



**Supplemental Figure 1** The expression pattern of the GH146-*Gal4* driver combined with several different *Cha-Gal80* transgenes. The expression pattern of mCD8-GFP driven by either GH146-*Gal4* (a) or GH146-*Gal4* combined with three different *Cha-Gal80* transgenes (b–d). Columns 1 and 4 show the front and back views of the midbrain. Columns 2, 3, and 5 show the higher magnification images of areas marked by squares in columns 1 and 4, including the mushroom body lobes (column 2, blue squares), the antennal lobes (column 3, yellow squares), and the mushroom body calyx and the lateral horn (column 5, magenta squares). GH146-*Gal4*, *Cha-Gal80* #1 was used in the behavioral tests because it removed the expression in the least amount of non-APL neurons among the three. Scale bars represent 20  $\mu\text{m}$ .