



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 μ 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.