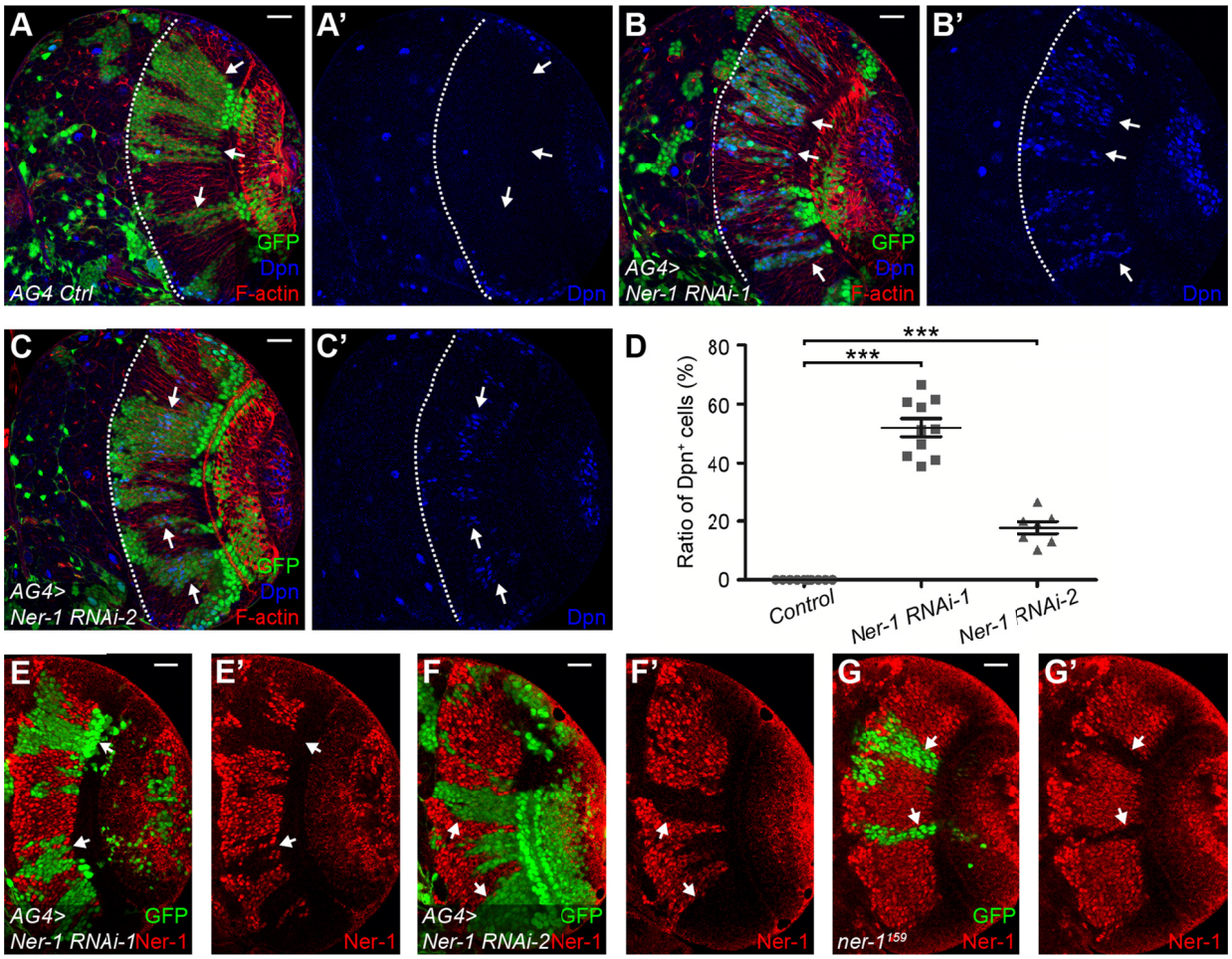

Figure. S1. Nerfin-1 knockdown results in ectopic NBs in medulla cortex.

(A-C') Knockdown of Nerfin-1 induces ectopic Dpn^{+} cells. Arrows show the clones. Dashed lines represent the boundary between central brain and the optic lobe. (D) Quantification of the ratio of Dpn^{+} cells in clones from A-C (n=10,10,7, respectively). Data are mean±s.e.m.; ***P<0.001. (E-G') Confirmation of the efficiency of Nerfin-1 RNAi lines (E-F') or *nerfin-1*^{159} fly (G,G'). Arrows show the clones. Clones are all labeled by GFP. Scale bars: 20 μm.

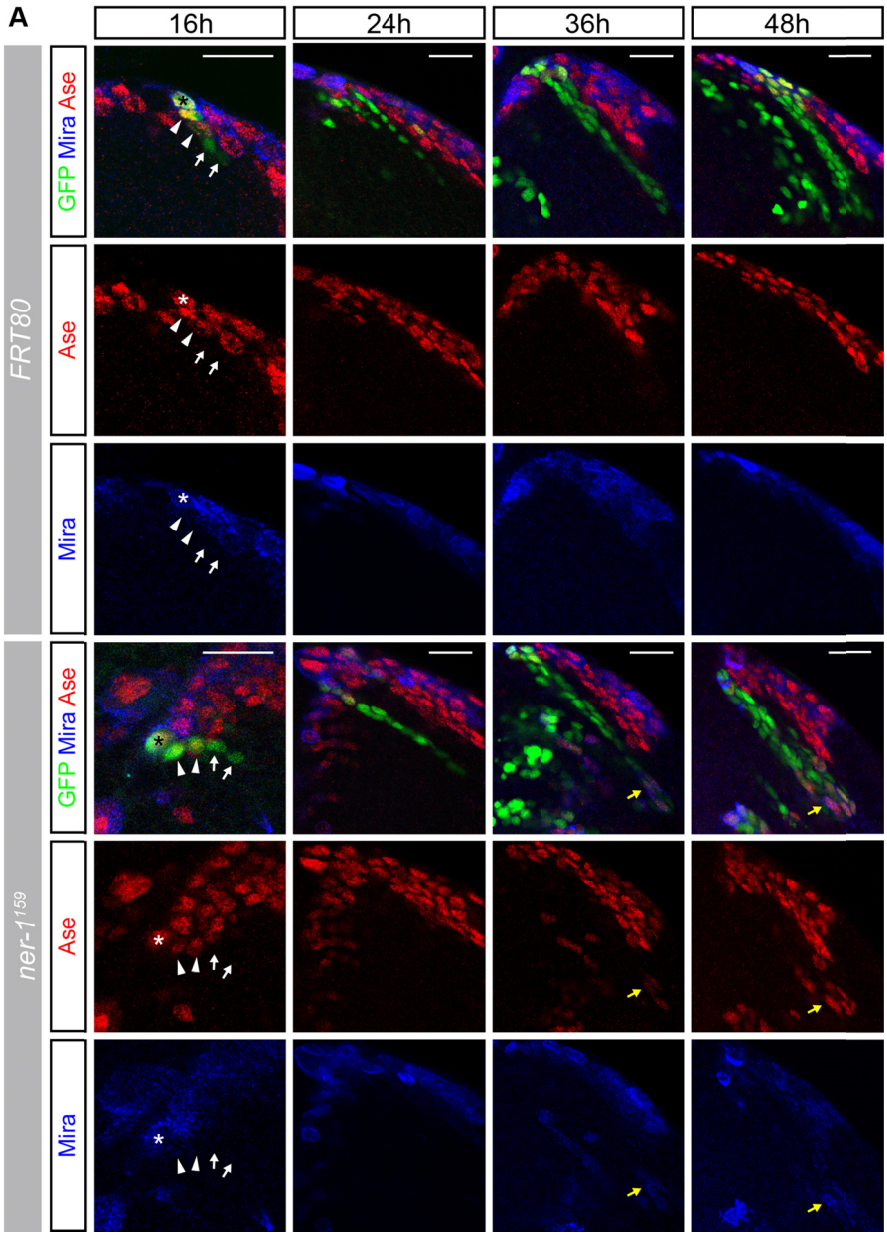

Figure. S2. Nerfin-1 loss leads to ectopic expression of Mira and Ase.

(A) Time-course experiment showing Mira and Ase staining. Representative NB lineages labeled by GFP are shown. Asterisk, arrowhead and arrow indicate NB, GMC and neuron, respectively, in clones of 16 h old. Yellow arrows show ectopic expression of Mira and Ase in *nerfin-1*^{159} clones. Scale bars: 20 μm.

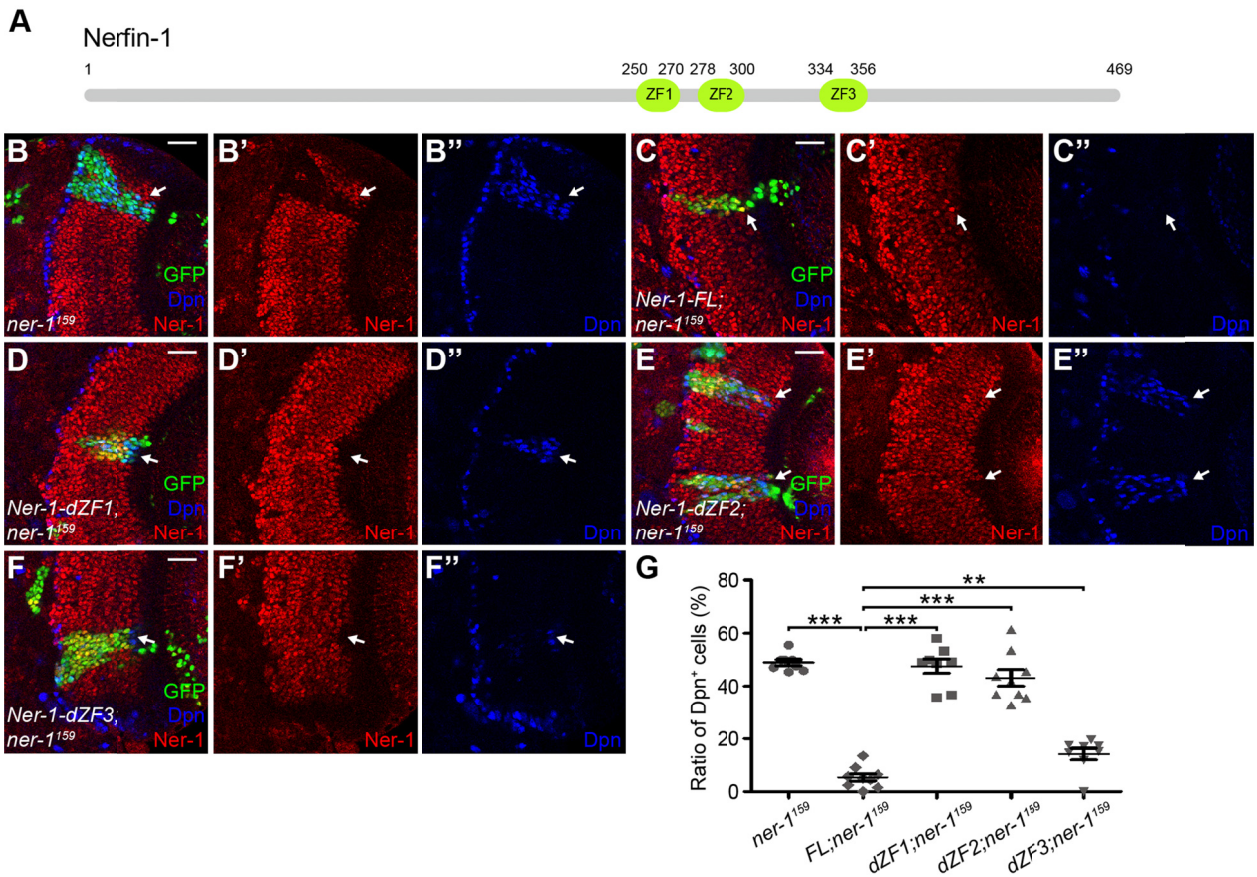

Figure. S3. All three zinc fingers contribute to Nerfin-1 function.

(A) Schematic representation of Nerfin-1. Three zinc finger domains are shown. (B-F'') Misexpression of Nerfin-1 full-length mostly rescues the dedifferentiation, while Nerfin-1 truncations do not. All transgenic Nerfin-1 proteins are expressed normally (C',D',E',F'). Arrows indicate the clones. (G) Quantification of the ratio of Dpn^+ cells in clones from B-F (n=8,9,8,9,8, respectively). Data are mean±s.e.m.; $^{**}P<0.01$; $^{***}P<0.001$. Scale bars: 20 μm.

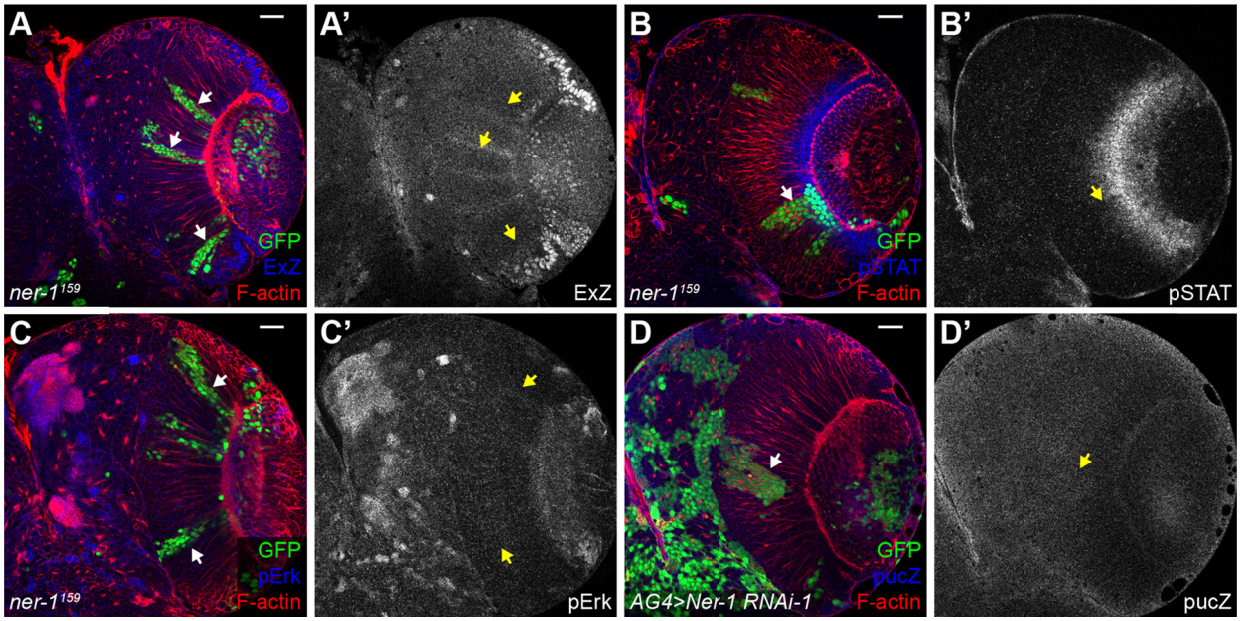

Figure. S4. Nerfin-1 loss-of-function does not affect the activity of Hippo, JAK/STAT, EGFR or JNK signaling pathways.

(A-D') Expression level of Ex-lacZ (A,A'), pSTAT (B,B'), pErk (C,C') or puc-lacZ (D,D') is used to represent the activity of Hippo, JAK/STAT, EGFR and JNK signaling, respectively. None of them is obviously altered when Nerfin-1 is depleted. Arrows show the clones. Scale bars: 20 μm.

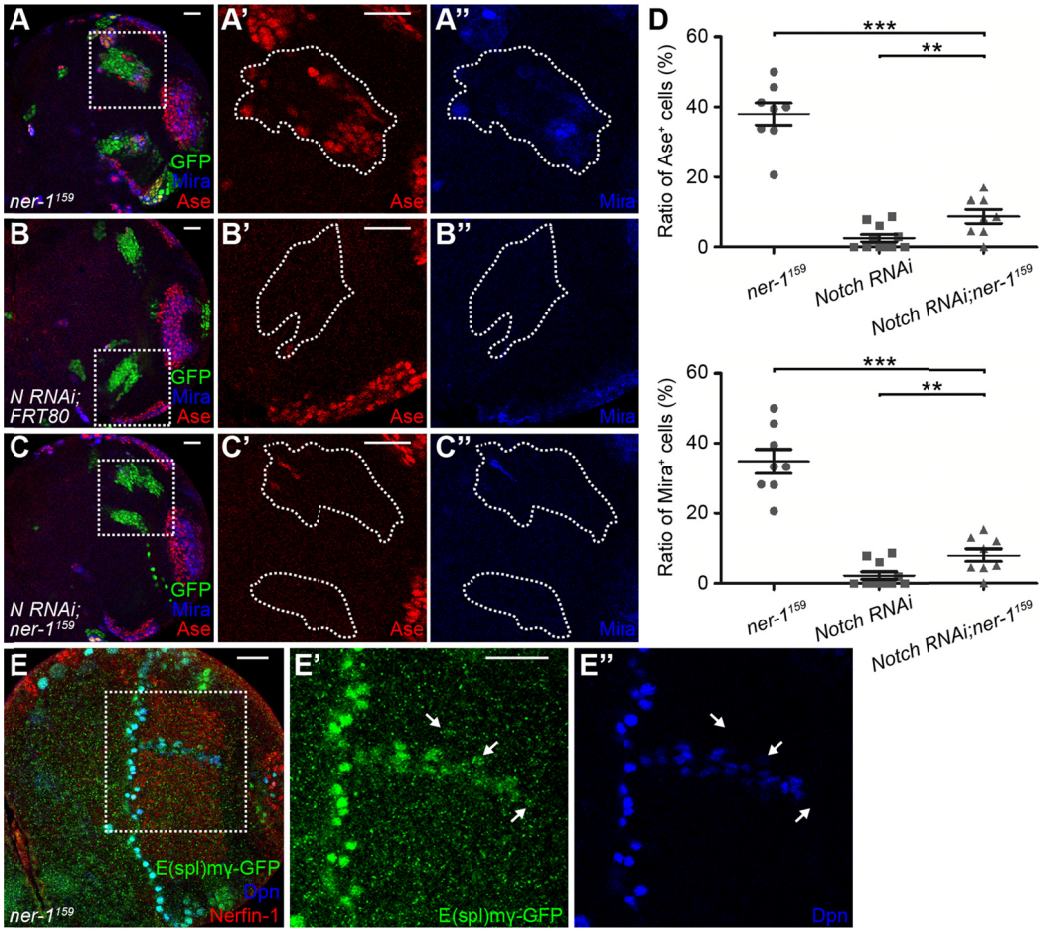

Figure. S5. Notch pathway hyperactivation is a cause rather than a consequence of dedifferentiation.

(A-C'') Notch knockdown mostly inhibits the ectopic expression of Mira and Ase caused by Nerfin-1 loss. Magnification of boxed regions in A-C is shown in A'-C'', respectively, with clones outlined. (D) Quantification of the ratio of Ase^{+} or $Mira^{+}$ cells in clones from A-C (n=8,11,8, respectively). Data are mean±s.e.m.; $^{**}P<0.01$; $^{***}P<0.001$. (E-E'') Representative *nerfin-1*^{159} clones showing E(spl)mγ-GFP and Dpn staining. Magnification of boxed region in E is shown in E' and E''. Clones are labeled by loss of Nerfin-1. Arrows indicate the E(spl)mγ-GFP^{+}/Dpn^{-}(or weak) cells. Scale bars: 20 μm.

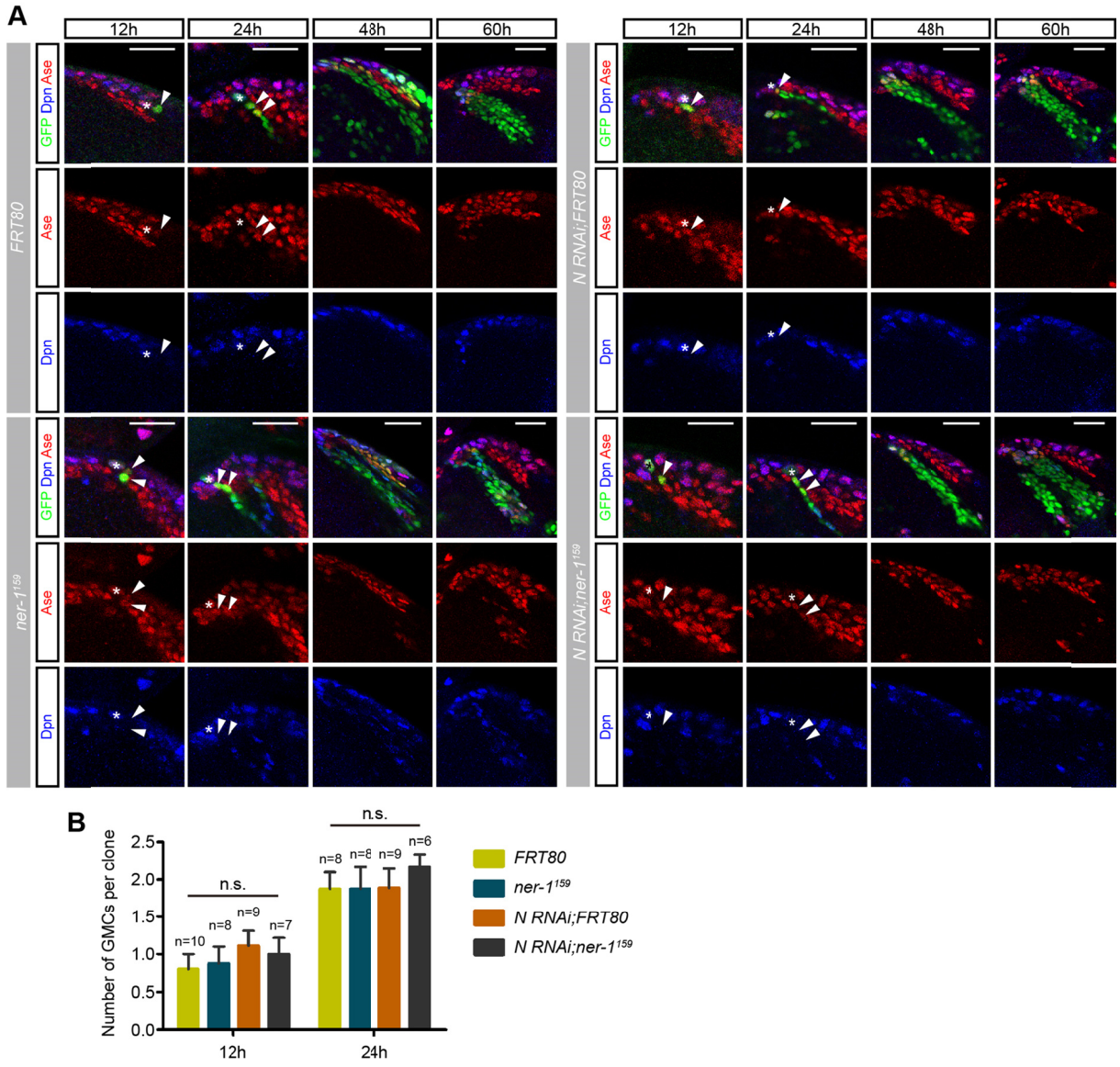

Figure. S6. Notch knockdown doesn't affect NB lineage generation, but blocks the dedifferentiation caused by Nerfin-1 absence.

(A) Time-course experiment showing Dpn and Ase staining. Representative NB lineages labeled by GFP are shown. NB and GMC are indicated by asterisk and arrowhead, respectively. Scale bars: 20 μm. (B) Quantification of the number of GMCs in clones from A. Data are mean± s.e.m.; n.s., no significant.

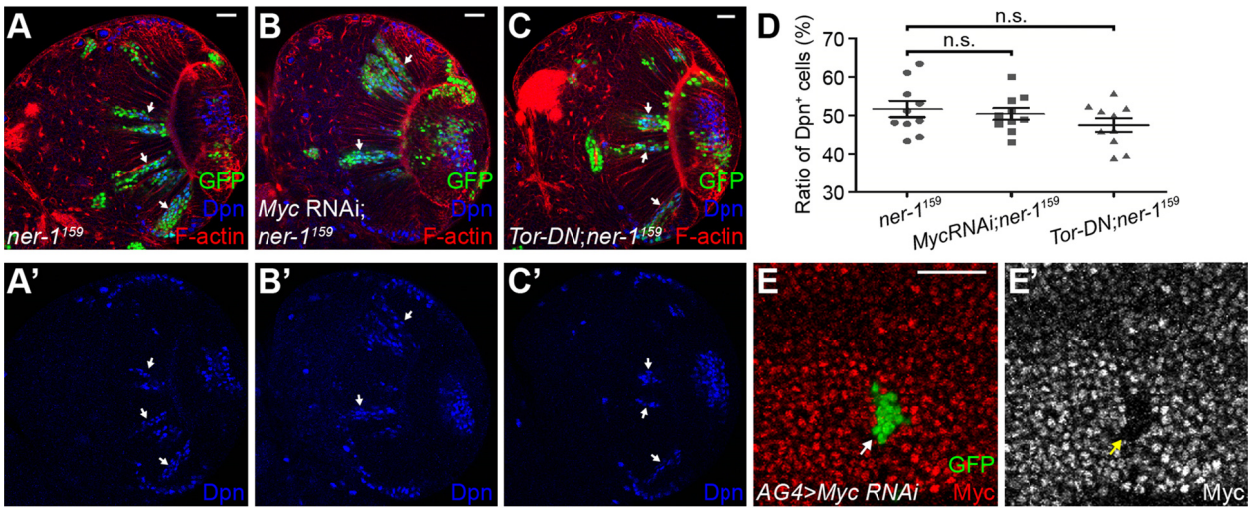

Figure. S7. Nerfin-1 doesn't function through Myc or Tor in the optic lobe.

(A-C') Neither knockdown of Myc nor misexpression of Tor dominant negative form can rescue the dedifferentiation in *nerfin-1*^{159} clones. Arrows show the clones. (D) Quantification of the ratio of Dpn^{+} cells in clones from A-C (n=10 for each). Data are mean±s.e.m.; n.s., no significant. (E-E') Efficiency of Myc RNAi is confirmed in larval wing discs. Arrows show the clones. Scale bars: 20 μm.