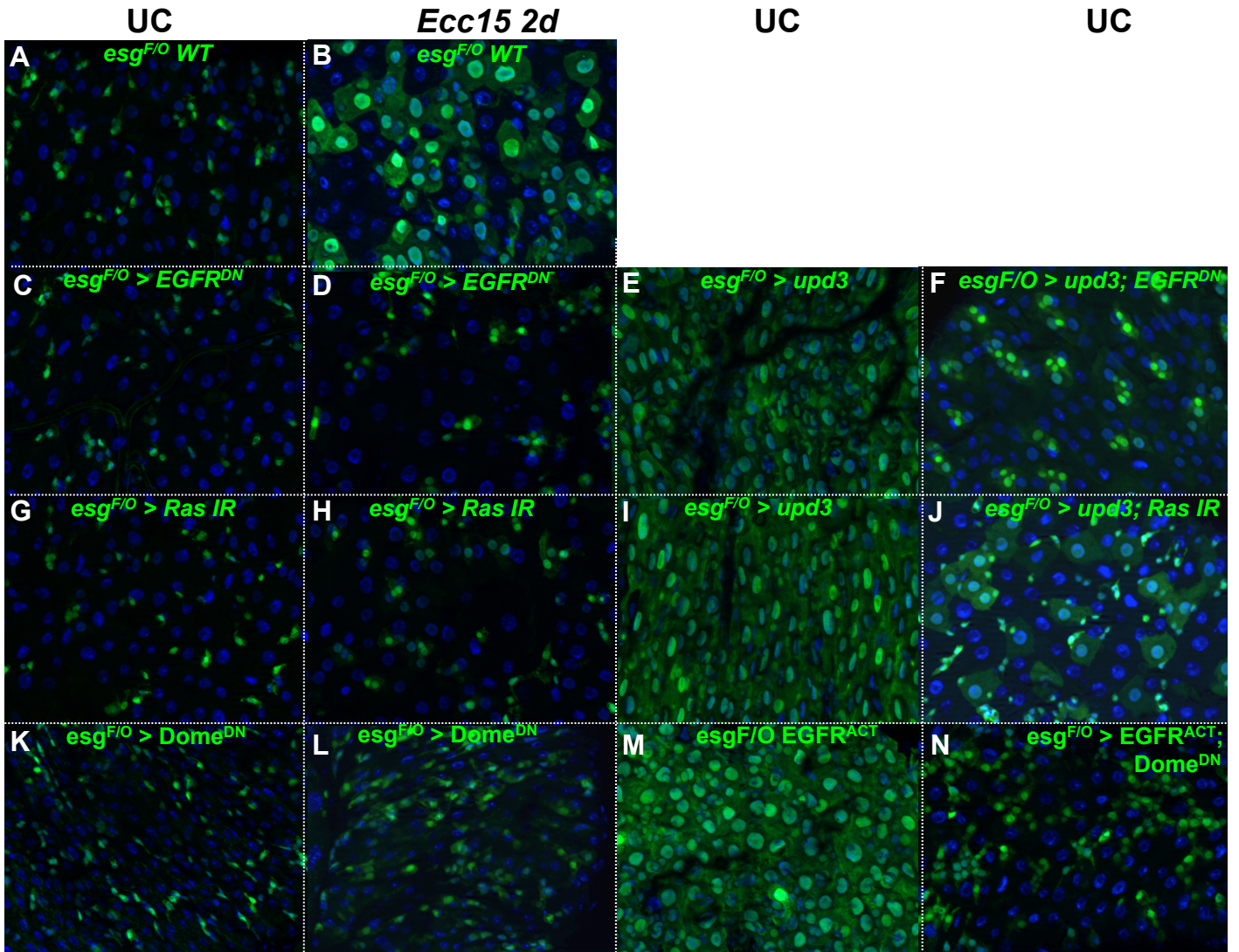




Additional file 10. EGFR and JAK/STAT pathways synergize in ISCs to promote proliferation. Epistasis analysis using the *esg-Flip-Out* system (*esg^{F/O}*, [10]). Flies (*esgGal4^{TS} UAS-FLP tub_{FRT}CD2_{FRT}Gal4 UAS-GFP; UAS-transgene*) were raised at 18°C during their development and switched to 29°C at 3 days of age. This results in the excision of a yellow/stop cassette and the subsequent activation of the *actGal4* driver in all progenitor cells. Progenitor cells and their progeny subsequently express the indicated transgene and are labeled by GFP. The expansion of the GFP labeled compartment is a direct read-out of the rate of epithelium renewal. As reported previously, infection induces a strong increase in the rate of epithelium renewal (**A**, **B**). This increase is not observed when ISCs expressed constructs that reduced EGFR (*UAS-EGFR^{DN}* and *UAS-Ras IR*, **D**, **H**) or JAK/STAT (*UAS-Dome^{DN}*, **L**) signaling. In absence of infection, expression of Upd3 was sufficient to induce high levels of epithelium renewal (**E**, **I**) that were suppressed upon co-expression of inhibitors of the EGFR pathway (*UAS-EGFR^{DN}* and *UAS-Ras IR*, **F**, **J**). Expression of an activated form of EGFR was sufficient to induce high levels of epithelium renewal (**M**) that was suppressed upon co-expression of a dominant negative form of Domeless (**N**). Of note, activation of the EGFR pathway did not rescue the lack of differentiation observed in JAK/STAT deficient clones (**N**). Collectively, these results indicate that both the JAK/STAT and EGFR pathways are required for ISC proliferation, but that the JAK/STAT pathway has a unique role to promote progenitor differentiation.