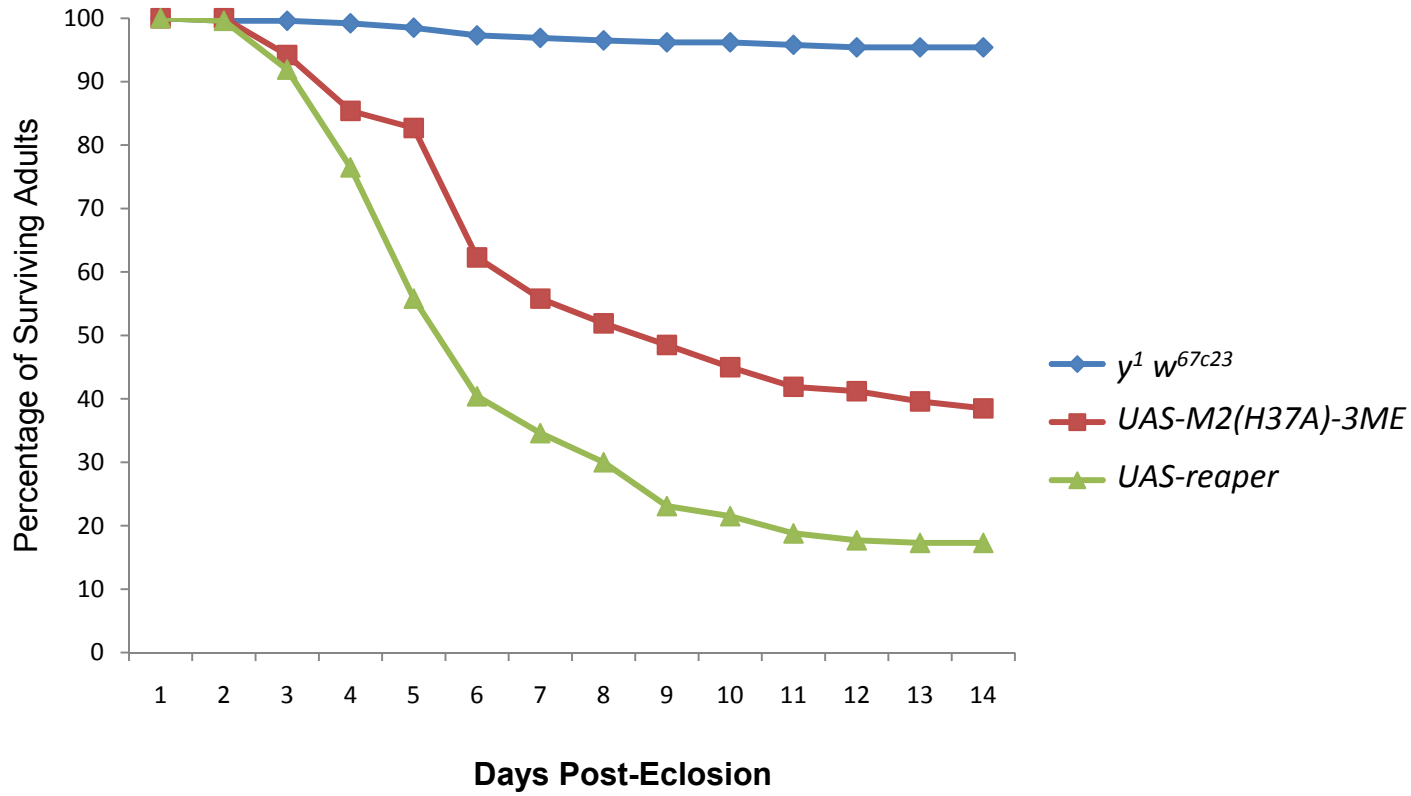
Department of Biological Sciences; University of Notre Dame; Notre Dame, Indiana USA

Key words: cell ablation, dorsal vessel, Drosophila, eye imaginal disc, *hand*, lamellocytes, M2 toxin, *reaper*

The expression of toxic viral proteins for the purpose of eliminating distinct populations of cells, while leaving the rest of an organism unaffected, is a valuable method for analyzing development. Using the Gal4-UAS system, we employed the M2(H37A) toxic ion channel of the influenza-A virus to selectively ablate the Drosophila eye-antennal imaginal discs, hemocytes, dorsal vessel and nervous tissue and comparatively monitored the effects of expressing the apoptosis-promoting protein Reaper in identical cell populations. In this report, we demonstrate the effectiveness of M2(H37A)-mediated ablation as a new means to selectively eliminate cells of interest during Drosophila development.

Supplementary Material

*Correspondence to: Robert A. Schulz; Email: rschulz@nd.edu
Submitted: 05/17/10; Revised: 07/19/10; Accepted: 07/21/10
Previously published online: www.landesbioscience.com/journals/fly/article/13114
DOI: 10.4161/fly.4.4.13114



Supplementary Figure 1. Graph of adult survival in days post-eclosion at 29º C. The percentage of control *hand-GFP; hand-GAL4 x* y^1w^{67c23} (blue diamonds), *hand-GFP*; *hand-GAL4* x *UAS-M2(H37A)-3ME* (red squares), and *hand-GFP; hand-GAL4* x *UAS-rpr* (green triangles) adult flies surviving each day after eclosion for 14 days is shown (results represent an average of at least 20 trials). The life span of progeny of heart ablation crosses are significantly reduced relative to that of the control.