



**Extended Data Figure 5. Optogenetic activation of POA *Calb1+* and *non-Calb1* neurons.**

**a.** Schematic representation of the experimental design: AAVs encoding Cre-Off or Cre-On ChR2-mCherry were injected unilaterally into the POA of *Calb1-Cre* male mice to label *non-Calb1* and *Calb1+* neurons, respectively.

**b.** Representative images showing the POA labeling with implanted optic fiber, and light-induced c-Fos expression in *non-Calb1* or *Calb1+* neuron-targeted group. Scale bar, 200  $\mu$ m.

**c.** Quantification of POA c-Fos signals following light stimulation in the respective groups. n = 3 males for *non-Calb1* EYFP group, 3 males for *non-Calb1* ChR2 group, 3 males for *Calb1+* mCherry group, and 8 males for *Calb1+* ChR2 group.

**d.-i.** Optogenetic activation of POA *non-Calb1* and *Calb1+* neurons differentially affected mount. **d, g:** Diagrams of the viral strategy; **e, h:** Light delivery protocol and raster plots of behavior for representative trials in both experimental and control groups. **f, i:** Quantification of the percentage of light delivery period (denoted by blue bars) where light-activated mounting behavior occurred. Activation of *non-Calb1* neurons promotes mounting behavior (**d-f**), while activation of *Calb1+* neurons inhibits mounting behavior (**g-i**). n = 11 males for the *non-Calb1* ChR2 group, 5 males for the *non-Calb1* EYFP group, 14 males for the *Calb1+* ChR2 group, 10 males for the *Calb1+* mCherry group.

Values are presented as mean  $\pm$  SEM. \*\*p < 0.01, \*\*\*p < 0.001.