

Supplementary

The highest fluorescence amplitude $\Delta F/F_0$ (%) of GFP expressed in the hippocampal CA1 area was less than 0.5% when mice receiving EMP exposure, or entering the central area in an open field, or exploring a novelty (Figure 1A). The GCaMP signals of hippocampus CA1 neurons of the sham-exposed mice when exploring a novelty showed no significant differences before and after sham exposure, suggesting that the changes of the GCaMP signals in the EMP-exposed group were attributed to the EMP radiation (Figure 1B, C).

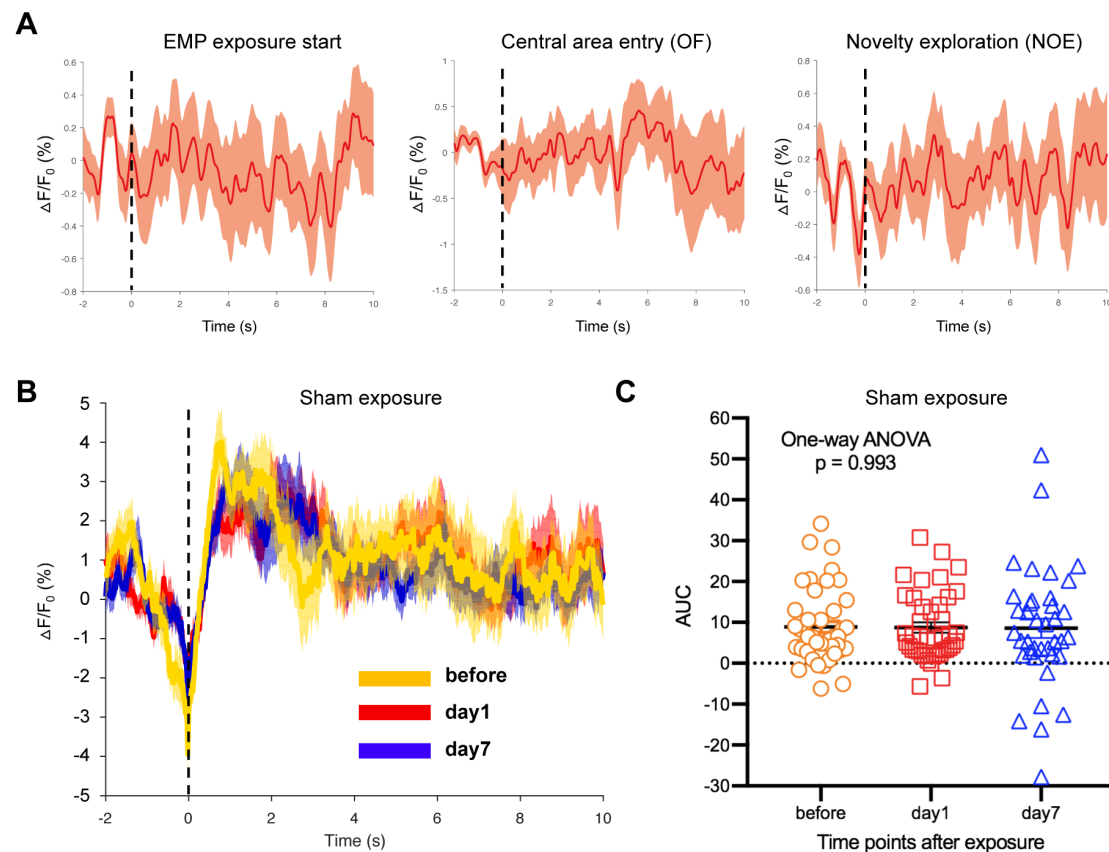


Figure 1 Fiber photometry on GFP-expressing mice, and GCaMP-expressing mice treated by sham exposure. **(A)** The $\Delta F/F_0$ (%) of GFP expressed in hippocampal CA1 area recorded by fiber photometry. 0 s for $\Delta F/F_0$, marked by dotted lines, indicated that EMP exposure starting up, or mice entering central area in an open field (OF), or exploring a novelty during novel object exploration test (NOE). **(B-C)** Fiber photometry on GCaMP-expressing mice treated by sham exposure when seeking a novelty (n = 3 mice). **(B)** The combined line diagram of calcium amplitude $\Delta F/F_0$ (%) in CA1 neurons before, and day 1, day 7 after sham exposure. 0 s for $\Delta F/F_0$, marked by dotted lines, indicated that mice were exploring a novelty (NOE). **(C)** Plot of AUC in multiple trials from three biological replicates before and after sham exposure. The

data are presented as mean \pm SEM. One-way ANOVA followed by Bonferroni's post-hoc tests were performed to evaluate the differences between multiple groups in (C).