

Fig. S1. Selector genes are segregated within the eye and antenna by 72 hours AEL. (A-F) Confocal images of 72 hour AEL wild-type eye-antennal discs. Detected proteins are listed within the figure. Anterior is to the right.

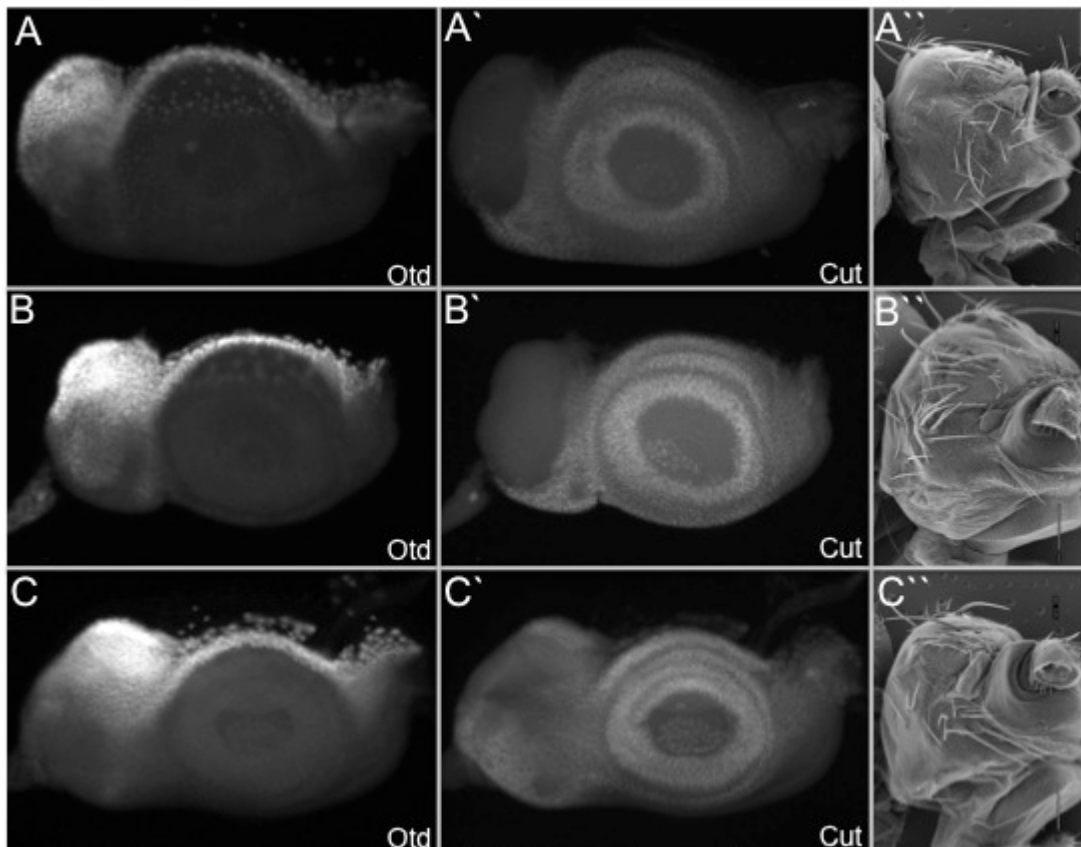


Fig. S2. Variable patterns of adult head cuticle result from non-stereotyped gene expression patterns. (A-C, A'-C') Confocal images of *eya*² mutant third instar eye-antennal discs. Detected proteins are listed within the figure. Note the variability in the expression patterns of both Otd and Cut. Anterior is to the right. (A''-C'') Scanning electron micrographs of adult *eya*² heads. Note the variability in the head cuticle patterns in the adult heads.

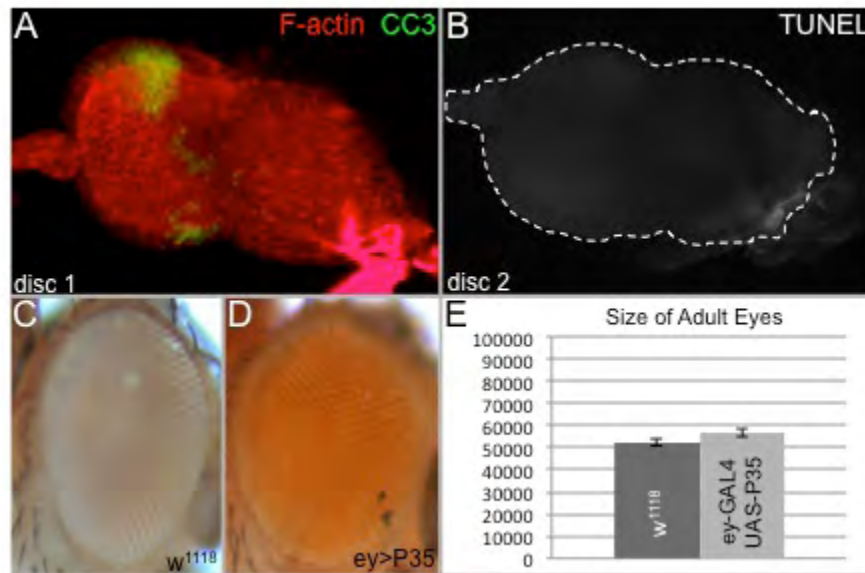


Fig. S3. Expression of p35 reduces cell death in *eya*² discs. (A,B) Confocal images of third instar *eya*² eye-antennal discs. (A) Expression of p35 in the eye field alters the localization of cleaved caspase-3, which is now segregated to the membrane. This is consistent with previous descriptions of p35 activity. (B). Expression of p35 reduces the number of dying cells. In this image, the level of TUNEL staining is dramatically reduced (compare with the level of CC3 staining in Fig. 3G,H). (C,D) Light microscope images of adult wild-type and *ey-GAL4, UAS-P35* eyes. (E) Size comparison of wild-type and *ey-GAL4, UAS-P35* adult eyes (area). Detected proteins are listed within the figure. Anterior is to the right. Error bars represent s.e.m.

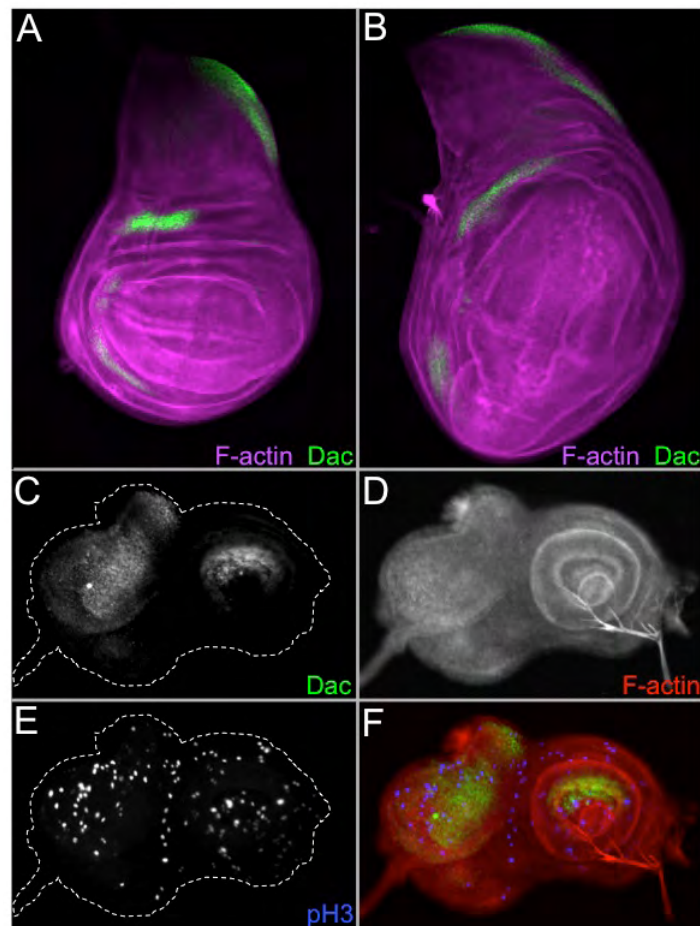


Fig. S4. Notch signaling does not directly activate *dac* expression in the eye and wing disc. (A,B) Confocal images of third instar wing discs. (A) Distribution of Dac protein in wild type. (B) Expression of *N^{icd}* along the A/P axis with *dpp-GAL4* does not activate ectopic *dac* expression. Note the increased size of the wing disc in response to Notch signaling. (C-F) Confocal images of third instar *eya*² eye-antennal discs. Note that several *dac*-positive cells (green) are also pH3 positive (blue), suggesting that at this point in development at least some retinal precursors proliferate in response to Notch signaling. Detected proteins are listed within the figure. Anterior is to the right.

Table S1. P-values for growth studies

Figure	Description	P-value
Fig. 3A	Time point	
	72 hours AEL	0.001
	84 hours AEL	1.99E-39
	96 hours AEL	2.60E-31
	108 hours AEL	9.44E-30
Fig. 3B	Time point comparison	
	72/84 hours AEL	0.0003
	84/96 hours AEL	5.80E-20
	96/108 hours AEL	1.30E-15
Fig. 4C	Time point	
	84 hours AEL	0.0002
	90 hours AEL	2.80E-06
	96 hours AEL	3.69E-15
	102 hours AEL	0.0084
	108 hours AEL	0.07
Fig. 4D	Time point comparison	
	w ¹¹¹⁸ 84 hours /eya ² 90 hours	4.46E-07
	w ¹¹¹⁸ 90 hours /eya ² 96 hours	0.77
	w ¹¹¹⁸ 96 hours /eya ² 102 hours	0.003
	w ¹¹¹⁸ 102 hours /eya ² 108 hours	0.06
Fig. 4E	Asterisk/Genotype comparison	
	* w ¹¹¹⁸ 90 hours /eya ² 96 hours	1.30E-12
Fig. 4F	Asterisk/Genotype comparison	
	* w ¹¹¹⁸ 96 hours /eya ² 96 hours	3.69E-15
Fig. 4G		
	wild type vs eya[2]	0.574
Fig. 6C	Asterisk/Time point	
	96 hours AEL	0.008
Fig. 6D	Asterisk/Time point	
	96 hours AEL	1.03E-18
Fig. 7D	Genotype comparison	
	eya ² /eya ² , UAS-N ^{icd}	1.90E-12

	$eya^2/eya^2, UAS-N^{icd}+p35$	4.45E-16
	$eya^2, UAS-N^{icd}/eya^2, UAS-N^{icd} +p35$	0.07
	$eya^2/eya^2, UAS-hh$	0.08
Fig. 7E	Genotype comparison	
	$w^{1118}/eya^2, UAS-N^{icd}$ 96 hours AEL	1.32E-06
Fig. 7F	Asterisk/Genotype comparison	
	* w^{1118} 90 hours / $eya^2, UAS-N^{icd}$ 96 hours	1.06E-06
	** w^{1118} 90hr/ eya^2 96hr	1.29E-12
	*** eya^2 96 hours / $eya^2, UAS-N^{icd}$ 96 hours	5.04E-17
Fig. 8A	Asterisk/Genotype comparison	
	* $eya^2/eya^2, UAS-N^{icd}$	1.90E-12
	** $eya^2/eya^2, UAS-N^{icd} +p35$	6.80E-12
	$eya^2, UAS-N^{icd}/eya^2, UAS-N^{icd} +p35$	0.34