Haploinsufficiency of EHMT1 improves pattern separation and increases hippocampal cell proliferation.

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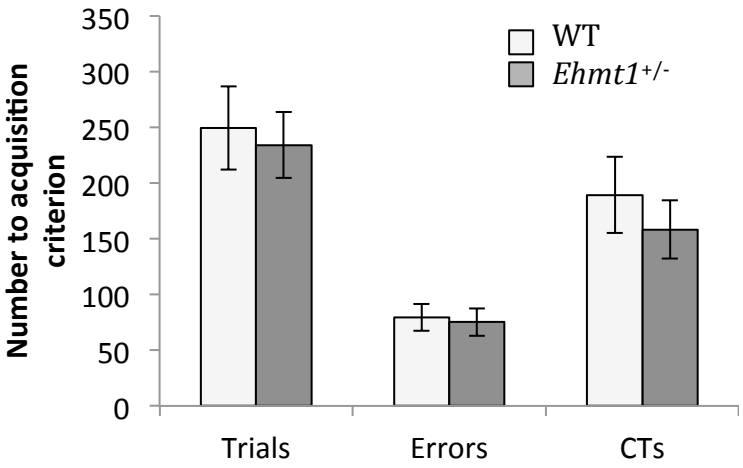

Figure S1. Visual discrimination (VD) performance

Performance of *Ehmt1*$^{+/-}$ and WT mice on VD acquisition, in terms of the number of trials, errors and correction trials (CTs) to criterion. Data presented as mean ± SEM. WT n =13, *Ehmt1*$^{+/-}$ n = 10. No significant differences between the groups were observed. Note that for VD no day-to-day acquisition averages exist, as the number of days mice required to reach criterion differed and animals were moved to Reversal learning individually

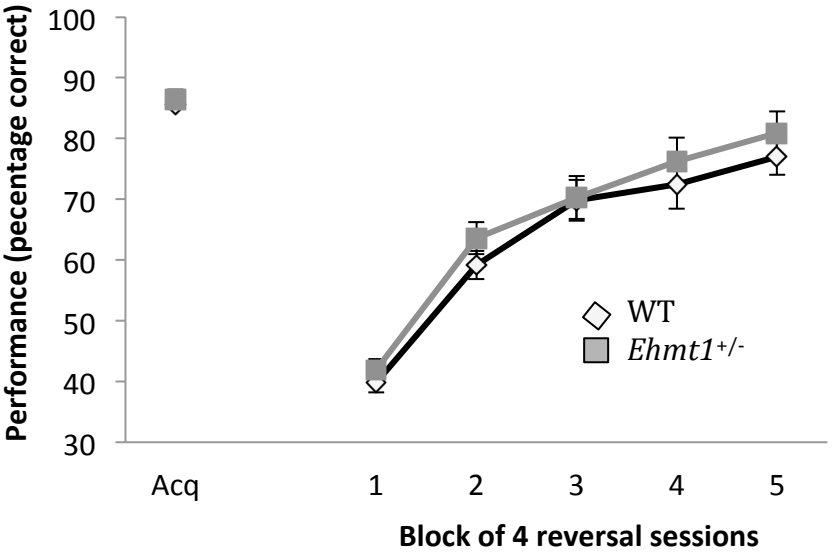

Figure S2. Reversal learning - acquisition graph.

Performance of *Ehmt1*$^{+/-}$ and WT mice on VD Reversal, in terms of performance (percentage correct) during the first 20 sessions of reversal, in blocks of 4 sessions. Acquisition ("Acq") data point is the average of each mouse's last two acquisition sessions. Data presented as mean ± SEM. WT n =13, *Ehmt1*$^{+/-}$ n = 10. Analysis of reversal across blocks of 4 sessions revealed a significant effect of block ($p < 0.001$), no effect of interaction or genotype ($p > 0.1$).

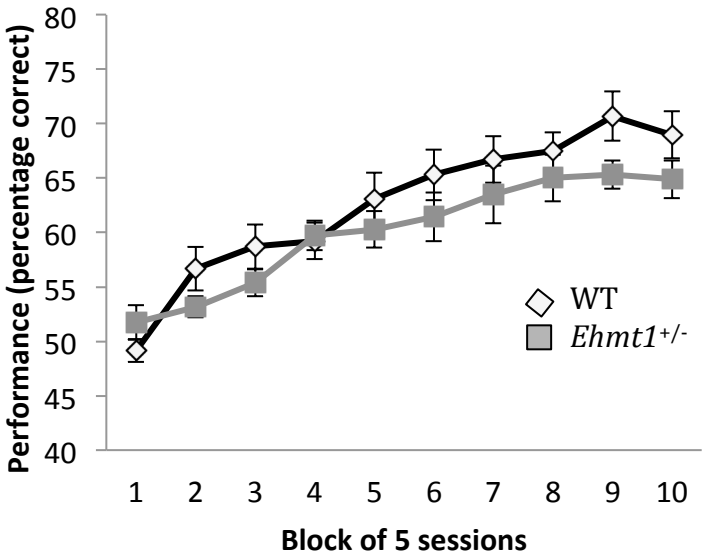

Figure S3. Object-place paired associates learning (PAL) acquisition graph.
Performance (percentage correct) of WT (n = 13) and *Ehmt1*$^{+/-}$ (n = 10) mice during PAL acquisition, in blocks of 5 sessions. Data presented as mean ± SEM. Analysis of PAL acquisition revealed a significant main effect of block ($F_{9,189}$ = 33.957, $p < 0.001$; Figure X), but no effect of genotype ($F_{1,21}$ = 1.575, $p > 0.1$) or interaction of these factors ($F_{9,189}$ = 1.398, $p > 0.1$).

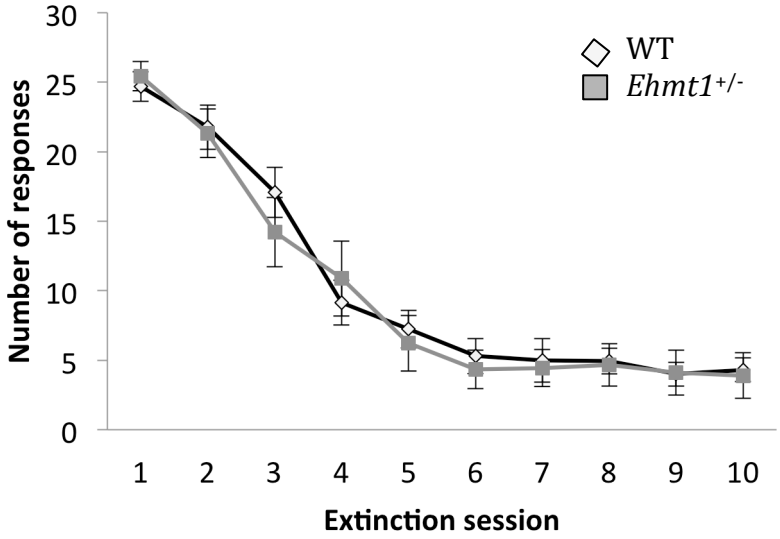

Figure S4. Extinction learning acquisition graph.
Performance (number of responses out of a possible 30) during the first 10 sessions of an appetitive instrumental extinction task. Data presented as mean ± SEM. WT n = 13; *Ehmt1*$^{+/-}$ n = 10. Responding during the first 10 sessions of extinction revealed a significant main effect of session (Huynh-Feldt-corrected RM ANOVA; $F_{6.394,\ 127.883}$ = 73.415, $p < 0.001$), indicating that responding reduced with training. However, there was no significant effect of genotype or of an interaction between these factors (both $F < 1$, $p > 0.1$).

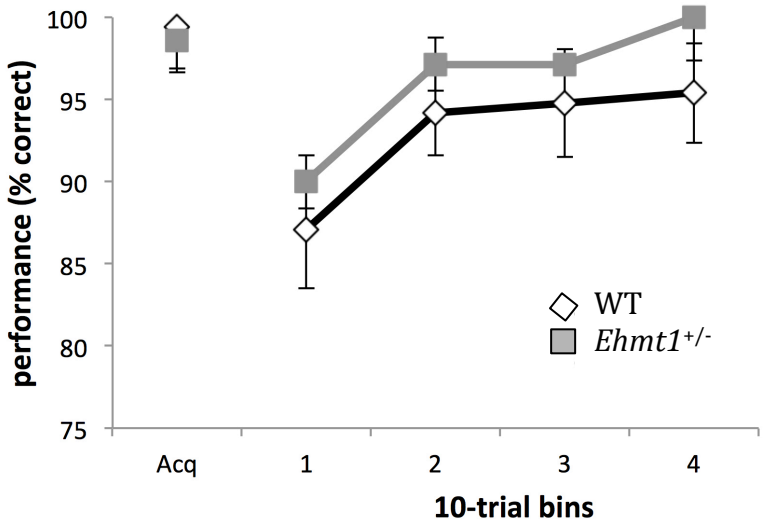

Figure 5 Location Discrimination recall test

Performance (percentage correct) on the recall session in the Location Discrimination test. Mice first acquired the location-reward contingency during three sessions without reversal (Acq; average of the final acquisition session) and were then re-tested after a 72 hour delay.Data depicted in bins of 10 trials and presented as mean ± SEM. Both groups show a mild drop in performance during the first 10-trial bin, however, no significant effect of genotype or of an interaction between genotype and bin was found (both $F < 1$, $p > 0.1$).