

Supplementary Materials: The following are available online at www.mdpi.com/xxx/s1, Figure S1: title, Table S1: title, Video S1: title.

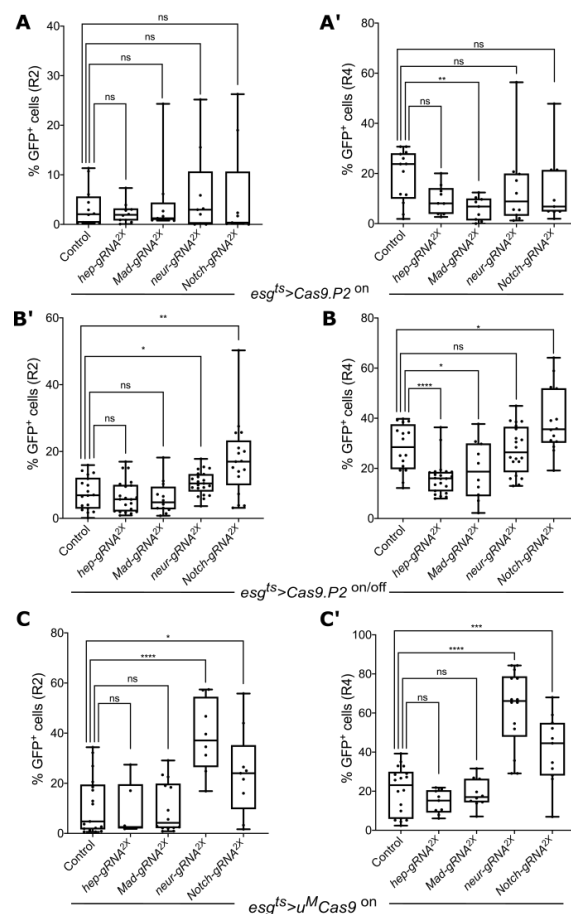


Figure S1. Boxplot representation of GFP⁺ cells after perturbation of the BMP, Notch and JNK pathways. (A-C) Quantification of GFP⁺ cells with either *Cas9.P2^{on}* (A, A'), *Cas9.P2^{on/off}* (B, B') and *u^MCas9^{on}* (C, C') with different gRNAs in both the R2 and R4 regions of the intestine.

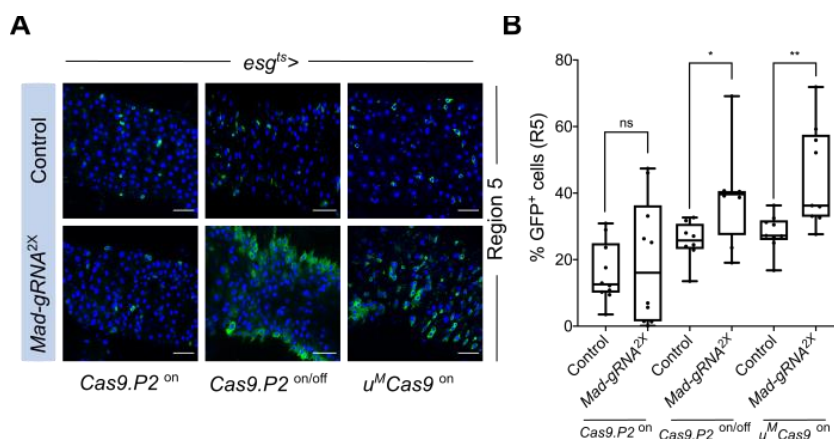


Figure S2. Quantification of GFP⁺ cells in the R5 region when Mad is perturbed with different Cas9 enzymes. Scale Bar: 30 μ m.

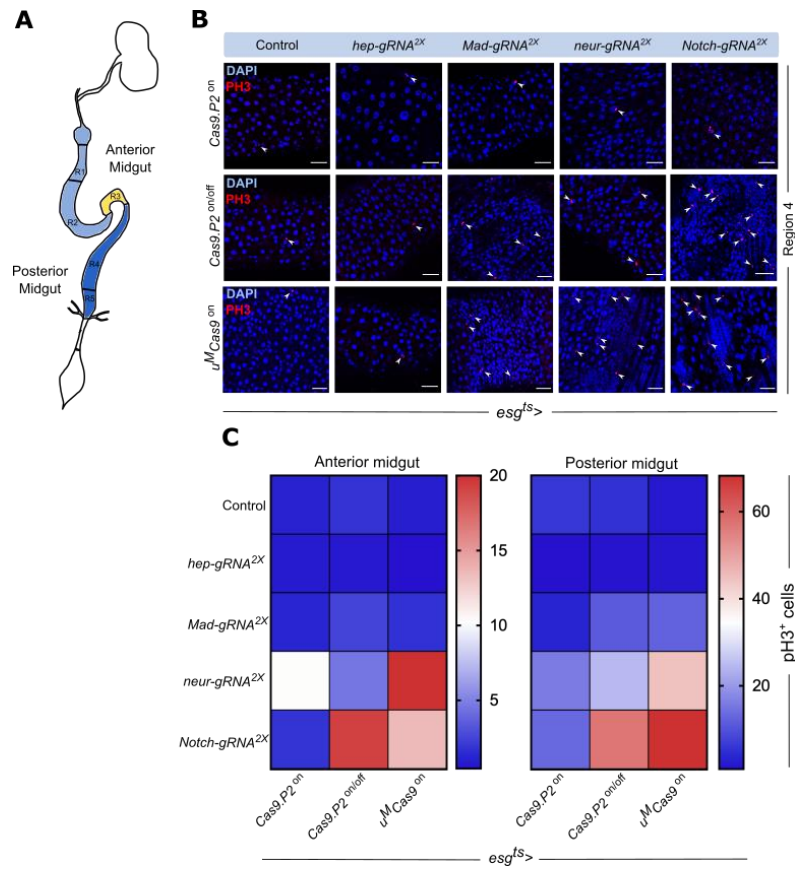


Figure S3. *Cas9.P2^{on/off}* and *u^MCas9^{on}* mediated perturbations of tumor suppressors increase the number of mitotic cells in the intestine. (C) Mitotic cells are marked with pH3 (red) and increase after *Cas9.P2^{on/off}* and *u^MCas9^{on}* mediated perturbation of *Mad*, *neur* and *Notch*. (D) Heatmap showing the number of pH3⁺ cells in both the anterior and posterior regions of the intestine. Scale bar: 30 μ m.

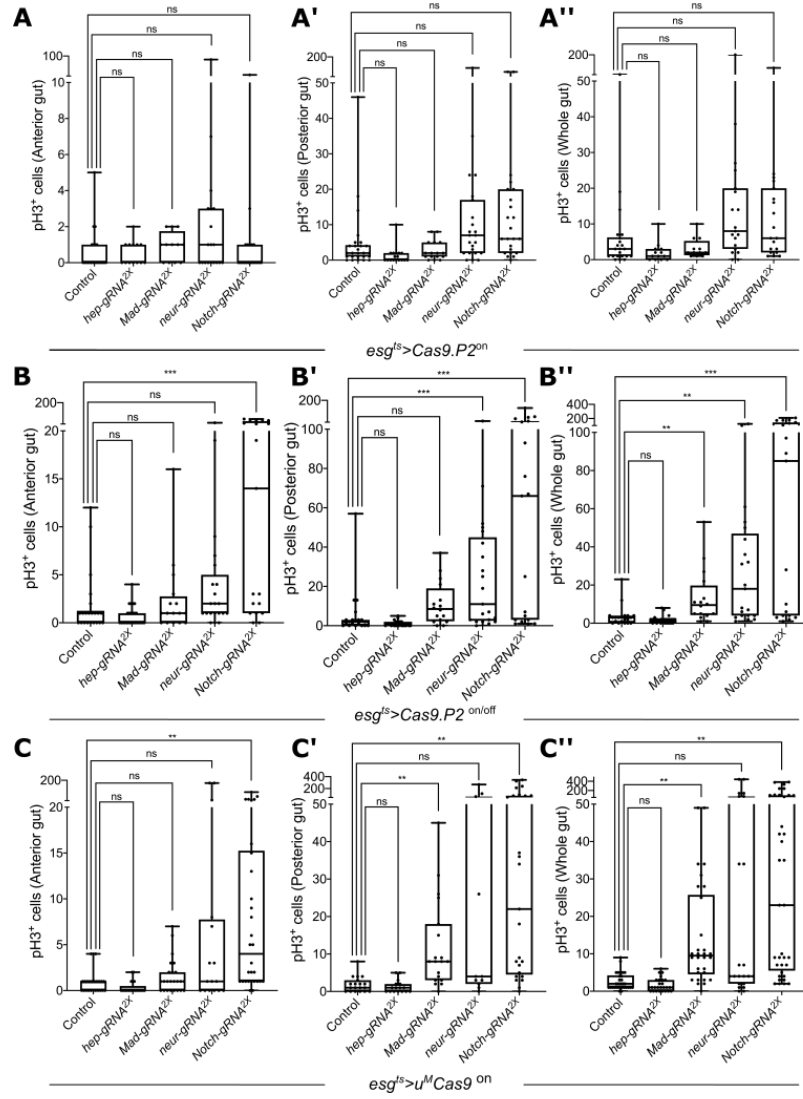


Figure S4. Boxplot representation of pH3⁺ cells after perturbation of the BMP, Notch and JNK pathways. (A-C) Quantification of pH3⁺ cells with either *Cas9.P2^{on}* (A, A', A''), *Cas9.P2^{on/off}* (B, B', B'') and *u^MCas9^{on}* (C, C', C'') with different gRNAs in the R2/R4 regions and the whole intestine.