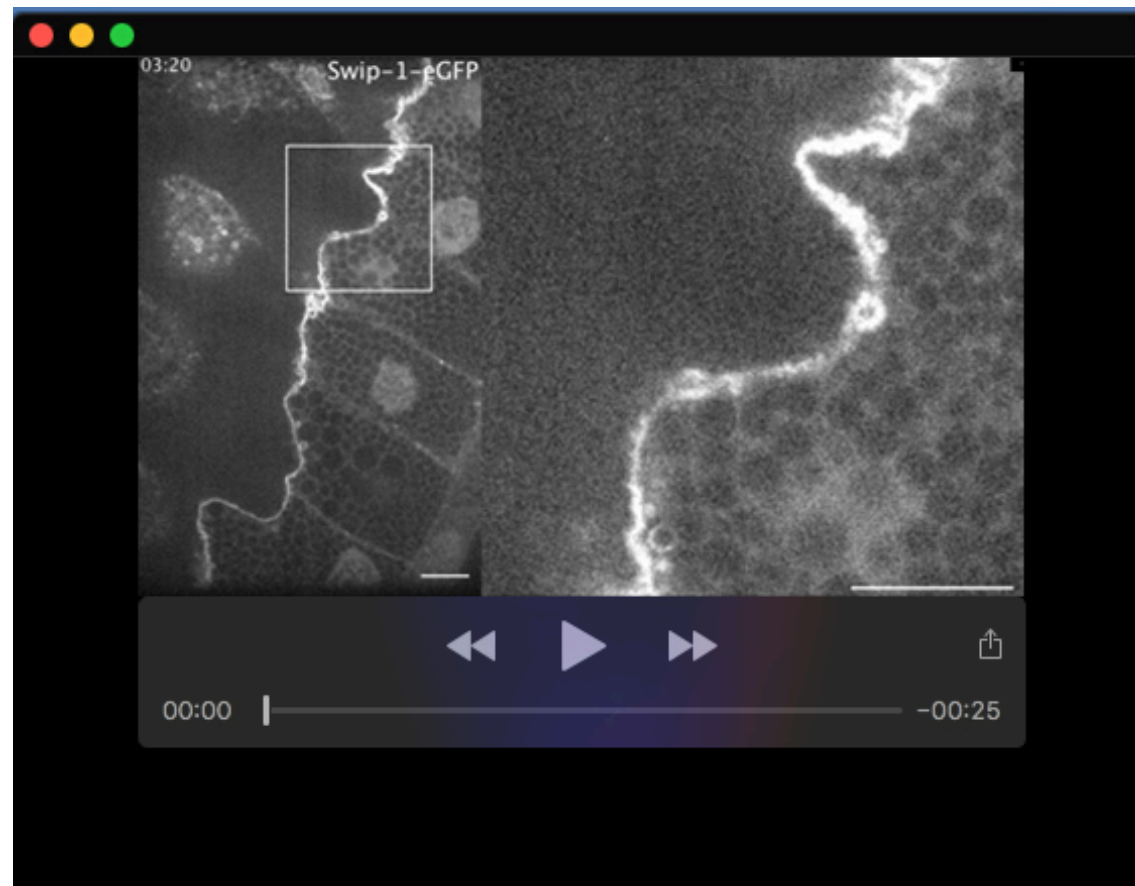
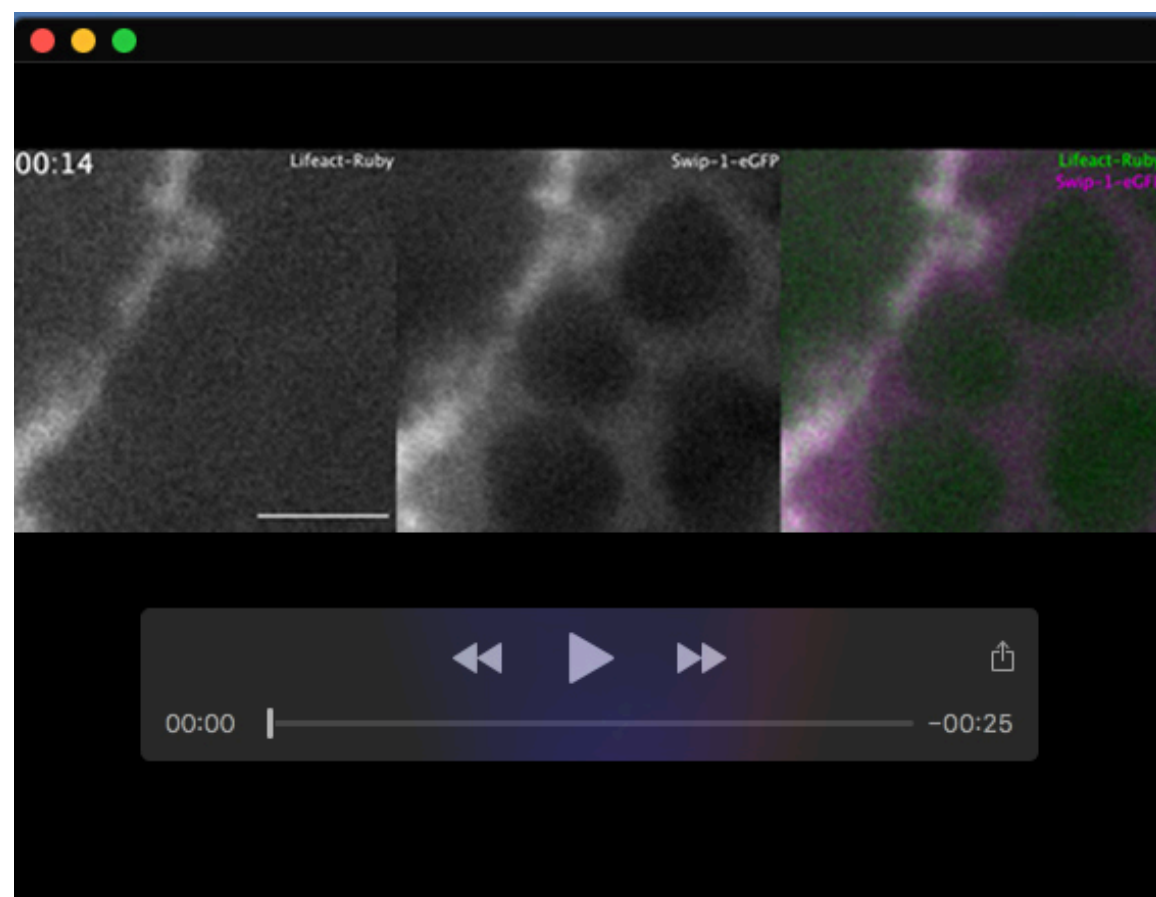


Fig. S1. Mutant *swip-1* larvae show no developmental delay or reduced vesicle size in their salivary glands.

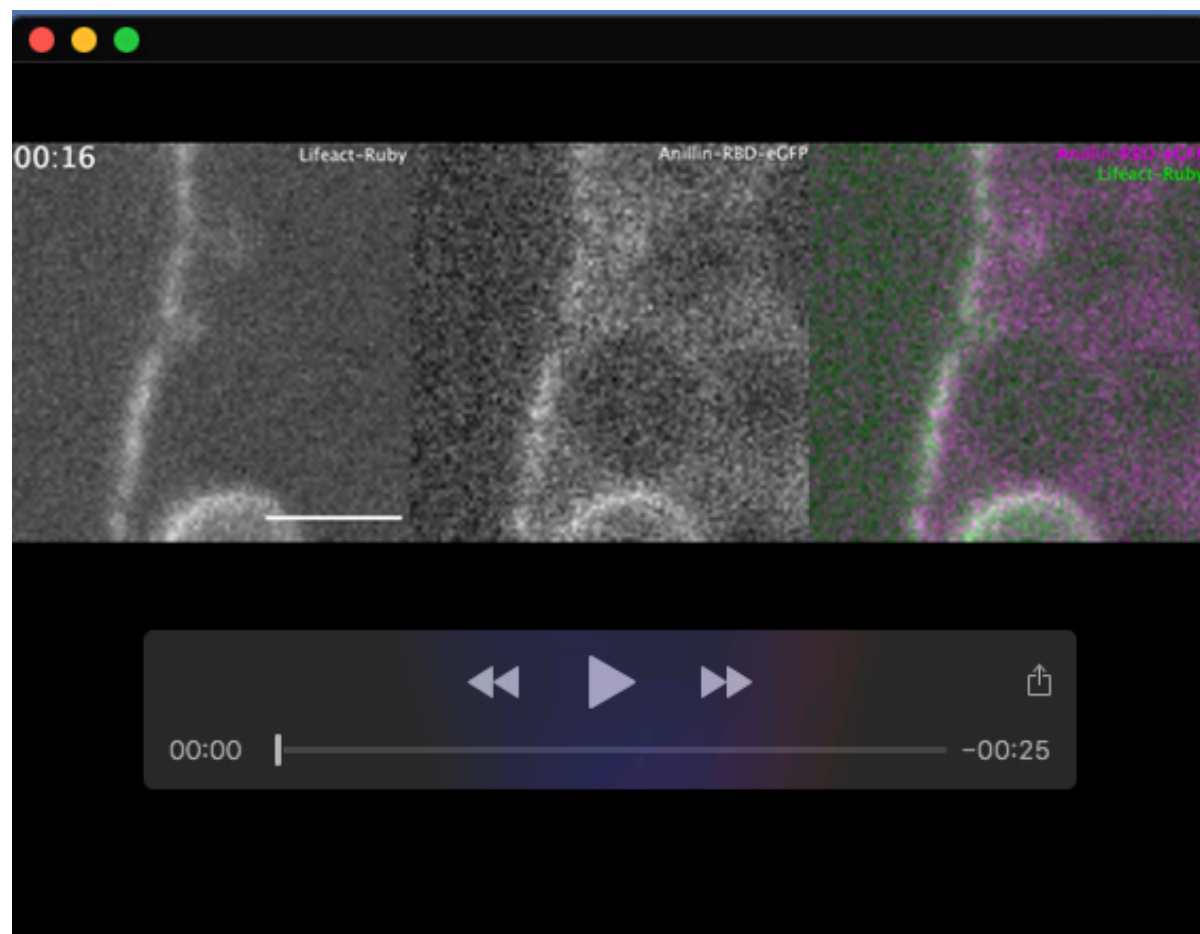
(**A**) To determine a developmental defect, wild-typic and *swip-1* mutant wandering L3 larvae were collected in a humidified petri dish and kept on 25°C. The number of developed prepupae were counted every hour for 10h. There is no significant difference in wild type and *swip*^{Δ1} at any time point. Data points from 4 independent experiments. WT: n=83 and *swip*^{Δ1}: n=69 larvae. (**B-B''**) Confocal images of a fixed wild-typic non-secreting salivary gland stained for F-actin (Phalloidin, green) and Swip-1 (magenta). Swip-1 is located in the cytoplasm and enriched at the plasma membrane (see inset in B''). Scale bar 25 μm. (**C**) Cross-section area of packed vesicles in non-secreting salivary glands. (**D**) Quantification of Sqh-mCherry recruitment relative to Swip-1-eGFP expression under the *srp*-Gal4 driver rescued *swip-1* mutant and overexpression background. Myosin



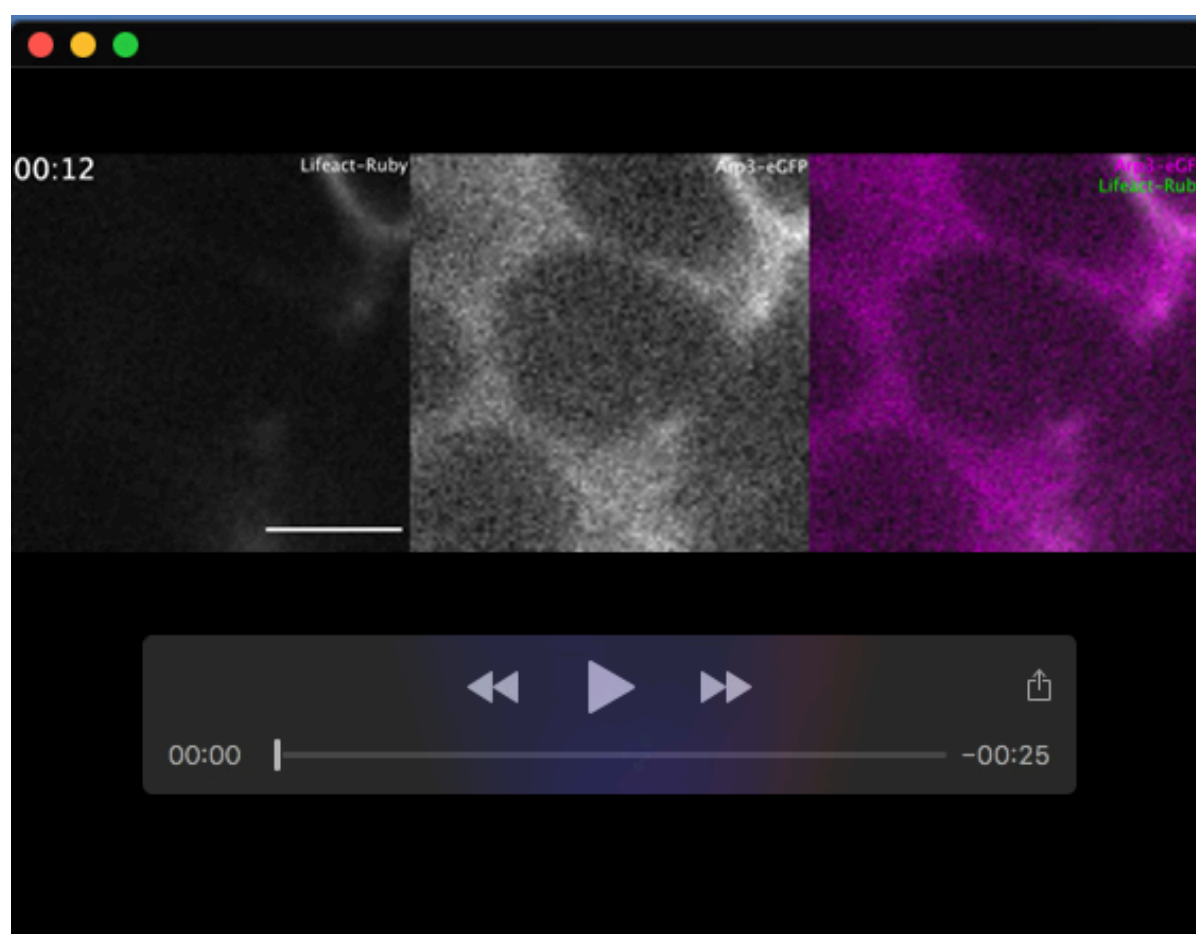
Movie 1. Time-lapse movie of *ex vivo* cultured salivary glands expressing UAS-Swip-1-eGFP under the *srp-Gal4* driver. Right side shows the boxed area corresponding to the still image of Figure 2A. Scale bars 25 μ m.



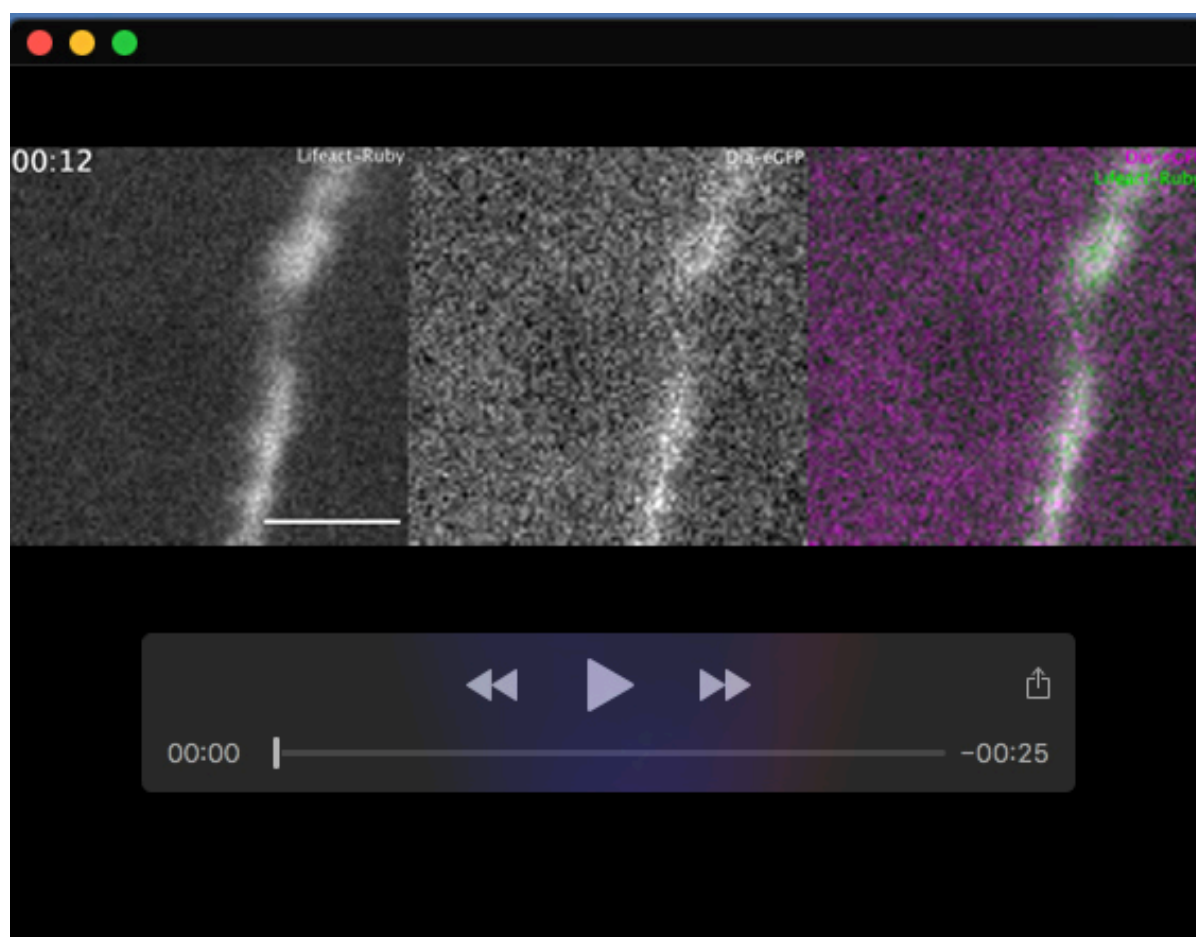
Movie 2. Representative time-lapse movie of *ex-vivo* cultured salivary glands co-expressing UAS-LifeAct-Ruby (green) and UAS-Swip-1-eGFP (magenta) under the *ptc-Gal4* driver. Scale bar 5 μ m.



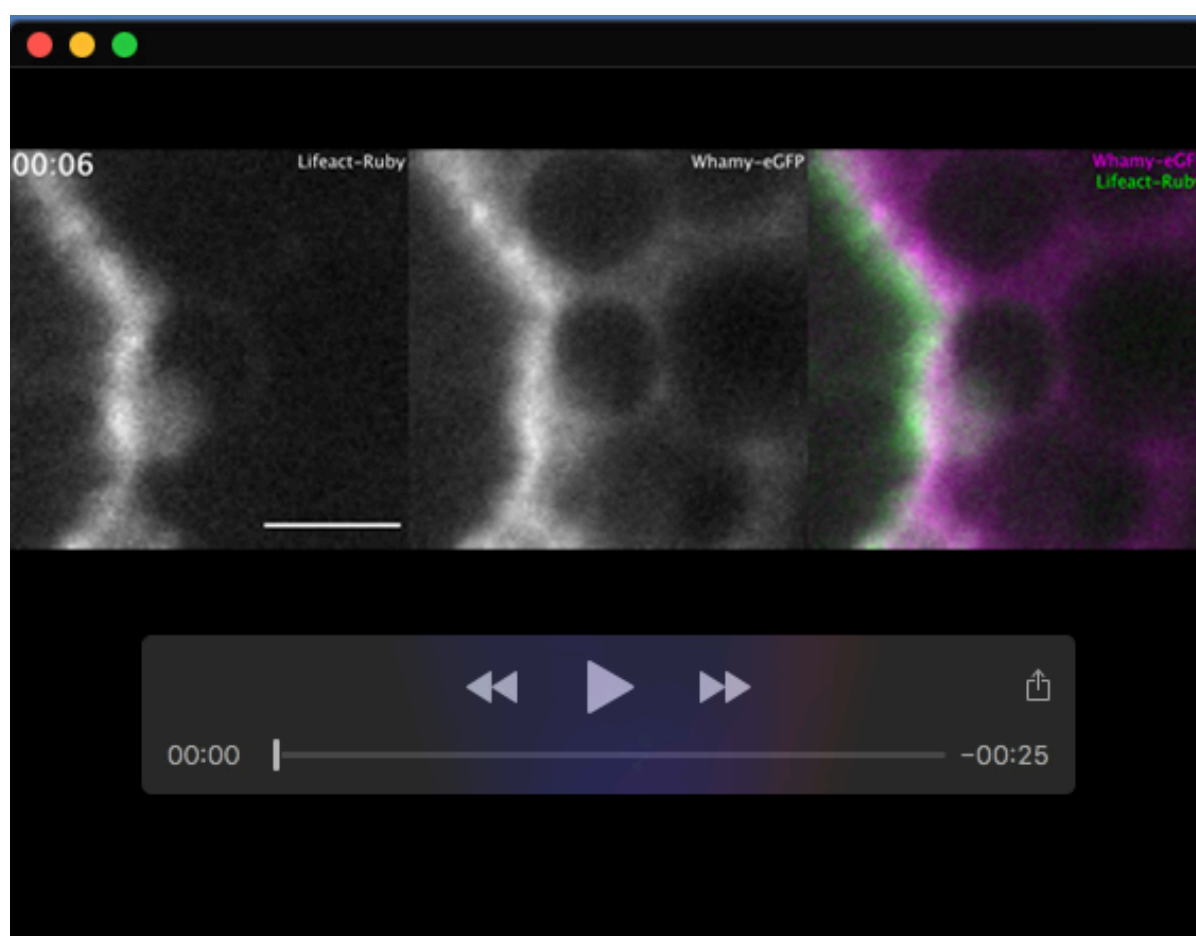
Movie 3. Representative time-lapse movie of *ex-vivo* cultured salivary glands co-expressing UAS-LifeAct-Ruby (green) under the *ptc*-Gal4 driver and the Rho-sensor Anillin-RBD-eGFP (magenta). Scale bar 5 μ m.



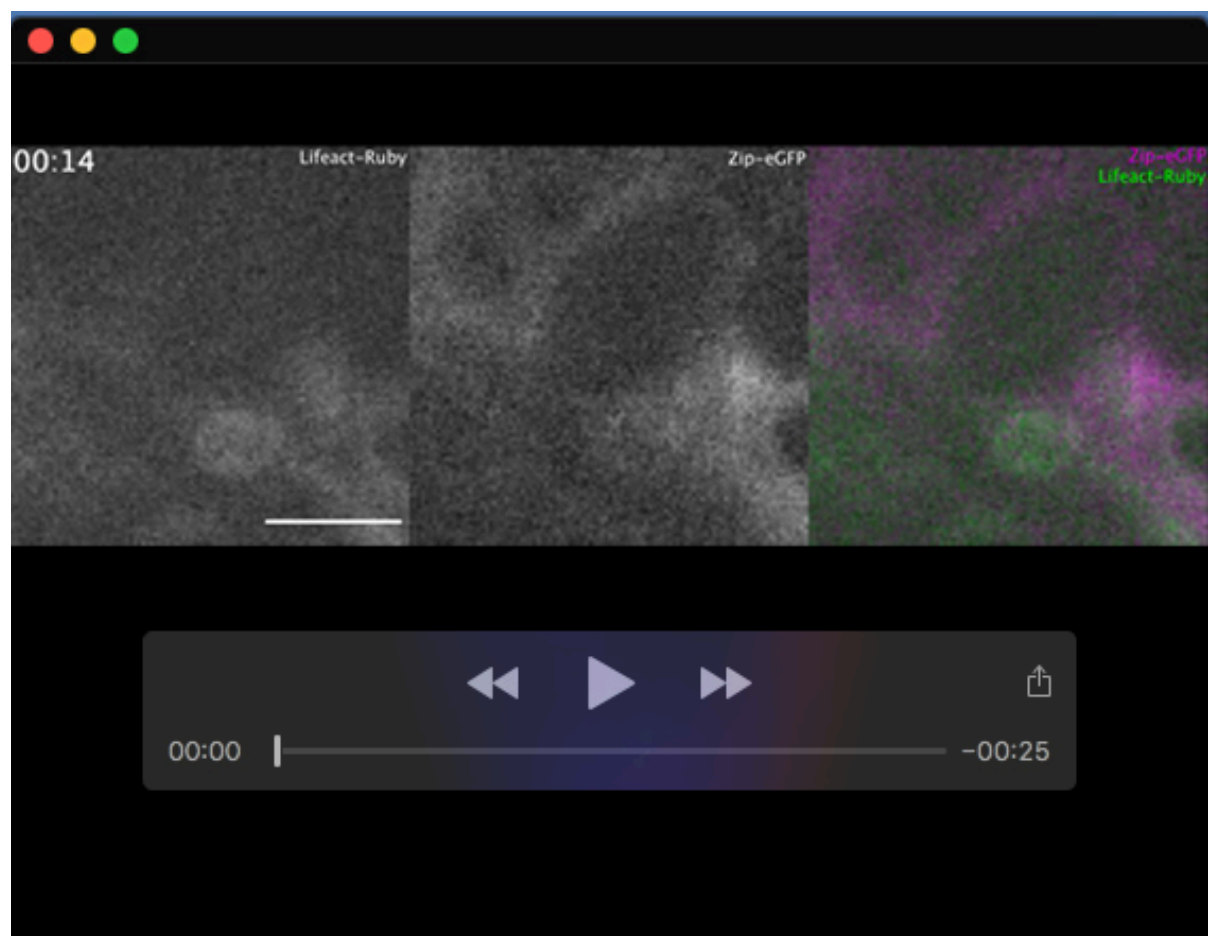
Movie 4. Representative time-lapse movie of *ex-vivo* cultured salivary glands co-expressing UAS-LifeAct-Ruby (green) and UAS-Arp3-eGFP (magenta) under the *ptc*-Gal4 driver. Scale bar 5 μ m.



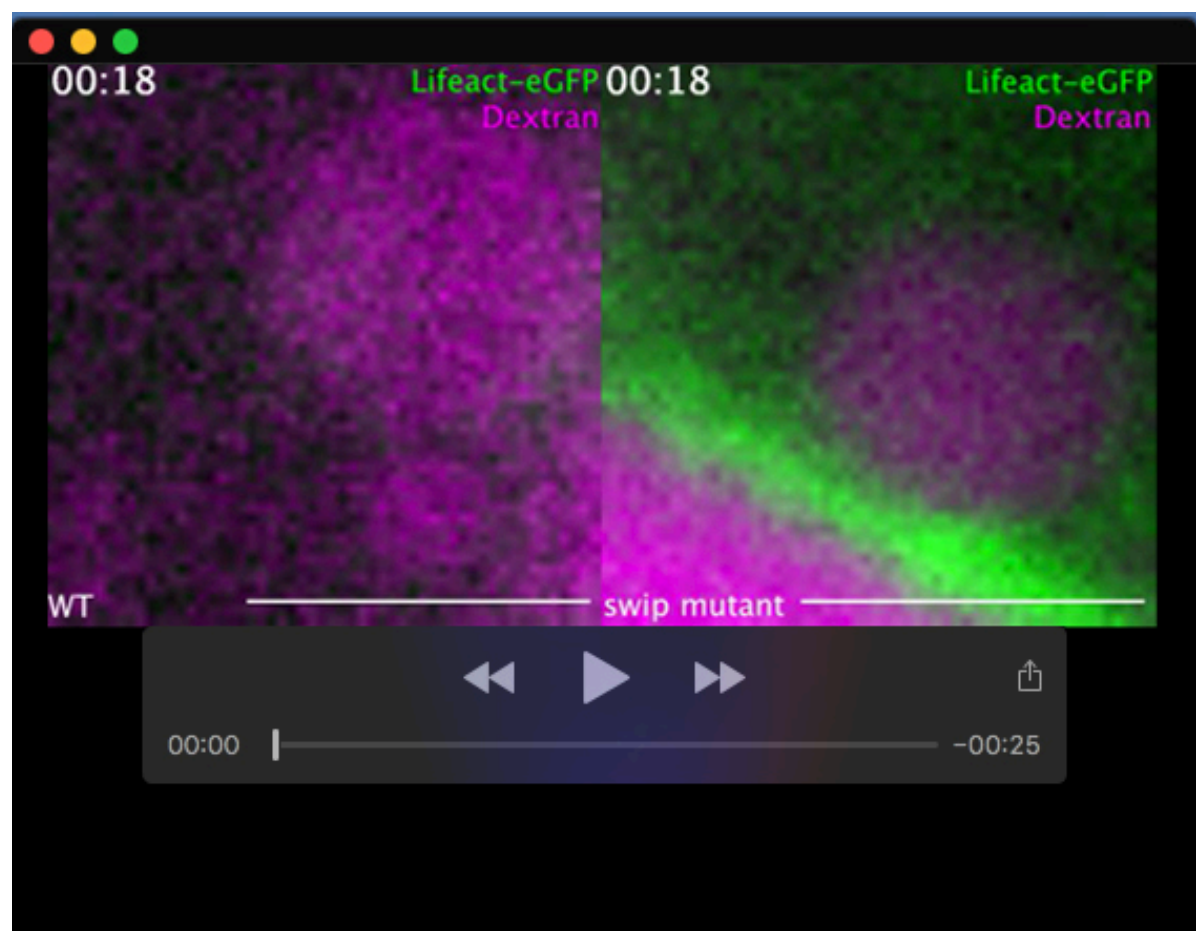
Movie 5. Representative time-lapse movie of *ex-vivo* cultured salivary glands co-expressing UAS-LifeAct-Ruby (green) under the *ptc*-Gal4 driver and Dia-eGFP (magenta). Scale bar 5 μ m.



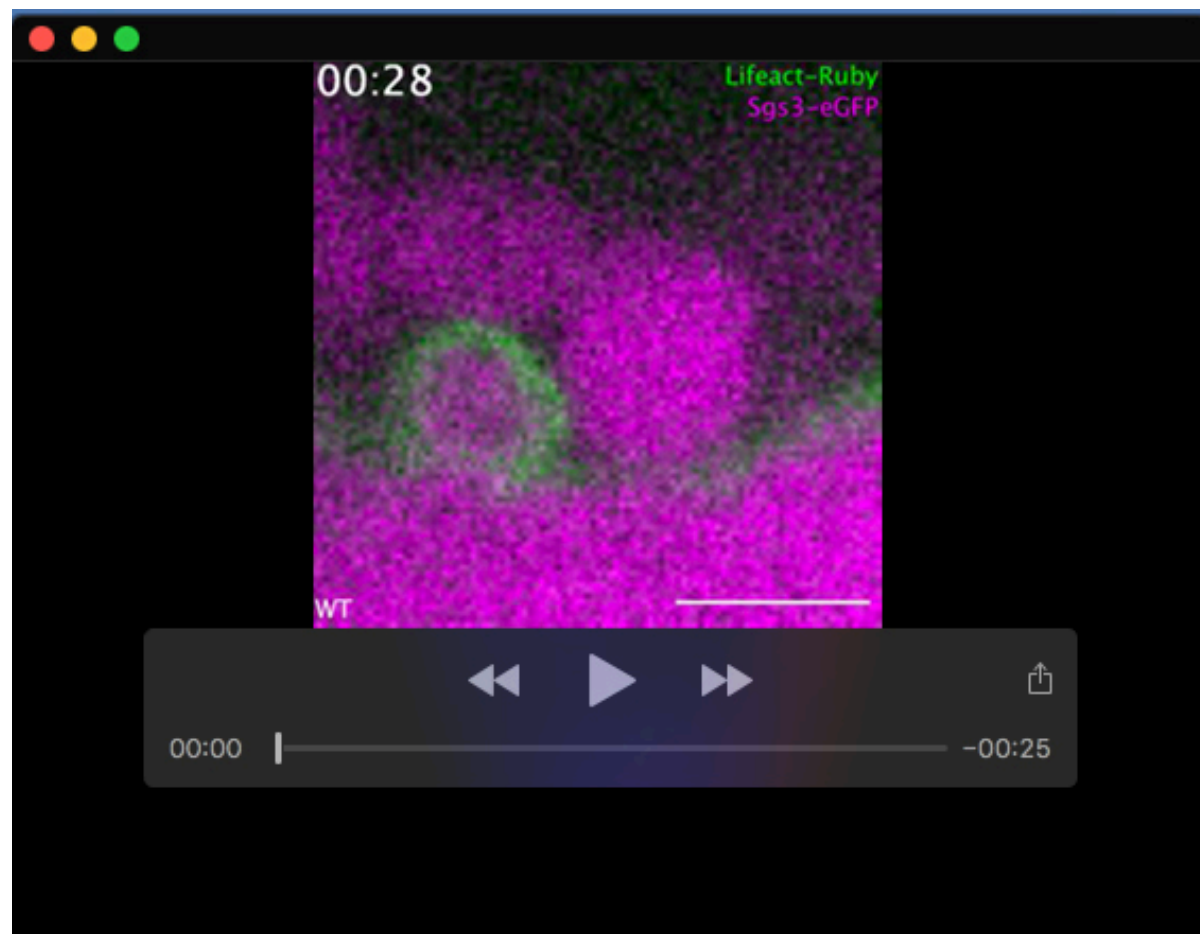
Movie 6. Representative time-lapse movie of *ex-vivo* cultured salivary glands co-expressing UAS-LifeAct-Ruby (green) and UAS-Whamy-eGFP (magenta) under the *ptc*-Gal4 driver. Scale bar 5 μ m.



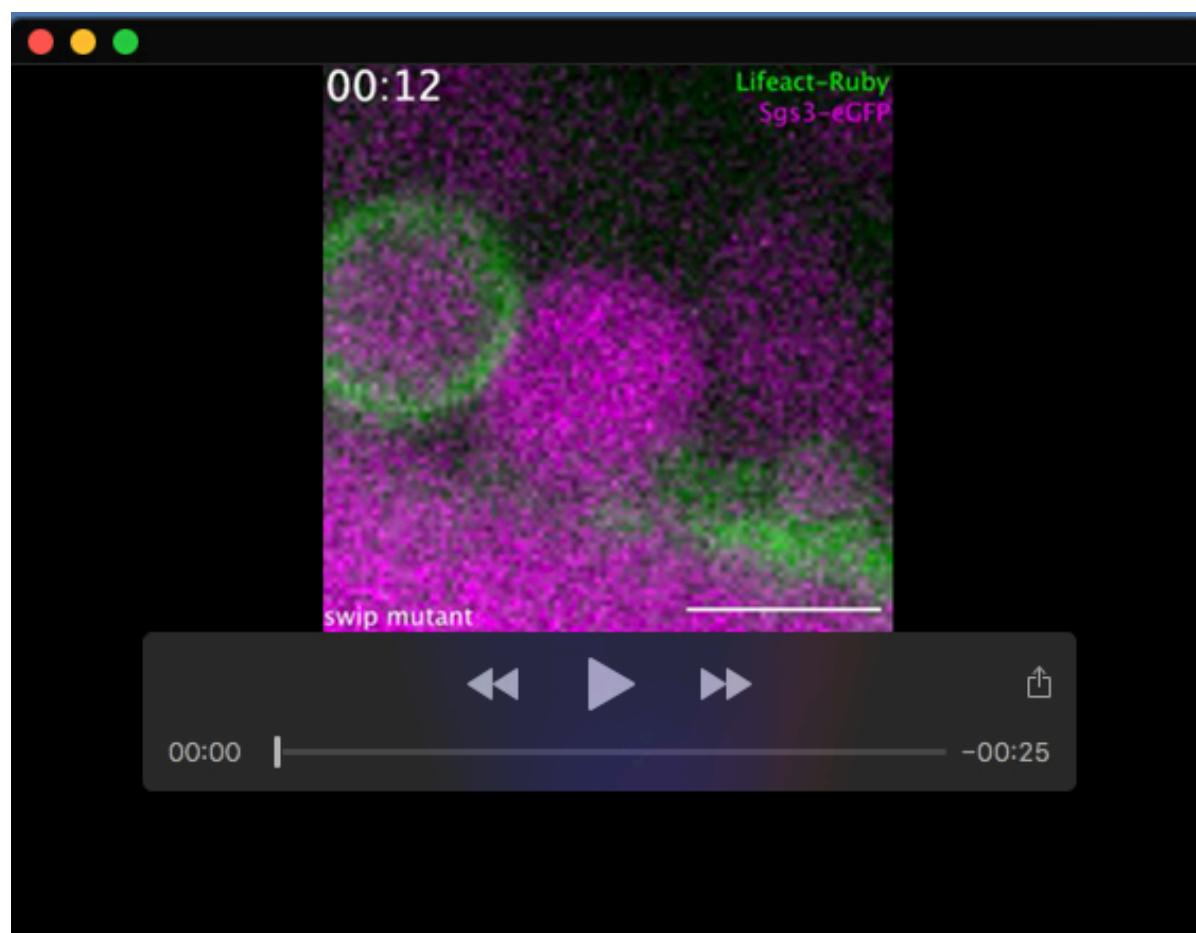
Movie 7. Representative time-lapse movie of *ex-vivo* cultured salivary glands co-expressing UAS-LifeAct-Ruby (green) under the *ptc*-Gal4 driver and zip-GFP (magenta). Scale bar 5µm.



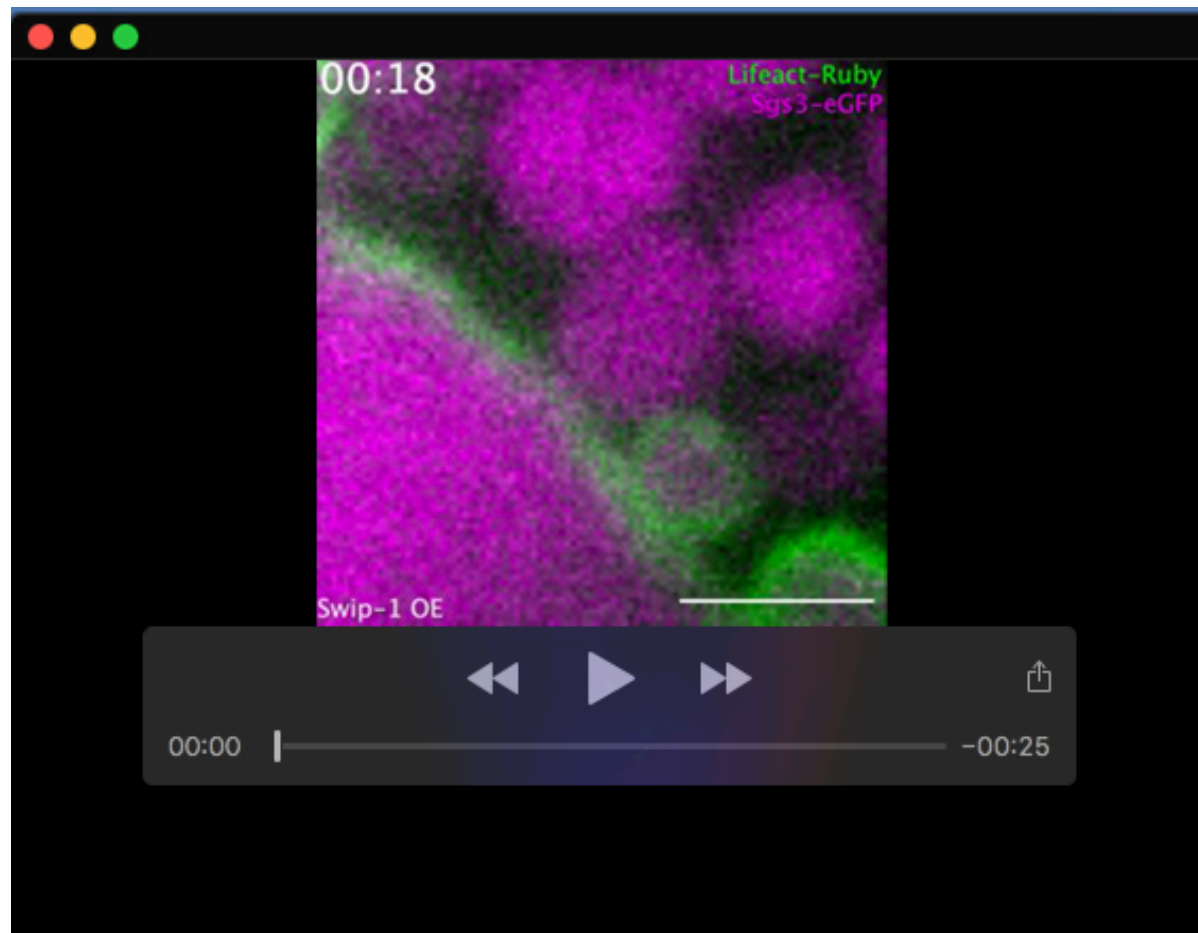
Movie 8. Time-lapse movie of *ex vivo* cultured wildtype (left) and *swip-1* mutant (right) salivary glands infused with A568-dextran (magenta) and expressing LifeAct-eGFP (green) under the *srp*-Gal4 driver. Scale bar 5µm.



Movie 9. Representative time-lapse movie of *ex-vivo* cultured salivary glands co-expressing UAS-LifeAct-Ruby (green) under the *ptc*-Gal4 driver and Sgs3-GFP (magenta) in a wildtype genetic background. Scale bar 5µm



Movie 10. Representative time-lapse movie of *ex-vivo* cultured salivary glands co-expressing UAS-LifeAct-Ruby (green) under the *ptc*-Gal4 driver and Sgs3-GFP (magenta) in a *swip-1* mutant genetic background. Scale bar 5µm.



Movie 11. Representative time-lapse movie of ex-vivo cultured salivary glands co-expressing UAS-LifeAct-Ruby (green) and overexpressing UAS-Swip-1 under the ptc-Gal4 driver and Sgs3-GFP (magenta). Scale bar 5 μ m