

## ***miR-124* dosage regulates prefrontal cortex function by dopaminergic modulation**

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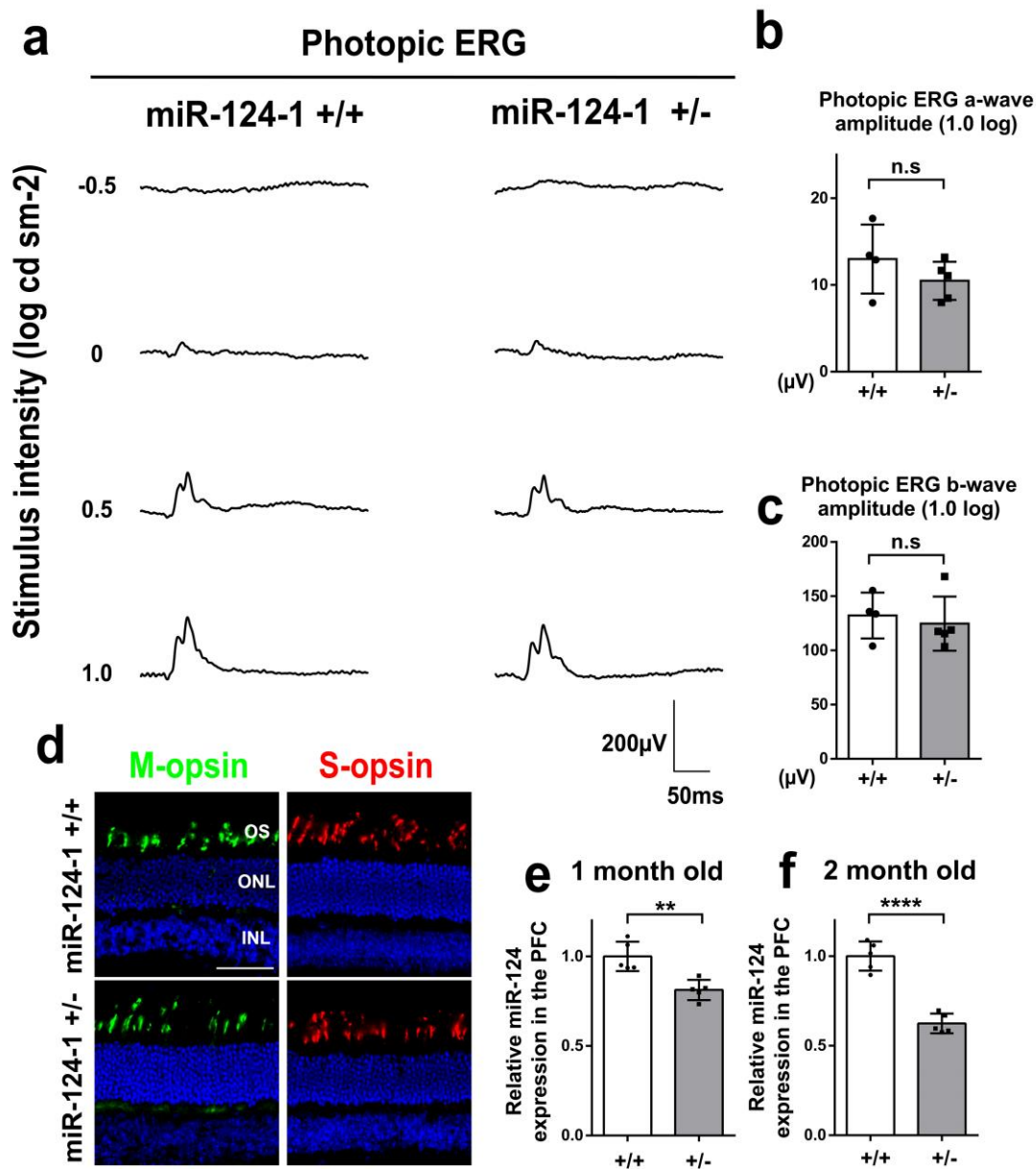
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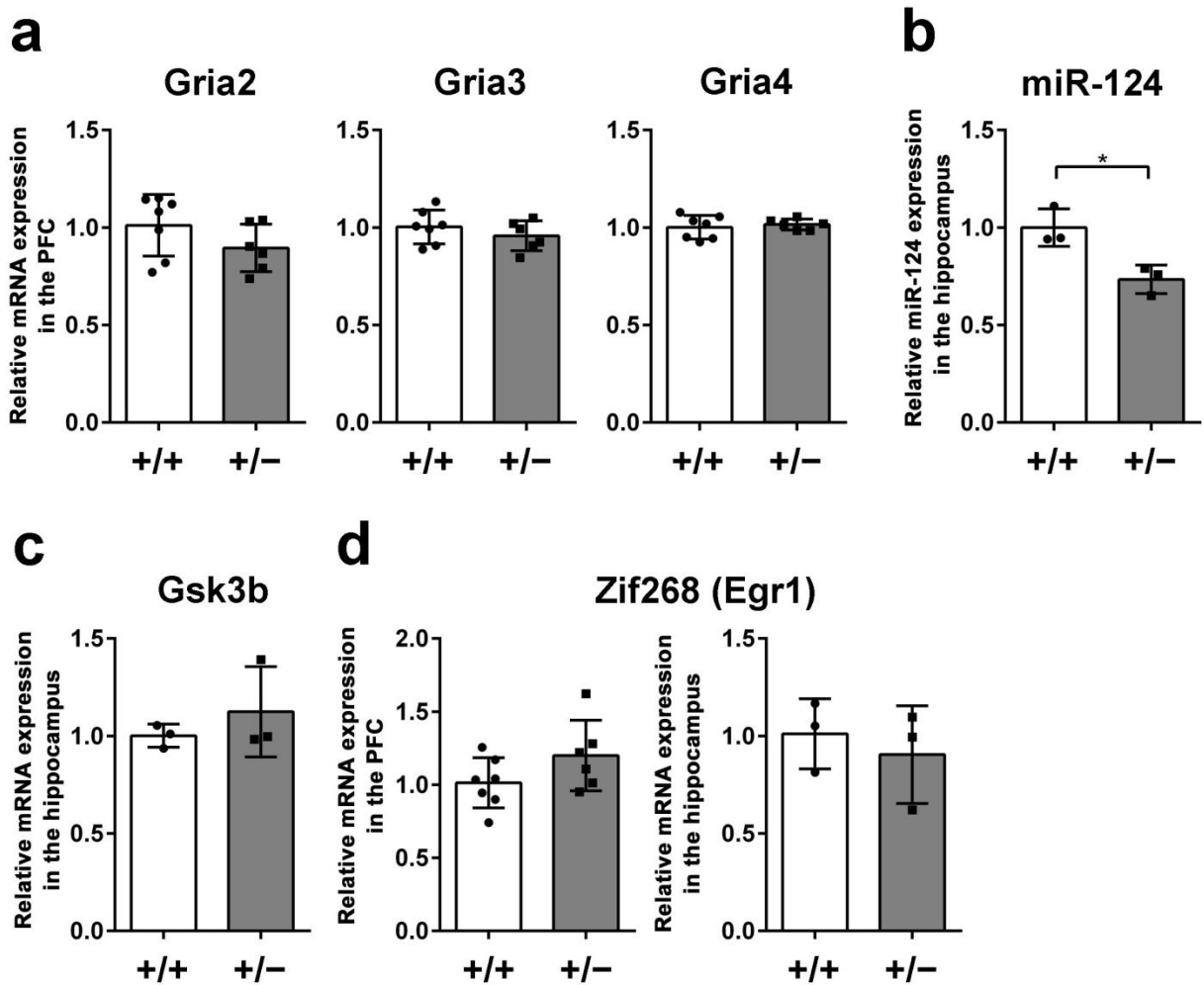
**Figure S1.** Electrophysiological, histological and molecular analyses of WT and *miR-124-1*<sup>+/-</sup> mice.

**a**, Representative light-adapted (photopic) ERGs in WT control and *miR-124-1*<sup>+/-</sup> mice at 2M elicited by four different stimulus intensities (-0.5, 0, 0.5, and 1.0 log cd sm<sup>-2</sup>).

**b, c**, Both a-wave and b-wave amplitudes in *miR-124-1*<sup>+/-</sup> mice were not significantly altered compared with those in WT mice (WT, n = 4; Het, n = 5; n.s., not significant).

**d**, The retinal sections of WT and *miR-124-1*<sup>+/-</sup> mice at 2M were immunostained with the anti-M-opsin (a green-cone outer segment marker, green), and the anti-S-opsin (a blue-cone outer segment marker, red) antibodies. The distribution of the M-opsin and the S-opsin signals was normal in the *miR-124-1*<sup>+/-</sup> retina. Scale bars, 50 μm. OS, outer segment; ONL, outer nuclear layer; INL, inner nuclear layer.

**e, f**, The expression level of *miR-124* in the PFC was analyzed using qRT-PCR at 1M (**e**) or 2M (**f**). *miR-124* expression significantly decreased in the *miR-124-1*<sup>+/-</sup> PFC at 1M and 2M (WT, n = 5; Het, n = 5; \*\*  $p < 0.01$ , \*\*\*\*  $p < 0.0001$ ). Error bars represent mean ± SD.



**Figure S2.** Expression levels of previously reported *miR-124* target genes in the *miR-124-1<sup>+/-</sup>* PFC and hippocampus.

**a**, *Gria2*, *3* and *4* expressions were not significantly altered between 2M *miR-124-1<sup>+/-</sup>* and WT PFCs (WT, n = 7; Het, n = 6).

**b**, Quantification of *miR-124* expression level in the hippocampus. *miR-124* expression significantly decreased in the 2M *miR-124-1<sup>+/-</sup>* hippocampus (WT, n = 3; Het, n = 3; \**p* < 0.05).

**c**, *Gsk3b* expression was not significantly affected between the 2M *miR-124-1<sup>+/-</sup>* and WT hippocampus (WT, n = 3; Het, n = 3).

**d**, *Zif268 (Egr1)* expression in the PFC (WT, n = 7; Het, n = 6) and hippocampus (WT, n = 3; Het, n = 3) was not significantly altered between the 2M *miR-124-1<sup>+/-</sup>* and WT mice. Error bars represent  $\pm$  SD.