

Inventory of Supplemental Information

1. Supplemental Figures and legends 1-4.
2. Supplemental Experimental Procedures: Fly strains and animal husbandry; List of genotypes used in the study.

1. Supplemental figures and legends:

Figure S1, related to Figure 1. Mis-expression of Yki induces non-autonomous cell death, a characteristic of cell competition. (A-B) Control (A) and UAS-yki-expressing clones (green) and TUNEL-positive cells (red). **(C)** Quantification of dying cells (marked by TUNEL) outside as described (13) of ActGal4 flip-out clones that express UAS-GFP alone (*Act>GFP*) or clones that express UAS-yki + UAS-GFP (*Act>Yki*) in wing discs.

Figure S2, related to Figure 2. dMyc is regulated by the Hpo pathway, and regulates Hpo target genes in the eye-antennal disc. (A, A') dMyc levels are increased in UAS-yki-expressing clones in the eye-antennal disc (arrow). Cells that express UAS-yki are marked by GFP (green). **(B, B')** *wts* mutant clones upregulate dMyc expression in eye-antennal imaginal discs (arrows). Mutant clones are marked by the absence of β -gal (green). **(C-D)** Eye-antennal imaginal discs with clones expressing UAS-dmyc and immunostained for Yki **(C, C')** and *ex-lacZ* **(D, D')**.

Figure S3, related to Figures 3 and 5. Cross-regulation of dMyc and Yki expression: dMyc is positively regulated by Yki, and in turn, negatively regulates expression of Yki (A-A') A P-element lac-Z insertion, *G0354*, into the promoter region of the *dm* locus is responsive to UAS-yki expression (flip-out Gal4 clones that also express UAS-GFP). **(A'')** Clones are shown by the GFP channel. Arrows indicate small clones at the D/V boundary that do not express dMyc, presumably due to dominant D/V patterning control (Johnston et al, 1999). **(B-B')** Control *G0354-lacZ* disc expressing flip-out clones expressing UAS-GFP alone. **(C)** *yki* mRNA is decreased in cells expressing UAS-dmyc. Q-RT-PCR of wildtype wing disc cells expressing UAS-GFP alone, or UAS-dmyc and UAS-GFP under Act>Gal control. A strong early heat shock

was given to induce expression throughout the disc. The graph shows the average of 2 independent experiments. *dmyc* expression down-regulates *yki* mRNA expression by 30%. Error bars represent standard deviation.

Figure S4, related to Figure 4. Fibrillarlin expression is increased in cells expressing UAS-*dmyc*, but not in cells expressing UAS-*bantam*. (A-D) Fibrillarlin immunostaining in control wing disc flp-out Gal4 clones (**A, A'**), flp-out Gal4 clones over-expressing *dmyc* (**B, B'**), or *bantam* (**C, C'**). Fibrillarlin expression is upregulated in clones expressing *dmyc* (**B'**, arrow), but is unchanged in clones expressing *bantam* alone (**C, C'**).

Figure S5, related to Figure 5. Inhibition of Yki expression is specific to dMyc. (A-A''') Expression of dMyc (A') under Engrailed Gal4 control (shown by GFP channel, A'') significantly downregulates Yki expression in posterior cells (A''', arrow). This effect is specific, as expression of Cyclin D + Cdk4 (**B-B'''**), or Dp110 (**C-C'''**) do not alter Yki expression. (**C'**) The DNA stain is less bright in posterior cells (arrow) due to the Dp110-induced increase in cell size (de la Cova et al 2004).

2. Supplemental Experimental Procedures:

Fly strains and husbandry

Strains in the above list were constructed using mutations and transgenes obtained from the following references: UAS-*yki* (Huang et al., 2005), UAS-*dmyc* (Johnston et al., 1999), UAS-*hpo* (Udan et al., 2003), UAS-*dIAP1*^{SL10A} (gift of K. White), *banEP* (Brennecke et al., 2003), *dm*⁴ (Pierce et al., 2004), *dm*^{PL35} (Bourbon et al., 2002) *dm*^{G0359}, *dm*^{G0354} (Peter et al., 2002), *wts*^{x1} (Xu and Rubin, 1993), *yki*^{B5} (Huang et al., 2005), Tub-*yki* (Dong et al., 2007), *ex-lacZ* (*ex*⁶⁹⁷) (Boedigheimer et al., 1993), *fj-lacZ* (*fj*^{P1}) (Brodsky and Steller, 1996), UAS-*dcr-2* (Dietzl et al., 2007), UAS-*sd*^{RNAi} (Zhang et al., 2008), Sd-GFP (FlyTrap, <http://flytrap.med.yale.edu/>), UAS-*shdmyc*ⁱ²⁹⁴⁷ (VDRC <http://stockcenter.vdrc.at/>), *yw*; +;+ (used as a wildtype strain), EnGal4, DppGal4, UAS-*GFP*. Unless otherwise noted fly strains were obtained from the Bloomington Stock

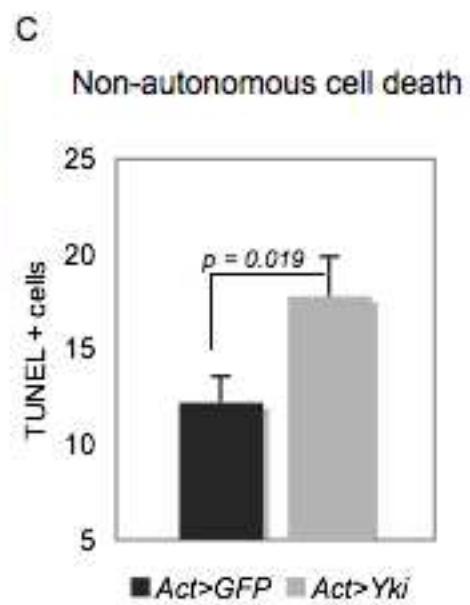
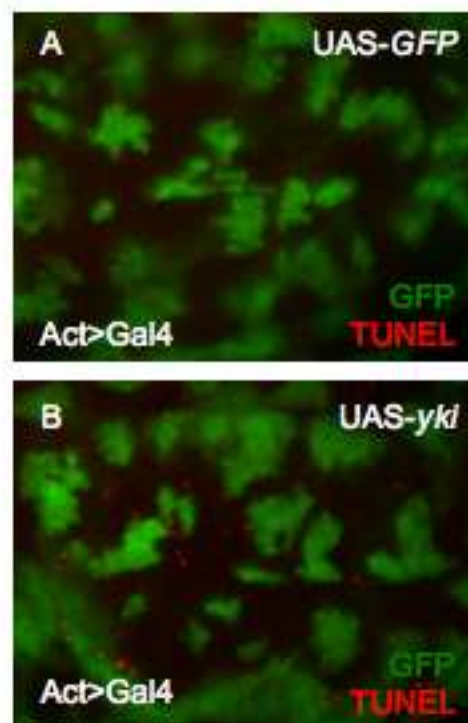
Center (<http://flystocks.bio.indiana.edu/>). Eggs from appropriate crosses were collected on grape plates with fresh live yeast paste for 2 or 3hr. Larvae were staged from egg deposition and after hatching were transferred to and raised in vials (≤ 50 animals/vial) containing freshly yeasted molasses food at 25° C for defined periods of time, as described (de la Cova et al., 2004).

Genotypes used in this study:

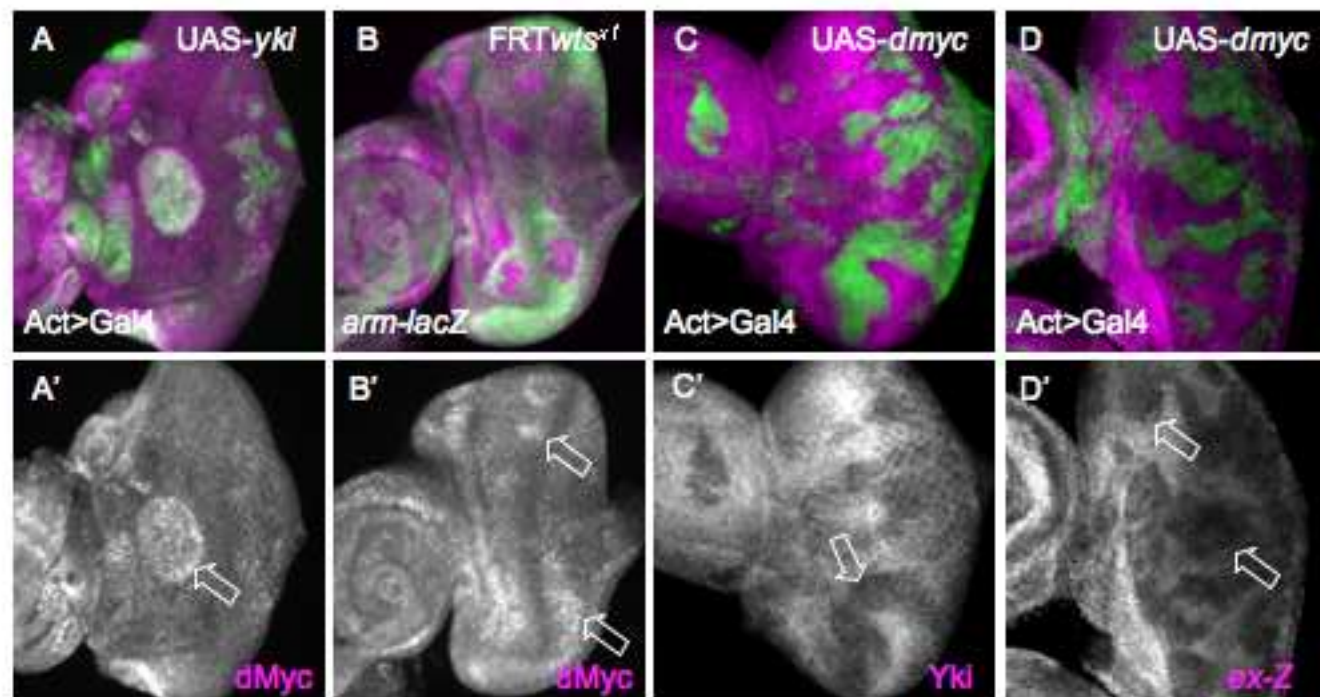
yw hsFLP; +; +
yw hsFLP; +; UAS-*yki*
yw; Act>*y⁺*>Gal4, UAS-*GFP*; +
yw hsFLP; FRT82B *arm-lacZ*
w; FRT82B *wts^{x1}*
yw hsFLP; EnGal4; UAS-*CD8:GFP*
yw hsFLP; UAS-*hpo*; UAS-*P35*
yw hsFLP; +; UAS-*P35*
yw hsFLP; +; DppGal4, UAS-*GFP*
w FRT19A; T80Gal4, UAS-*GFP*
w dm⁴ FRT19A; T80Gal4, UAS-*GFP*
w FRT19A TubGal80 hsFLP; +; +
w FRT19A TubGal80 hsFLP; +; UAS-*yki*
yw hsFLP; *w⁺ 70 ri* FRT2A
yw hsFLP; UAS-*yki*; *w⁺ 70 ri* FRT2A
yw hsFLP TubGal4 UAS-*GFP*; *mwh jv* CD71 TubGal80 FRT2A
yw hsFLP; FRT42D *y⁺*
yw hsFLP; FRT42D *yki^{B5}*
yw hsFLP TubGal4 UAS-*GFP*; FRT42D CD71 TubGal80
yw hsFLP; UAS-*GFP*; UAS-*GFP^{nlS}*
yw hsFLP; UAS-*dcr-2*; UAS-*Sd^{RNAi}*
yw; Act>*y⁺*>Gal4 UAS-*GFP*; UAS-*yki*
dm^{G0359}
yw hsFLP; Act>*y⁺*>Gal4 UAS-*GFP*
yw hsFLP; Act>*y⁺*>Gal4 UAS-*GFP*; UAS-*yki*
dm^{PL35}
dm^{PL3}; +; UAS-*yki*
yw; +; +
Sd-*GFP*
yw hsFLP; FRT42D *y⁺*; UAS-*yki*
yw hsFLP; FRT42D *yki^{B5}*; UAS-*yki*
yw hsFLP TubGal4 UAS-*GFP*; FRT42D CD71 TubGal80; UAS-*dmyc*
yw hsFLP; FRT42D *yki^{B5}*; UAS-*DIAP1^{SL10A}*
yw hsFLP; FRT42D *sha*; *banEP*
yw hsFLP; FRT42D *yki^{B5}*; *banEP*
yw hsFLP; FRT42D *sha*; UAS-*dmyc*
yw hsFLP; FRT42D *yki^{B5}*; UAS-*dmyc*
FRT19A; *ry⁵⁰⁶*
w dm⁴ FRT19A

yw hsFLP *arm-lacZ* F19A
yw hsFLP; UAS-*dmyc*^{RNAi2947}
yw hsFLP; +; UAS-*dmyc*
yw hsFLP; FRT42D *yki*^{B5}; Tub-*yki*
w; FRT42D *yki*^{B5} UAS-*dmyc*; Act>CD2>Gal4 UAS-*GFP*
yw hsFLP; *ex-lacZ* (*ex*⁶⁹⁷)
yw hsFLP; +; *DIAP1-lacZ* (*th*^{i5c8})
yw hsFLP; *fj-lacZ* (*fj*^{P1})
w; Act>*y*⁺>Gal4 UAS-*GFP*; UAS-*dmyc*
yw hsFLP; EnGal4; FRT82B *arm-lacZ*
yw hsFLP; UAS-*dmyc*; FRT82B
yw hsFLP; UAS-*dmyc*; FRT82B *wt*^{x1}
yw hsFLP; UAS-*dmyc*^{RNAi2947}; FRT82B *wt*^{x1}

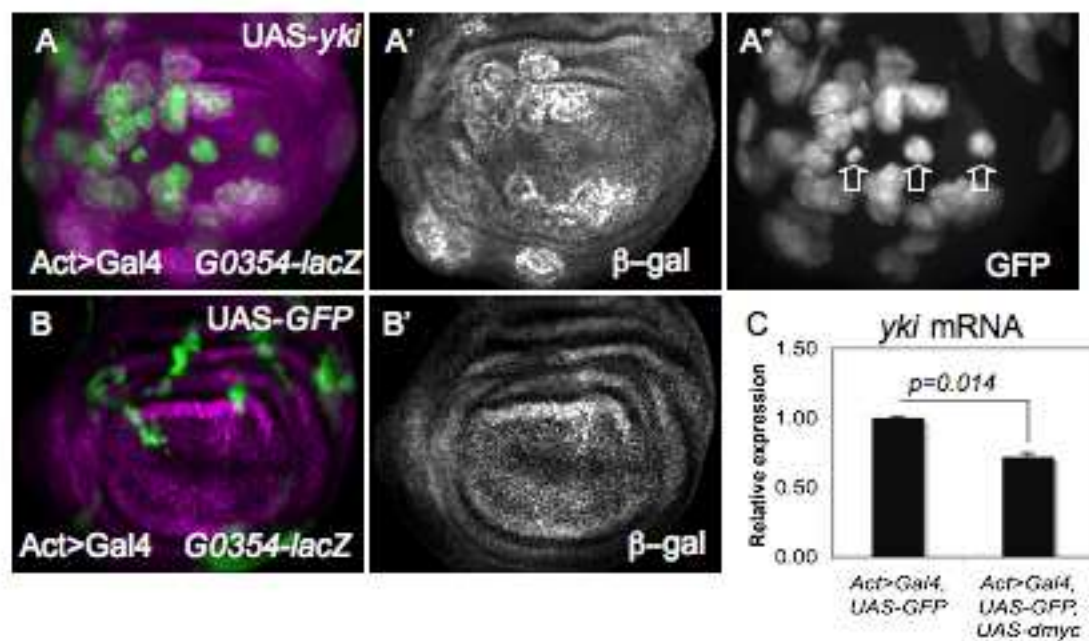
Supplemental Figure 1



Supplemental Figure 2



Supplemental Figure 3



Supplemental Figure 4

