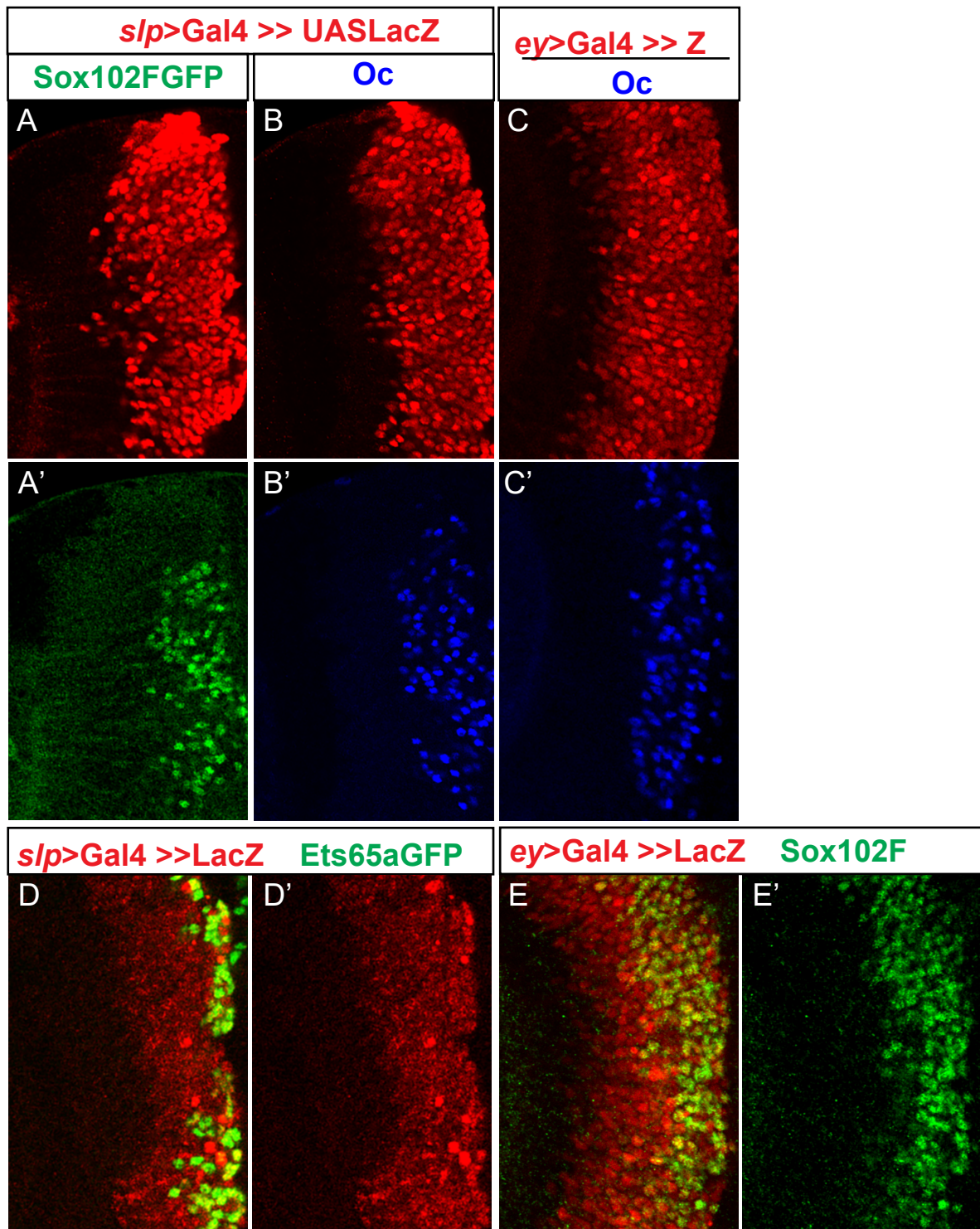
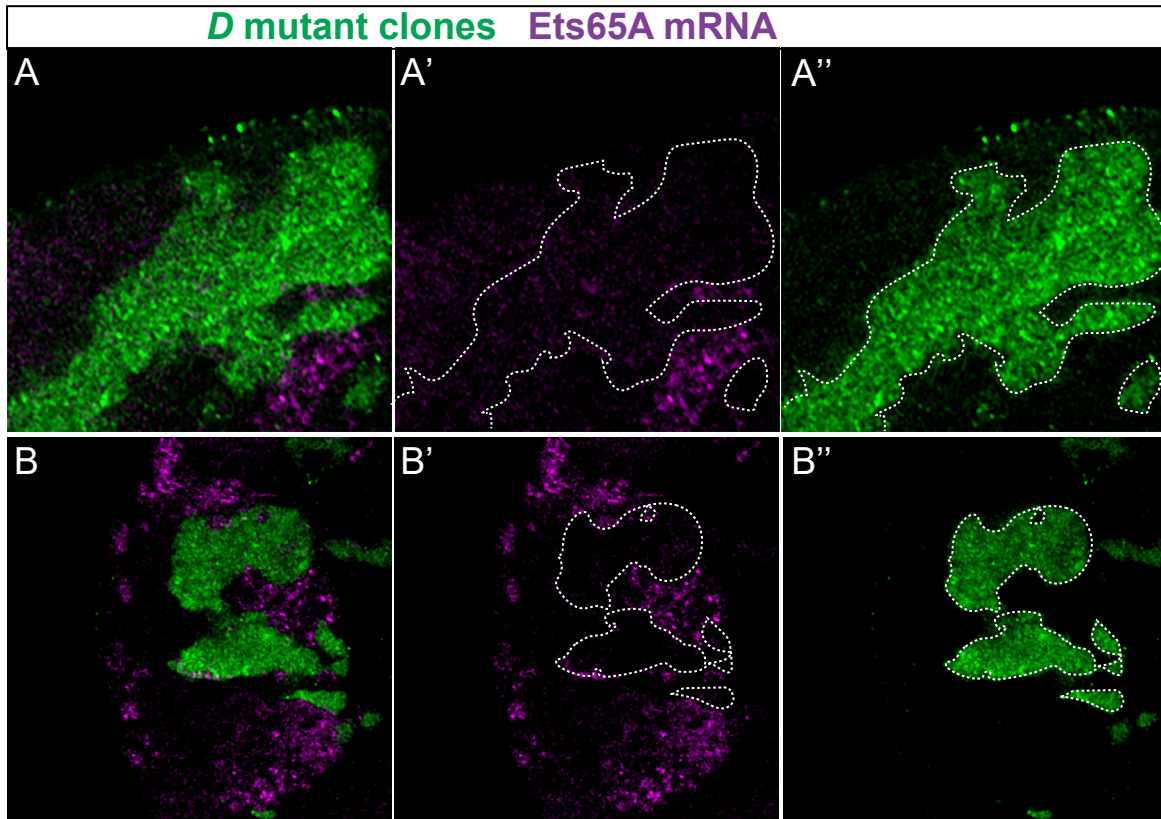


**Supplementary Figure S1. The expression pattern of Fkh, Oc, Ets65A and Sox102F.** (A) A schematic drawing showing the different spatial domains of the main medulla (including the center Vsx domain, Optix domains and Dpp domains) and the two tips that express Wg. Drawing not to scale. The red dashed line indicates the location of the focal plane of panel B, and the blue dashed line indicates the location of the focal plane of panel C. (B) The expression of Fkh::GFP (green) and Oc (blue) in the anterior domains of the 3<sup>rd</sup> instar larval medulla do not overlap. (C) The expression of Fkh::GFP (green) and Oc (blue) overlap in the posterior Dpp domains. White arrow indicates one example. (D) Fkh::GFP (green) is not expressed in T1 neurons (red). (E-E''') Ets65AGFP (green) and Oc (blue) are not expressed in medulla neuroblasts marked by Dpn (red). (F-F''') Sox102F (green) and Oc (blue) are not expressed in medulla neuroblasts marked by Dpn (red).



**Supplementary Figure S2. The three transcription factors initiate expression in neurons born at different temporal stages.** (A-B', D-D') *slp>Gal4* is used to drive UAS-NuLacZ (red) expression. (C,C',E,E') *ey>Gal4* is used to drive UAS-NuLacZ (red) expression. (A,A') Split channels are shown for Figure 4G. Sox102F::GFP is in green. (B,B') Split channels are shown for Figure 4H. Oc is in blue. (C,C') Split channels are shown for Figure 4I. Oc is in blue. (D,D') All neurons expressing *Ets65A::GFP* (green) also express *slp>>LacZ*(red). *Ets65A*-GFP is not expressed at the time when *slp>Gal4* initiates its expression. (E,E') All neurons expressing Sox102F (green) also express *ey>>LacZ*(red). Sox102F is not expressed at the time when *ey>Gal4* initiates its expression.



**Supplementary Figure S3. D is required for Ets65A expression in both the medulla and the lobula plug.** All images shown are of 3<sup>rd</sup> instar larval brain. (A-B'') *In situ* hybridization of Ets65A mRNA (purple) in brains with *D* mutant clones marked by GFP (green). (A-A'') A clone in the medulla region. (B-B'') Clones in the lobula plug region.