Gene Name	CG#	Fold change dying salivary glands	Fold change 1h starved	Fold change 4h starved	Fold change 12h starved
draper (Ced-1)	CG2086	2.67	nd	nd	nd
Crk (Ced-2)	CG1587	-4.8	nd	nd	nd
mbc (Ced-5/dock180)	CG10379	21.14	nd	nd	nd
ced-6	CG11804	12.6	nc	1.5	1.8
ced-10 (Rac1)	CG2248	2.07	nd	nd	nd
ced-12 (Elmo)	CG5336	0.14	nc	nc	nc
croquemort (CD36)	CG4280	10.97	nd	nd	nd
rab7	CG5915	2.03	nd	nd	nd
rac2	CG8556	33.63	nd	nd	nd
shark (Syk)	CG18247	1.26	nd	nd	nd
shibire (Dynamin)	CG18102	0.14	nd	nd	nd
simu	CG4820	-2.38	nc	nc	nc
src42a	CG7873	20.01	nd	nd	nd
src64b	CG7524	2.77	nd	nd	nd
btk29a	CG8049	0.83	nd	nd	nd

Supplementary Table 1. Engulfment genes are transcribed in dying salivary glands. Engulfment gene transcripts that are detected in dying *Drosophila* salivary glands, and fold change between 6h and 12h after puparium formation (Lee et al 2003). The majority of these gene transcripts were either not detected (nd) or not changed (nc) in whole larvae in response to starvation for either 1h, 4h, or 12h compared to larvae raised on normal food (Zinke et al, 2002). CG numbers and names of genes are based on Flybase annotation (http://flybase.org/).

Supplementary Figure Legends

Supplementary Fig. 1. Drpr co-localizes with the apical marker Crumbs in 6h salivary gland cells, and becomes partially re-localized in dying 14h salivary gland cells. a. Protein extracts from Control ($drpr^{\Delta 5}$/wild type Canton-S) and homozygous *drpr* null (*w*; $drpr^{\Delta 5}/drpr^{\Delta 5}$) animals at puparium formation were analyzed by western blotting with anti-Drpr and anti-ß-tubulin antibodies. **b,** Salivary glands from wild-type (Canton-S) pupae were stained with anti-Drpr antibody (green) and the apical marker Crumbs (red) at 6h and14h after puparium formation. Nuclei were stained with DAPI (blue). Boxes outline adjacent enlarged areas. Drpr co-localizes with the apical marker crumbs in 6h salivary gland cells prior to cell death. Drpr is re-localized in the cytoplasm of salivary

glands at 14h, with some Drpr appearing to be associated with membranes (arrows). **c,** Salivary glands from animals expressing the membrane-associated mCD8-GFP specifically in salivary glands (*fkh*-GAL4/+; UAS-mCD8-GFP/+) were stained with anti-Drpr antibody (red) and anti-GFP antibody (green) at 6h and14h after puparium formation. Nuclei were stained with DAPI (blue). Boxes outline adjacent enlarged areas. A portion of Drpr is re-localized to the cytoplasm in dying salivary glands while some remains associated with membranes (arrows).

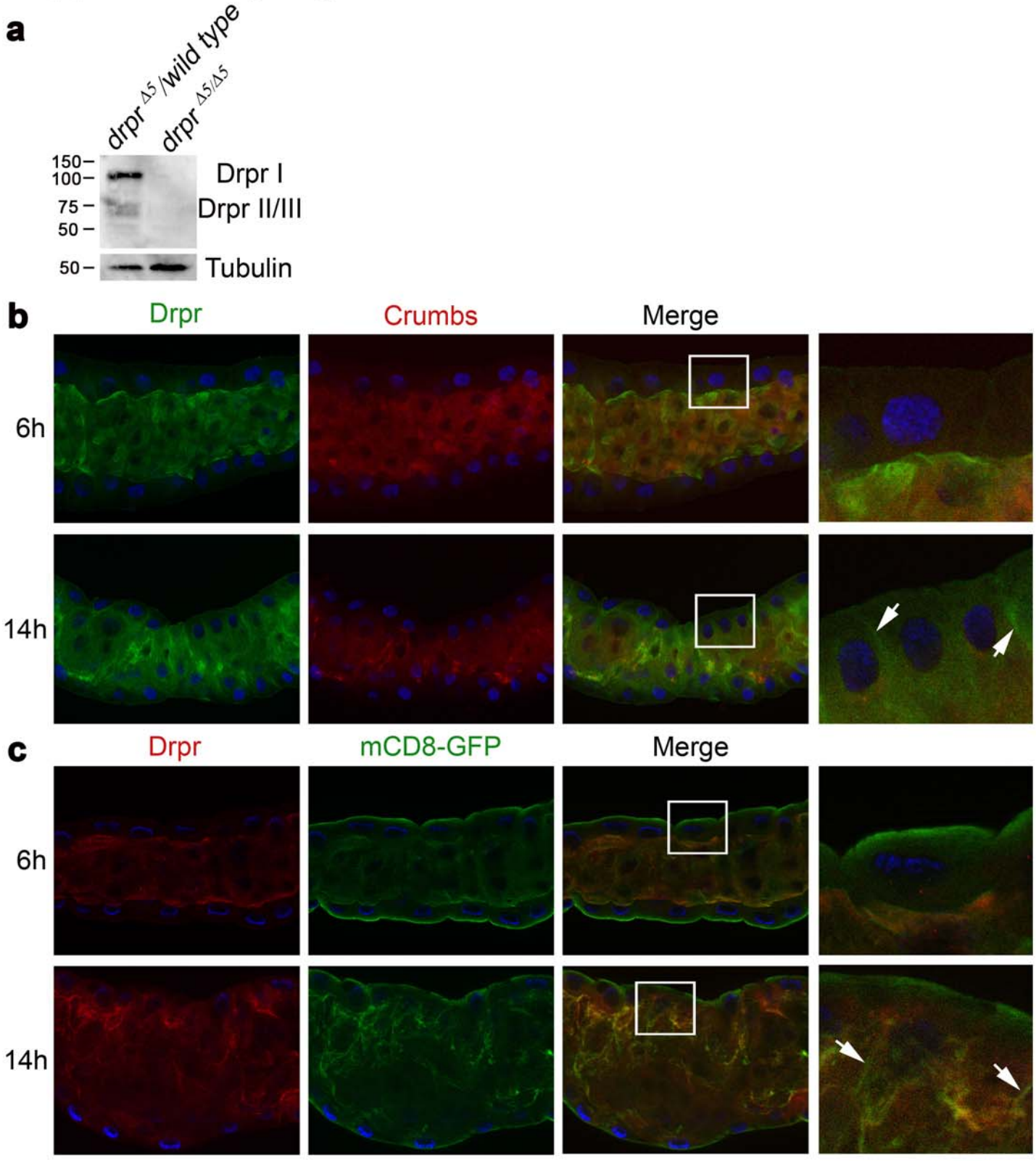
Supplementary Fig. 2. Knockdown of *drpr* in blood cells does not affect salivary gland degradation. a, $drpr^{IR}$ control animals (+/*w*; +/UAS-$drpr^{IR}$), those with blood-cell-specific expression of GFP (+/*w*; *hml*-GAL4, +/UAS-GFP), those with blood cell-specific GFP expression and *drpr* knockdown (*w*/+; *hml*-GAL4, UAS-GFP/UAS-$drpr^{IR}$), and those with salivary gland-specific expression of GFP (*fkh*-GAL4; UAS-GFP) were imaged for GFP as white pre-pupae to illustrate the specificity of the GAL4 drivers. **b,** 10% of $drpr^{IR}$ control animals (+/*w*; +/UAS-$drpr^{IR}$), n=10, 20% of GAL4 control animals (+/*w*; +/*hml*-GAL4, UAS-GFP), n=10 and 20% of those with blood cell-specific knockdown of *drpr* (*w*; *hml*-GAL4, UAS-GFP/UAS-$drpr^{IR}$), n=20, possess salivary gland material (red circles) as analyzed by histology 24 hours after puparium formation. **c,** quantification of data from **b**.

Supplementary Fig. 3. Engulfment genes are required for salivary gland cell clearance. a, 20% of control animals (+/$simu^2$, n=10) and 90% of *simu* homozygous mutants ($simu^2/simu^2$, n=21) possess salivary gland material (red circles) as analyzed by histology 24 hours after puparium formation. **b,** quantification of data from **a. c,** 11% of control animals (+/UAS-crq^{IR}, n=9) and 65% of those with salivary gland-specific knockdown of *crq* (*fkh*-GAL4/*w*; UAS-crq^{IR}/+, n=20), possess salivary gland material (red circles) as analyzed by histology 24 hours after puparium formation. **d,** quantification of data from **c. e,** 30% of control animals (+/*ced*-6^{J26}, n=10) and 63% of *ced-6* mutants (*ced*-6^{J26} /Df(2R)w73-1, n=16) possess salivary gland material (red circles) as analyzed by histology 24 hours after puparium formation. **f,** quantification of data from **e. g,** 10% of control animals (+/*w*; +/UAS-$src42a^{IR}$, n=8) and 83% of those with salivary gland-specific knockdown of *src42a* (*fkh*-GAL4/*w*; UAS-$src42a^{IR}$/+, n=18) possess salivary gland material (red circles) as analyzed by histology 24 hours after puparium

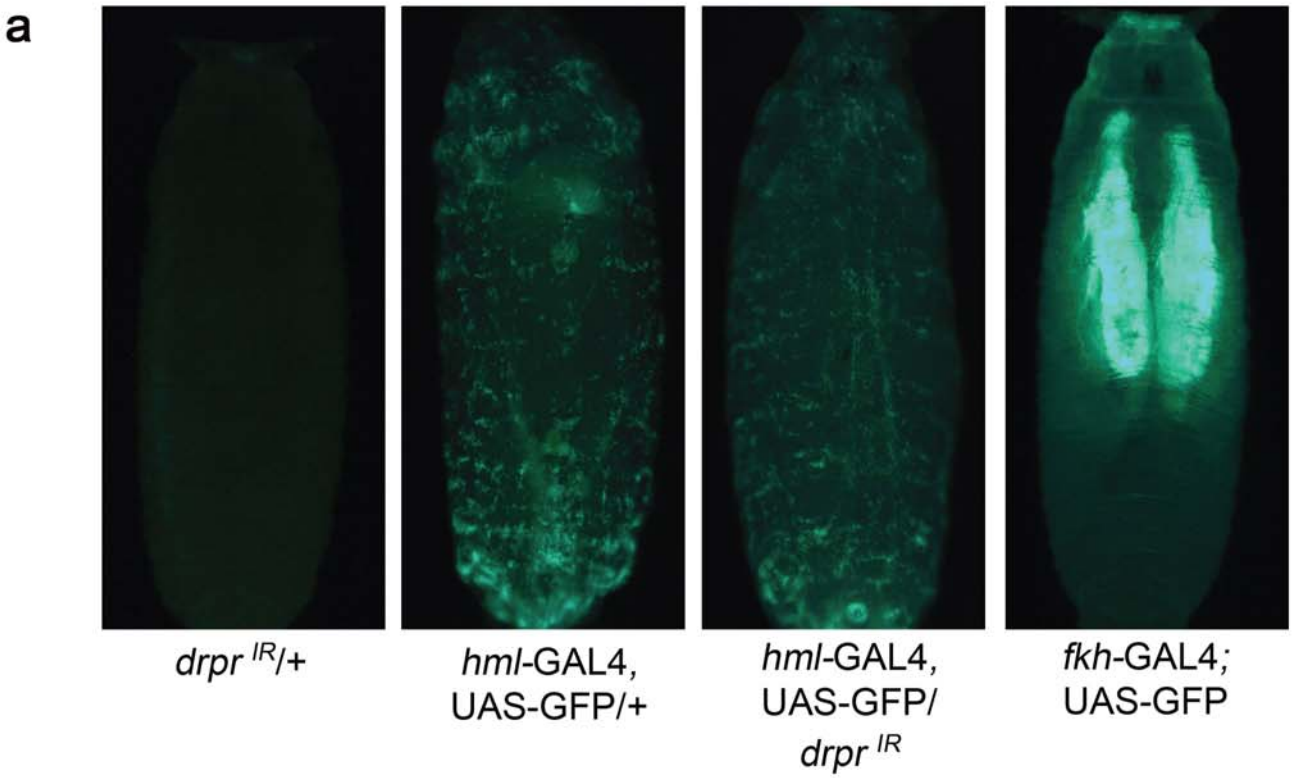
formation. **h,** quantification of data from **g. i,** 10% of control animals (+/UAS-*ced-12* ^{IR}, n=10) and 42% of those with salivary gland-specific knockdown of *ced-12* (*fkh*-GAL4/*w*; UAS-*ced-12* ^{IR}/+, n=19) possess salivary gland material (red circles) as analyzed by histology 24 hours after puparium formation. **j,** quantification of data from **i. k,** 10% of control animals (+/UAS-*crk* ^{IR}, n=10) and 43% of those with salivary gland-specific knockdown of *crk* (*fkh*-GAL4/*w*; UAS-*crk* ^{IR}/+, n=14) possess salivary gland material (red circles) as analyzed by histology 24 hours after puparium formation. **l,** quantification of data from **k. m,** 22% of control animals (+/UAS-*mbc*^{IR}, n=9) and 82% of those with salivary gland-specific knockdown of *mbc* (*fkh*-GAL4/*w*; UAS-*mbc* ^{IR}/+, n=17) possess salivary gland material (red circles) as analyzed by histology 24 hours after puparium formation. **n,** quantification of data from **m.** Note that expression of *shark*^{IR} in salivary glands did not inhibit degradation of this tissue (data not shown). In addition, we were not able to obtain homozygous *shark* mutants because they die prior to the stage needed for analyses of salivary gland phenotypes.

Supplementary Fig. 4. Starvation-induced autophagy is not inhibited in *drpr*$^{\Delta 5}$/*drpr*$^{\Delta 5}$ mutant clone cells in the larval fatbody. Third instar larvae expressing Cherry-Atg8a in all fatbody cells, and lacking GFP specifically in *drpr*$^{\Delta 5}$ mutant loss of function clone cells (*hs*FLP/*w*; UAS-pCherry-Atg8a/*CG*-GAL4; UbiGFPnls, FRT2a/FRT2a *drpr* $^{\Delta 5}$) were starved 4h. Larval fatbodies were dissected and imaged for Cherry-Atg8 (Red), and GFP (Green). Nuclei were stained with Höescht (blue). Homozygous *drpr*$^{\Delta 5}$ mutant clone cells (non-GFP, outlined in white, -/-) as well as non-mutant neighboring cells (GFP-marked, +/-) possess Cherry-Atg8 puncta, indicating that autophagy is not inhibited in response to starvation in *drpr*$^{\Delta 5}$/*drpr*$^{\Delta 5}$ mutant clone cells in the larval fatbody.

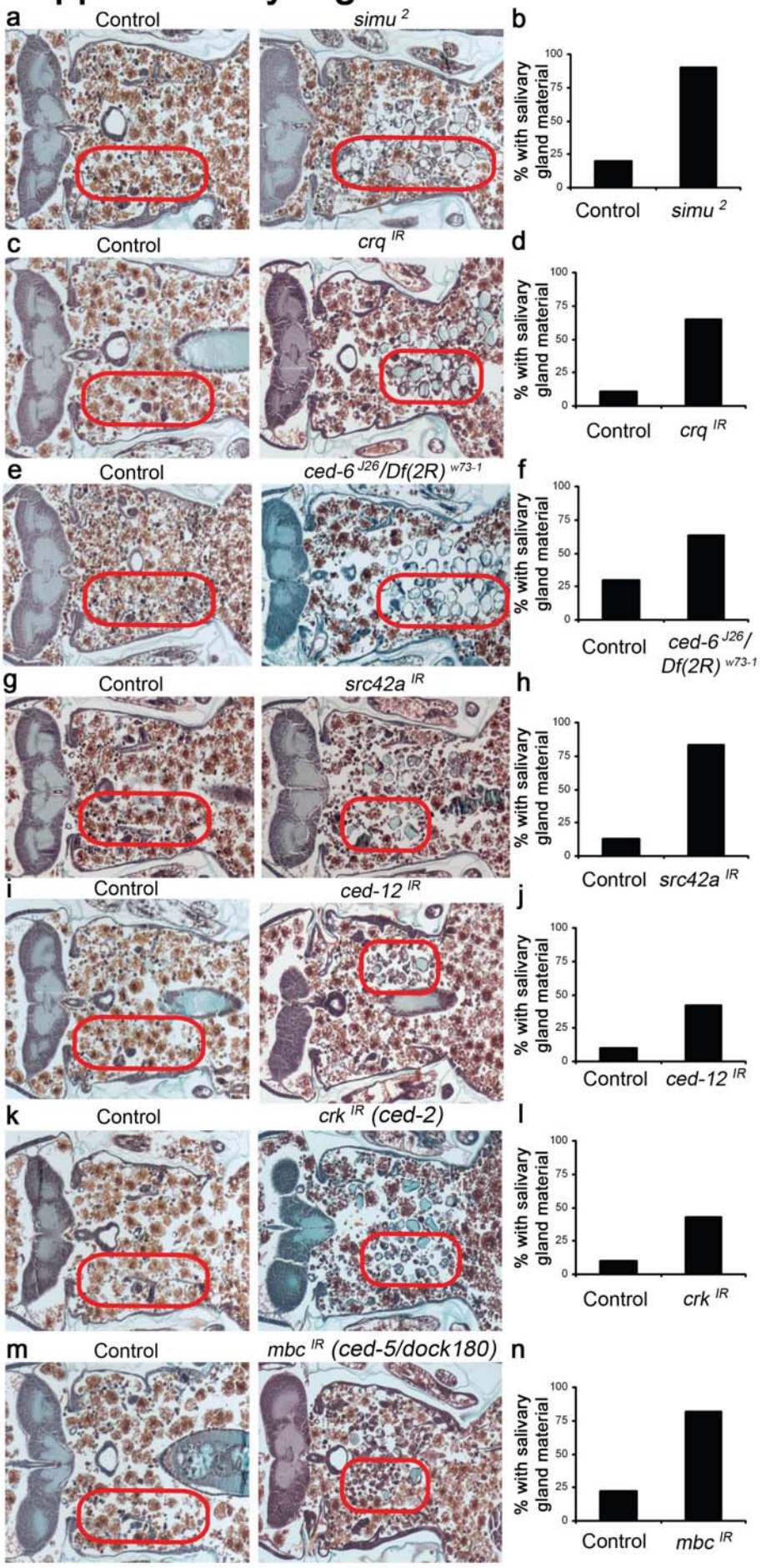
Supplementary Fig. 1



Supplementary Fig. 2



Supplementary Fig. 3



Supplementary Fig. 4