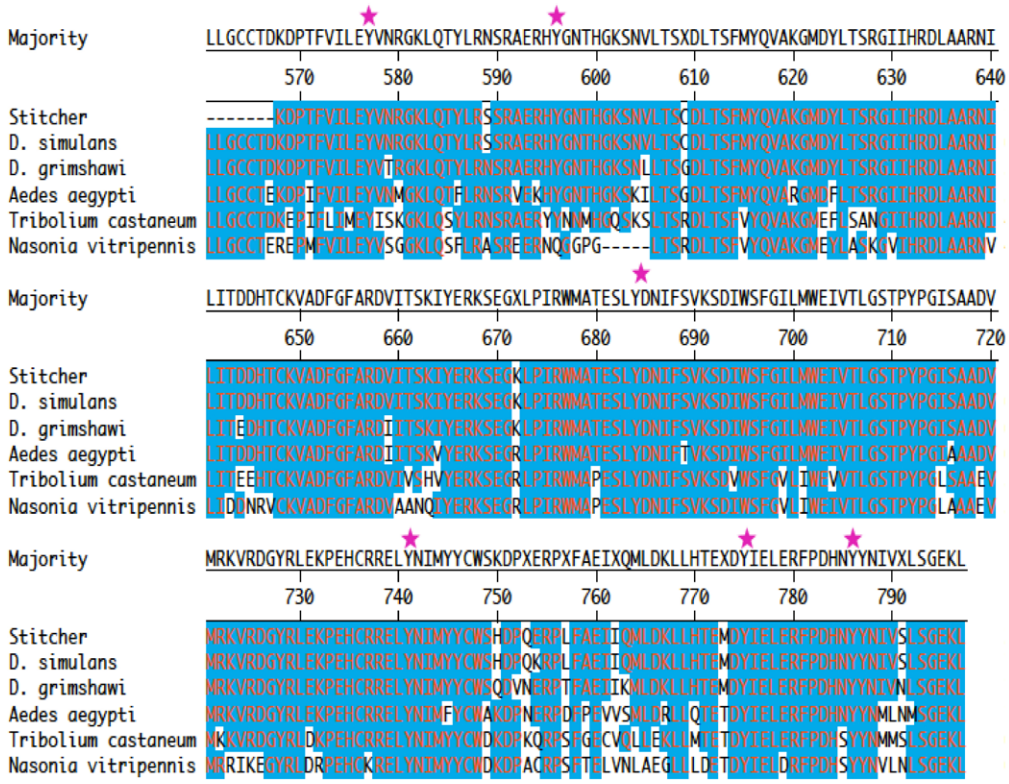
A



B

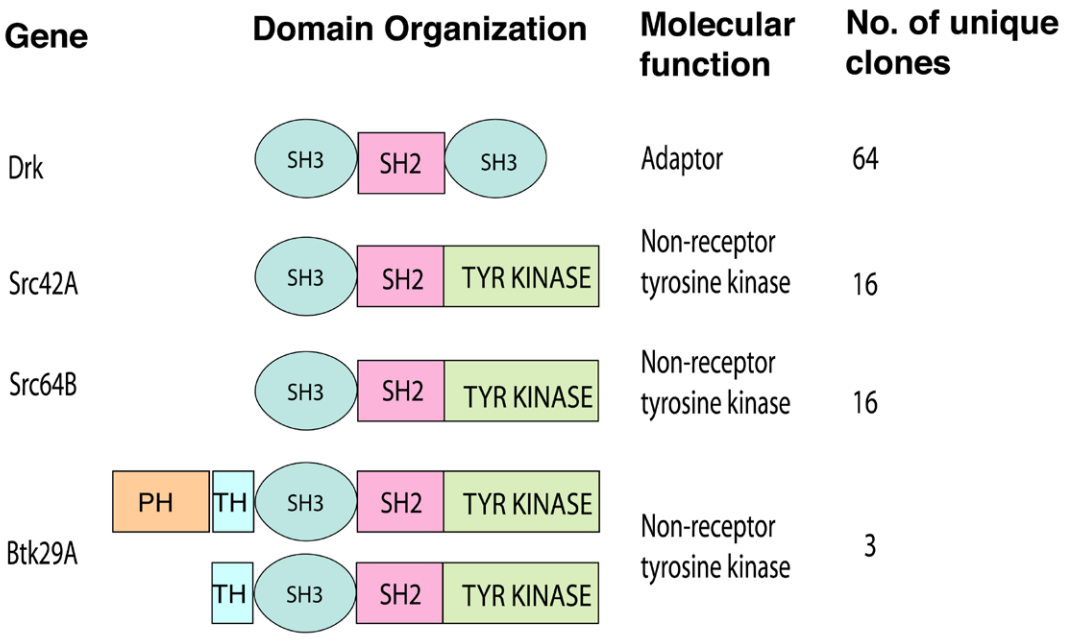


Fig. S1. Stit conservation across phylogeny. (A) Multiple alignment of intracellular domains of Stitcher identifying conserved tyrosines. Tyrosines targeted for analysis have been marked with a red asterisk. Significant conservation is observed from other insects up to higher vertebrates. (B) A schematic illustration of the Yeast two-hybrid screen results, depicting the domain organization of each interacting partner and the positive number of clones.

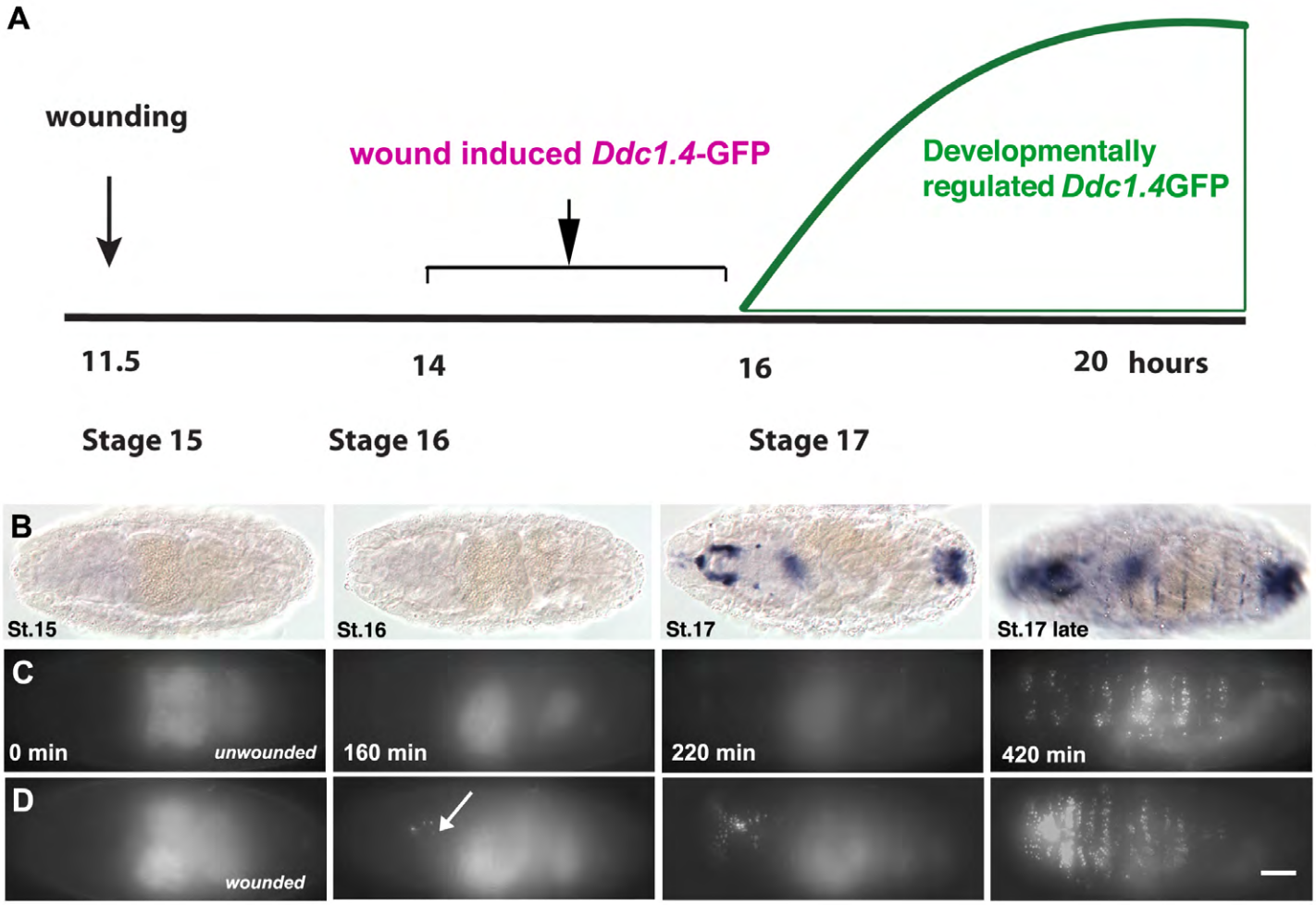


Fig. S2. Induction of *Ddc1.4*-GFP reporter during embryonic development. (A) Graphical illustration of the developmental *Ddc1.4*-GFP induction in wild-type embryos. Developmental *Ddc1.4*-GFP induction occurs at stage 17. In order to avoid the interference of the developmental activation of *Ddc1.4*-GFP reporter, we performed wounding at 11.5 hours of embryonic development (stage 15) and we assessed wound induced *Ddc1.4*-GFP at 14–16 hours of embryonic development (stage 16) before *Ddc1.4*-GFP induced developmentally. (B). *In situ* hybridization with an antisense *Ddc* probe in wild-type unwounded embryos. *Ddc* transcript is accumulated at late stage 17. (C,D) Projections of time-lapse images showing *Ddc1.4*-GFP induction in an unwounded (C) and a wounded wild-type embryo (D) expressing the *Ddc1.4*-GFP reporter. Arrow indicates the site of wounding. Embryos were imaged in parallel and recording times are indicated. Scale bar, 50 μm.

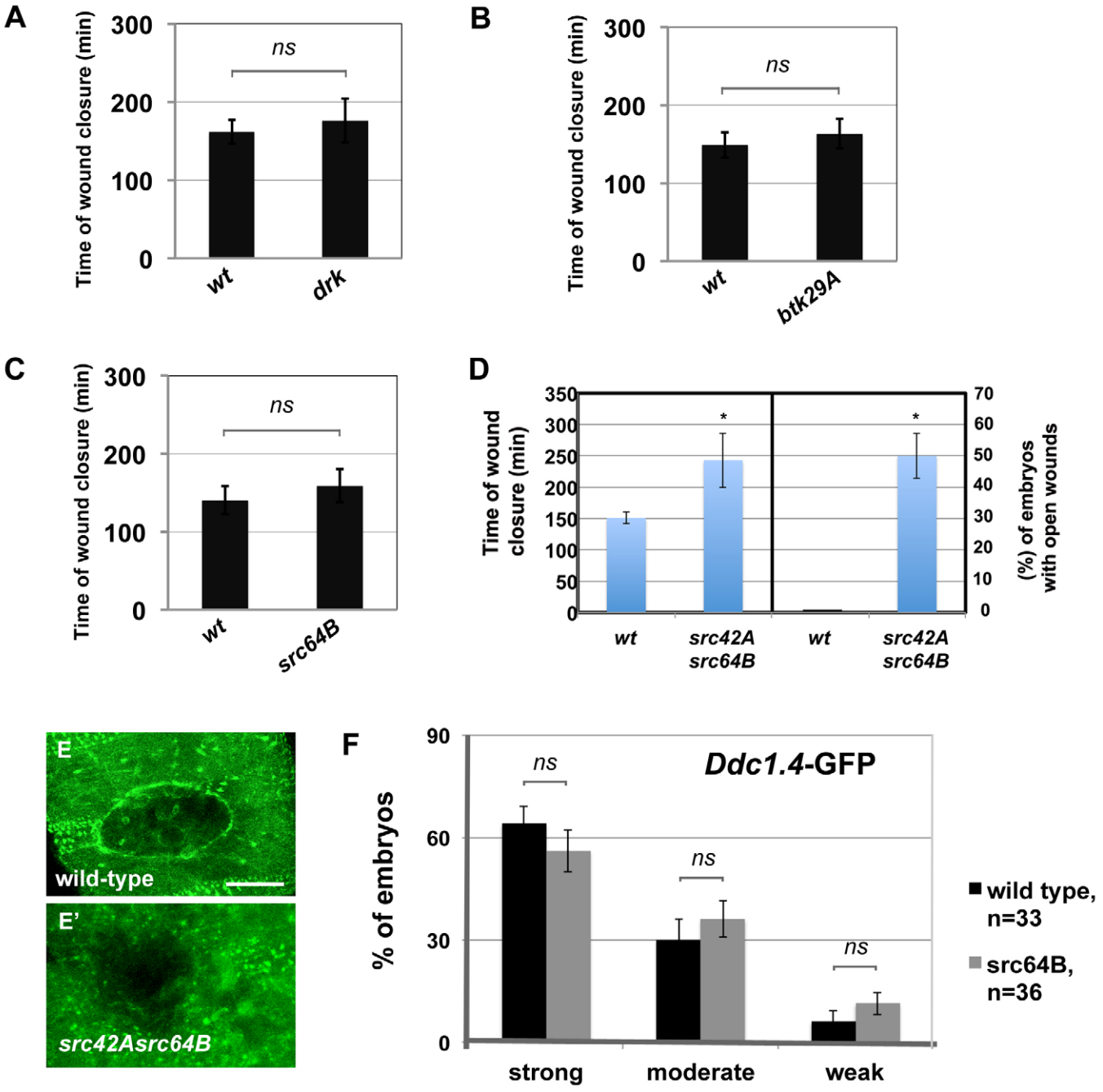


Fig. S3. Re-epithelialization after wounding in *drk*, *src42Asrc64B*, *btk29A* and *src64B* mutant embryos. Wound induction of *Ddc1.4*-GFP reporter in *src64B* mutants. (A-D) Bar graphs showing the average time of wound closure in wounded *drk* (A), *btk29A* (B), *src64B* (C) and *src42Asrc64B* (D) mutant embryos expressing *sqh*-GFPmoe. Single *drk* (*n=13*), *btk29A* (*n=18*) and *src64B* (*n=20*) mutants showed no differences in the average time of wound closure as compared to the control (wild-types). *src42Asrc64B* (*n=14*) double mutant showed a significant delay in re-epithelialization after wounding and only 50% of the embryos closed their wounds (D). *ns* and * denote, $P>0.05$ and $P<0.001$ respectively. E-E′. Confocal projections of epidermal wounds in a wild-type (E) and a *src42Asrc64B* (E′) mutant embryo expressing *sqh*-GFPmoe. The actin cable around the wound edge is absent in the double *src42Asrc64B* mutant. Scale bar, 20 µm. (F) Quantification of the *Ddc1.4*-GFP reporter induction in wounded control (*n=33*) and *src64B* (*n=36*) mutant embryos. *Ddc1.4*-GFP expression classified as strong, moderate and weak based on the extent of GFP signals at the wounding site. The *y*-axis shows the percentage (%) of embryos that show the phenotype. The mean (±s.e.m) of three independent experiments is shown. *ns* denotes, $P>0.05$.

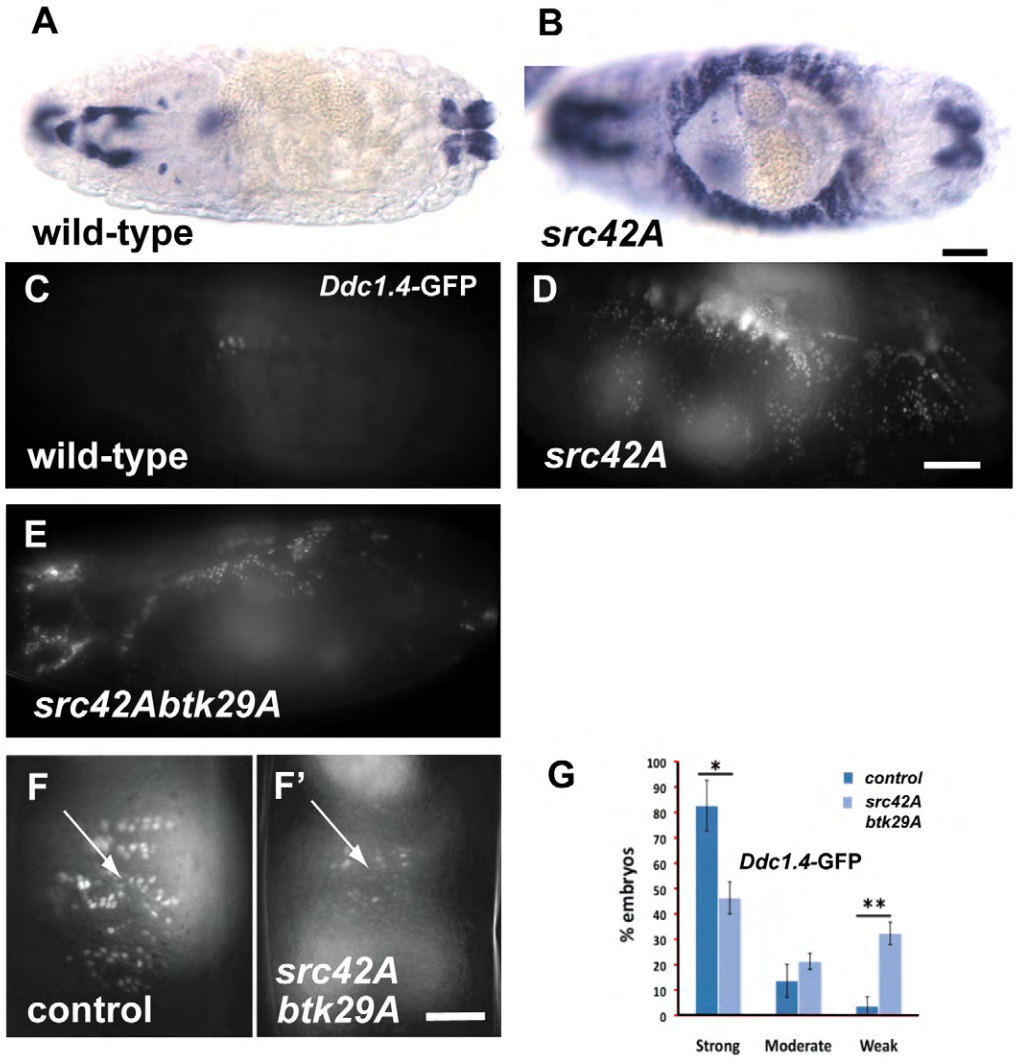


Fig. S4. Developmental induction of *Ddc* in *src42A* and *src42Abtk29A* mutant embryos. Src42A is required for wound reporter activation upon injury. (A–B) *In situ* hybridization with an antisense *Ddc* probe in wild-type (A) and *src42A* (B) unwounded embryos at late stage 16. *src42A* mutant embryos show dorsal closure phenotype and a predominant *Ddc* expression in the dorsal hole region (B). (C-E) Images from time-lapse recordings showing an unwounded wild-type (C), src42A (D) and a *src42Abtk29A* mutant (D) embryo expressing the *Ddc1.4*-GFP reporter. *src42A* and *src42Abtk29A* mutant embryos show strong *Ddc1.4*-GFP expression in dorsal epidermis. (F-F′) *Ddc1.4*-GFP reporter induction after wounding is reduced in *src42Abtk29A* (F′) double mutants, as compared to control embryos (wild-type, *Ddc1.4*-GFP) (F). Induction was imaged 3 hours post-wounding. Arrows mark the wound entry site. (G) Quantification of *Ddc1.4*-GFP reporter induction in wounded control (wild-type, *n=86*) and in *src42Abtk29A* double mutants (*n=86*). *Ddc1.4*-GFP induction classified as strong, moderate and weak based on the extent of GFP signal at the wounds. The *y*-axis shows percentage of wounded embryos that show each phenotypic category. The mean of three independent experiments (±s.e.m) is shown. * and ** denote $P<0.05$ and $P<0.01$ respectively. Scale bars, 50 µm

Supplementary Movie 1. Time-lapse movie showing the *Ddc1.4*-GFP reporter induction in an unwounded wild-type embryo. Selected frames from the movie are presented in Fig. S1C

Supplementary Movie 2. Time-lapse movie showing the *Ddc1.4*-GFP induction in a wild-type embryo after wounding. Recording started immediately after embryo wounding. Selected frames from the movie are presented in Fig. S1D

Supplementary Movie 3. Confocal time-lapse movie showing epidermal wound re-epithelialization in a wild-type embryo expressing *sqh*-GFP moe. Wound closure takes 90 minutes.

Supplementary Movie 4. Confocal time-lapse movie showing epidermal wound re-epithelialization in a *src42Abtk29A* mutant embryo expressing *sqh*-GFP moe. The actin-cable around the wound is weak, discontinues and the wound remains open for at least 300 min after wounding.