

Supplementary Information

Table S1 Gene expression assays used for quantitative real-time PCR

Gene	Protein encoded by gene	TaqMan gene expression assay ID
<i>Oprm1</i>	Opioid receptor μ 1	Mm01188089_m1
<i>Oxtr</i>	Oxytocin receptor	Mm01182684_m1
<i>Avpr1a</i>	Arginine vasopressin receptor 1A	Mm00444092_m1
<i>Pomc</i>	Pro-opiomelanocortin	Mm00435874_m1
<i>Oxt</i>	Oxytocin	Mm01329577_g1
<i>Avp</i>	Vasopressin	Mm00437761_g1
<i>MyD88</i>	Myeloid differentiation factor 88	Mm00440338_m1
<i>Bdnf</i>	Brain-derived neurotrophic factor	Mm00432069_m1
<i>Gapdh</i>	Glyceraldehyde-3-phosphate dehydrogenase	Mm99999915_g1
<i>B2m</i>	Beta-2-microglobulin	Mm00437762_m1
<i>Polr2a</i>	Polymerase (RNA) II subunit A	Mm00839502_m1

All IDs refer to TaqMan assays (Applied Biosystems)

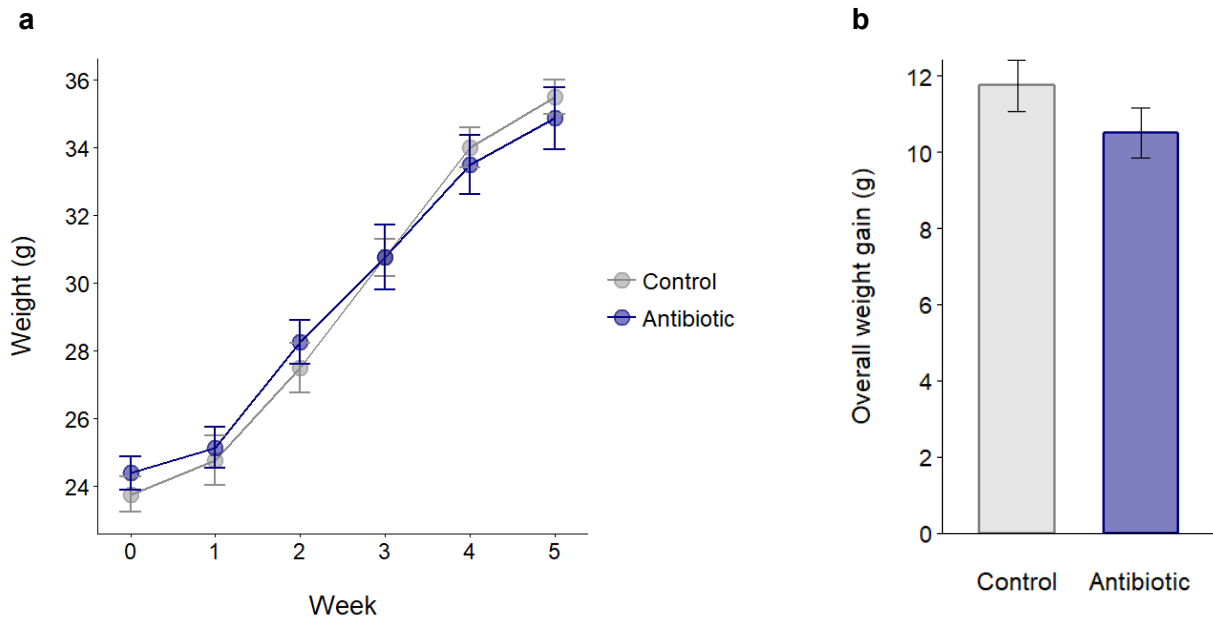


Fig. S1 Effect of antibiotic treatment on body weight. Data are plotted as mean weight change \pm SEM, with $n = 8$ per group. (a) Line graph depicts weekly changes in weight for each group throughout the experiment. (b) Bar plot shows overall weight gain from prior to the start of antibiotic treatment (week 0) to the end of treatment (week 5). There was no significant difference in weight gain between groups (Mann–Whitney U test, $P = 0.284$)

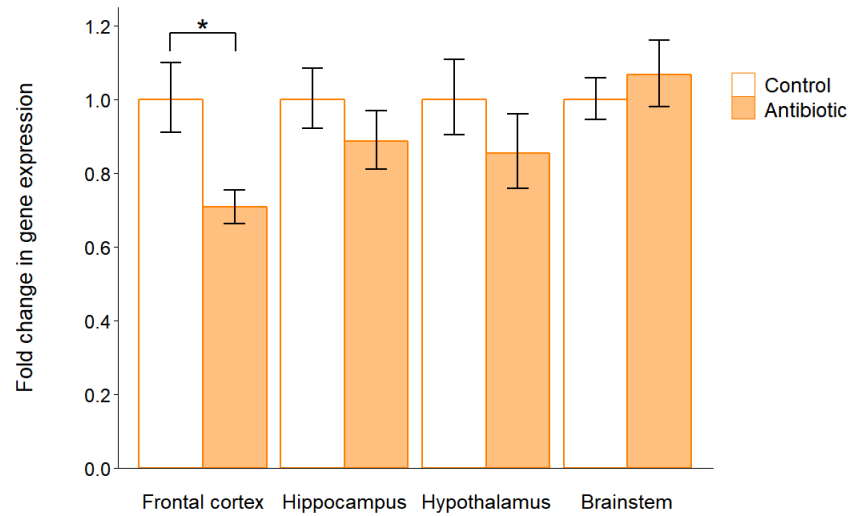


Fig. S2 Effects of post-weaning antibiotic treatment on the gene expression of *Bdnf*. Data are plotted as mean expression (relative to the control group) \pm SEM for *Bdnf* (encoding brain-derived neurotrophic growth factor) and all comparisons are with $n = 8$ per group. Two-sample t-tests have 14 degrees of freedom (df) and asterisks denote $P < 0.05$

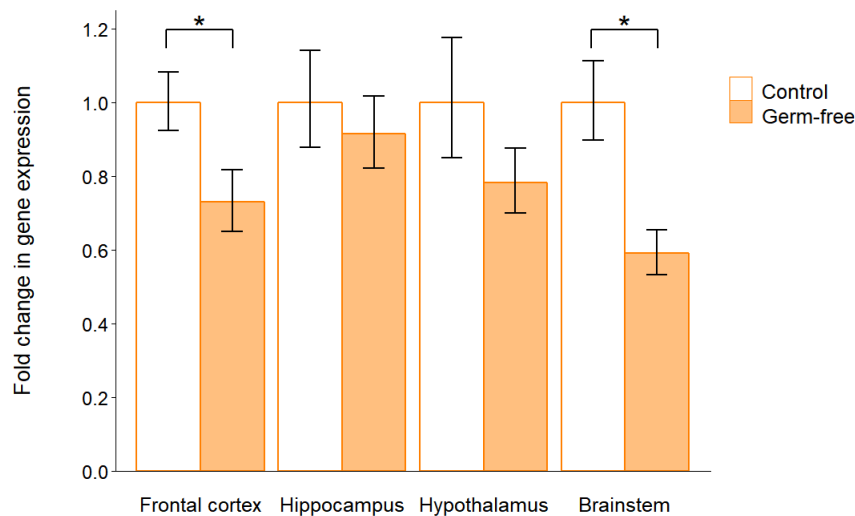


Fig. S3 Effects of germ-free status on the gene expression of *Bdnf*. Data are plotted as mean expression (relative to the control group) \pm SEM for *Bdnf* (encoding brain-derived neurotrophic growth factor) and all comparisons are with $n = 8$ per group. Two-sample t-tests have 14 degrees of freedom (df) and asterisks denote $P < 0.05$