Supplementary figures

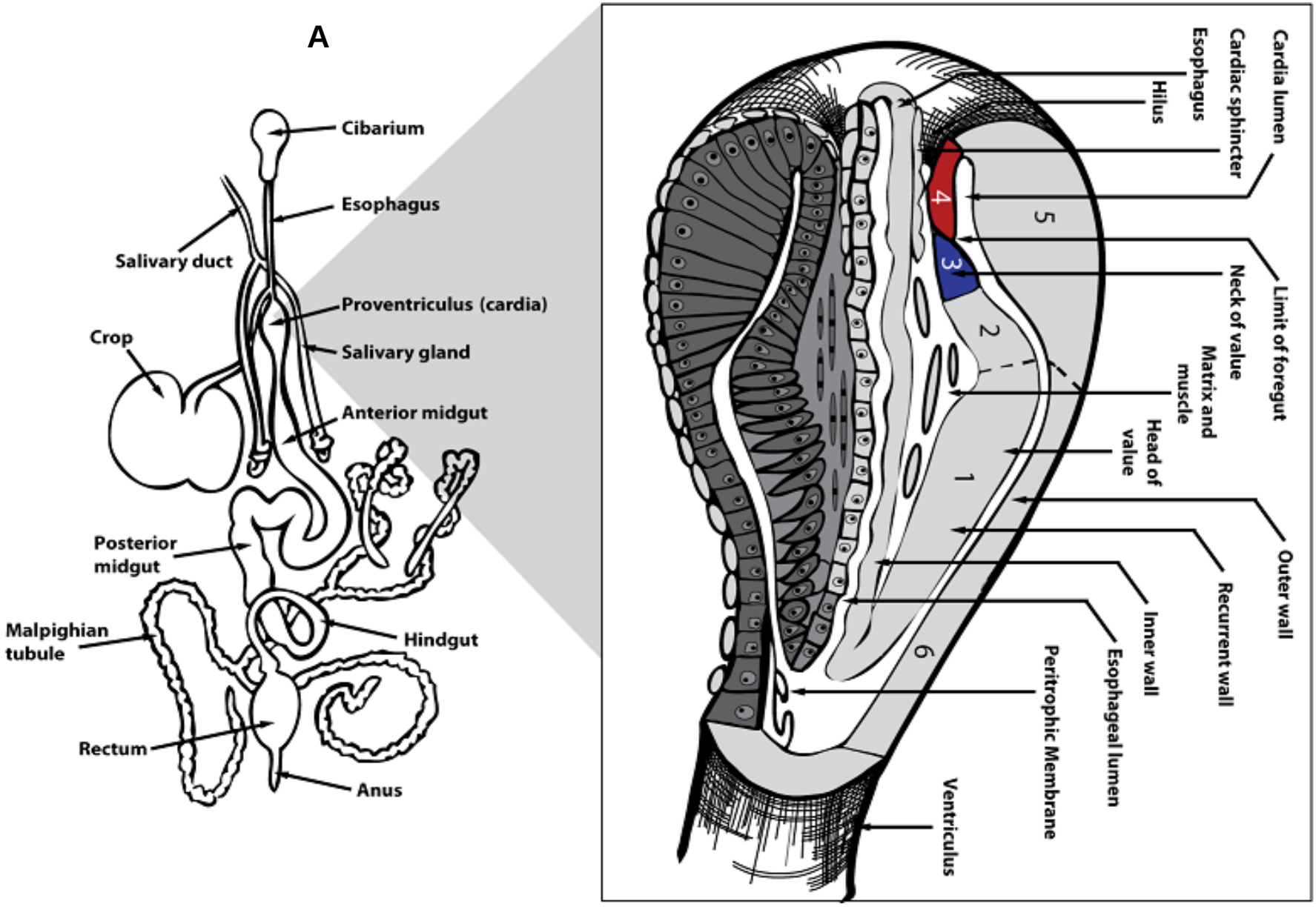
Figure S1. The *Drosophila* cardia structure. A is drawings (adapted from King, 1988) of the *Drosophila* GI system and cardia. Numbers 1-6 indicate epithelial zones in the cardia. Anterior is to the up in all panels.

Figure S2. Structural morphology and nuclei size in *Drosophila* cardia. (A-C') the cardia was stained with DAPI (Blue) to highlight the cardia structure and cell sizes. (A, A') 3rd instar larvae cardia. (B-C') Adult cardia. White arrows in A represent 4 gastric caeca. (B,B') inner section of cardia and C,C' outer section of cardia. D, point to the F/M junction. Anterior is to the up in all panels. Scale bars represent 10 μm.

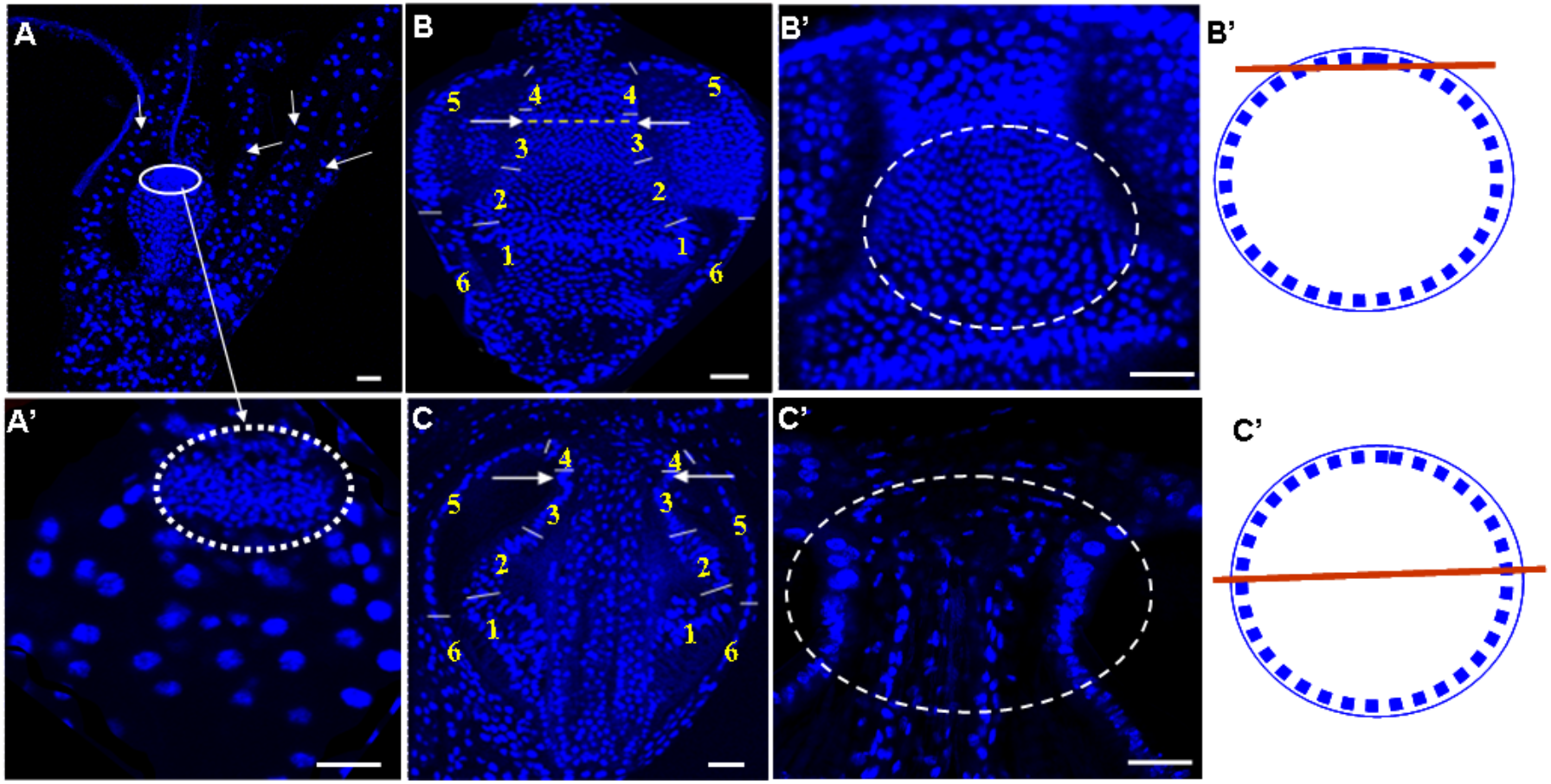
Figure S3. Markers and lineage analysis in cardia. (A) the cardia of *Stat92E-GFP* flies (outer view) was stained with anti-GFP (green) and Dapi (blue). (B) Patched (Ptc)-lacZ (red), Dapi (blue). (C)The cardia of a *dome-Gal4 UAS-GFP* fly was stained with anti-GFP (green) and DAPI (blue). White arrows point to the F/M junction. (D) The cardia of *wg-Gal4 UAS-GFP* flies (inner view) were stained with GFP (green) and Dapi (blue). (E) the cardia of *Stat92E-GFP* flies was stained with anti-GFP (green) and Apoptag kit (red) to detect dead cells. (F and F') Lineage-marking of random dividing cells at the F/M junction after 2 days of heat-shock FLP-catalyzed site-specific recombination. The cells were marked with anti-β-gal (green) and anti-Odd (red) antibodies. (G-I) Flies with the genotype *UAS-Flp/+; Act5C-FRT-Draf-FRT-tau-lacZ/byn-Gal4 UAS-GFP; tub-GAL80^{ts}/+*(G), or *UAS-Flp/+; Act5C-FRT-Draf-FRT-tau-lacZ/ppl-Gal4 UAS-GFP; tub-GAL80^{ts}/+* (H), or *UAS-Flp/+; Act5C-FRT-Draf-FRT-tau-lacZ/esg-Gal4 UAS-GFP; tub-GAL80^{ts}/+* (I) were cultured at the permissive temperature (18 °C) and then shifted to the restricted temperature (29°C) for 3 days. The cardia was stained with anti-GFP (green), anti-β-gal (red), and DAPI (blue). Anterior is to the right in all panels. (J) flies stained with RFP (red), GFP (green), Ptc (pink) and Dapi (blue). Scale bars represent 10 μm.

Figure S4. Hh signaling regulates GaSC differentiation. (A, C) fly with the genotype *Stat92E-GFP/+; Act-Gal4/+; tub-Gal80^{ts}/UAS-Ci^{Cell}* were cultured at the restricted temperature (29°C) for 4 days. The cardia was stained with GFP (green) anti-Odd (red) and DAPI (blue). (B) cardia of a wild type fly stained with Dapi (white). Scale bars represent 10 μm.

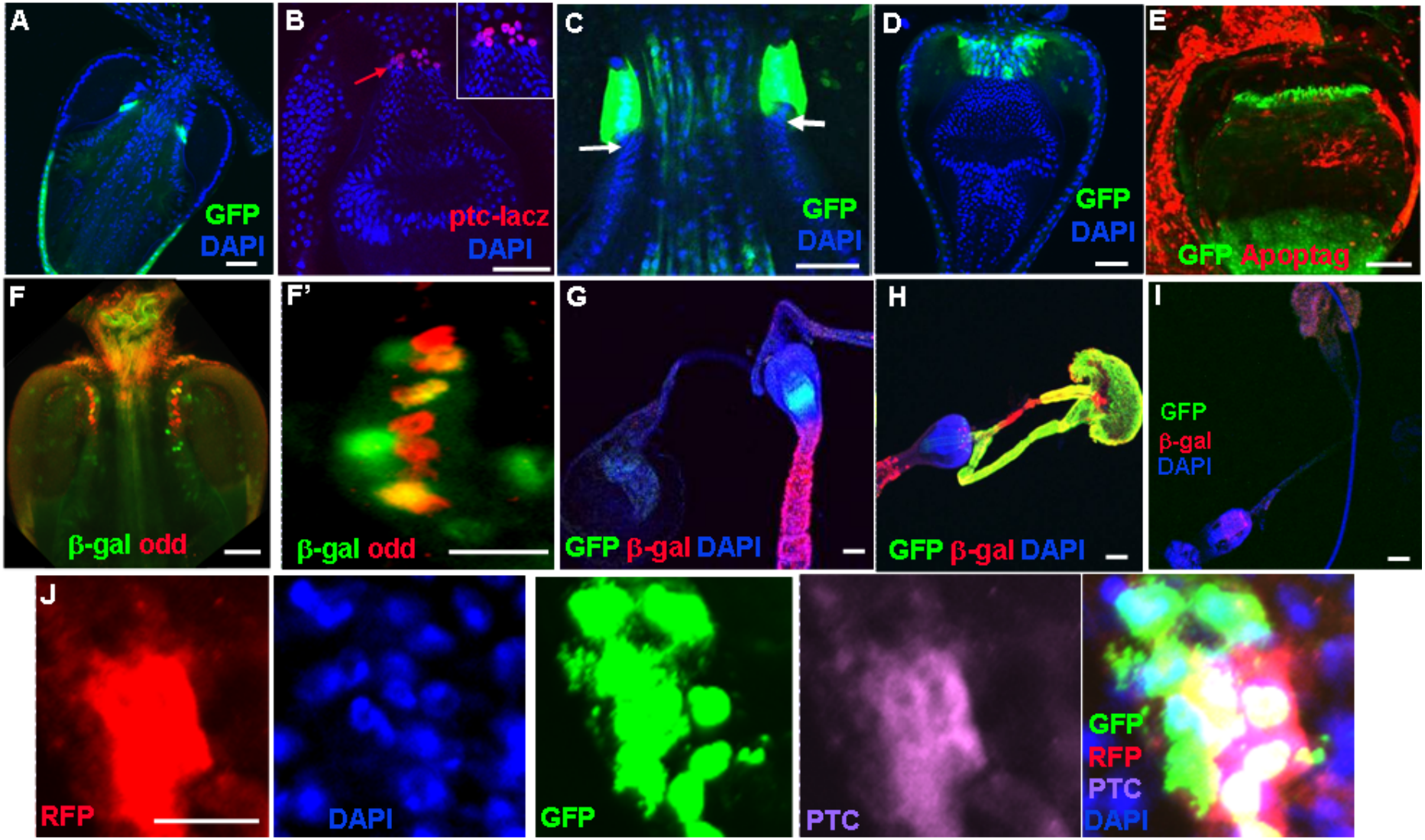
Singh et al. Supplementary Figure 1



Singh et al. Supplementary Figure 2



Singh et al. Supplementary Figure 3



Singh et al. Supplementary Figure 4