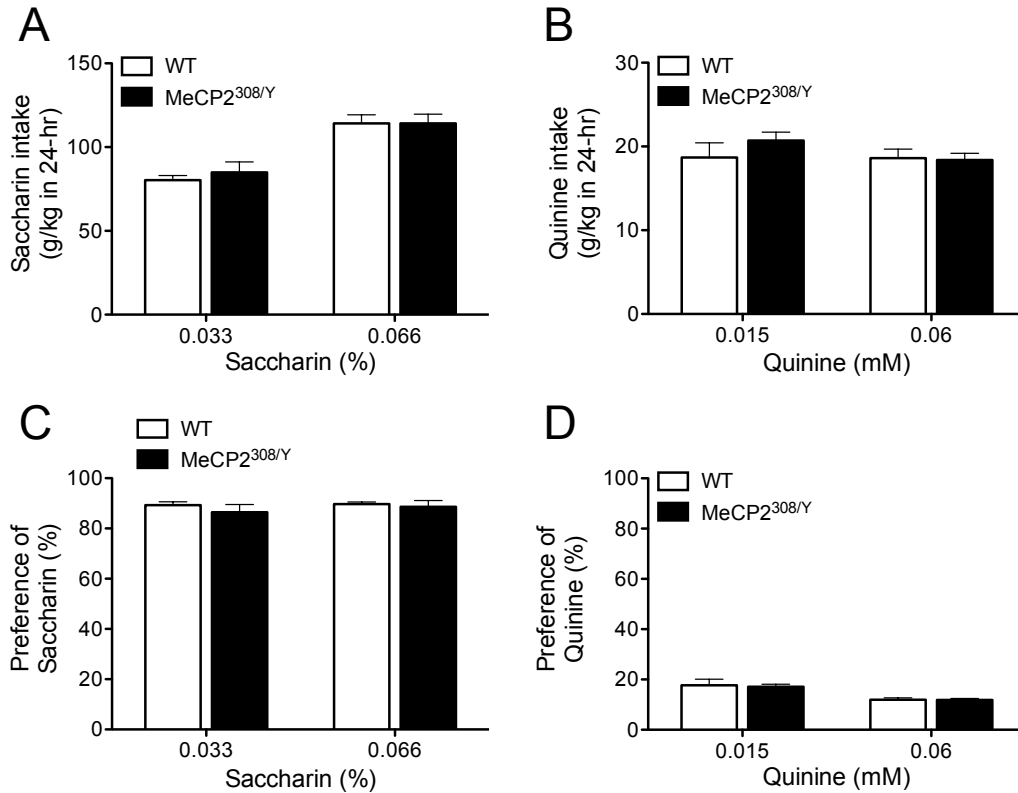
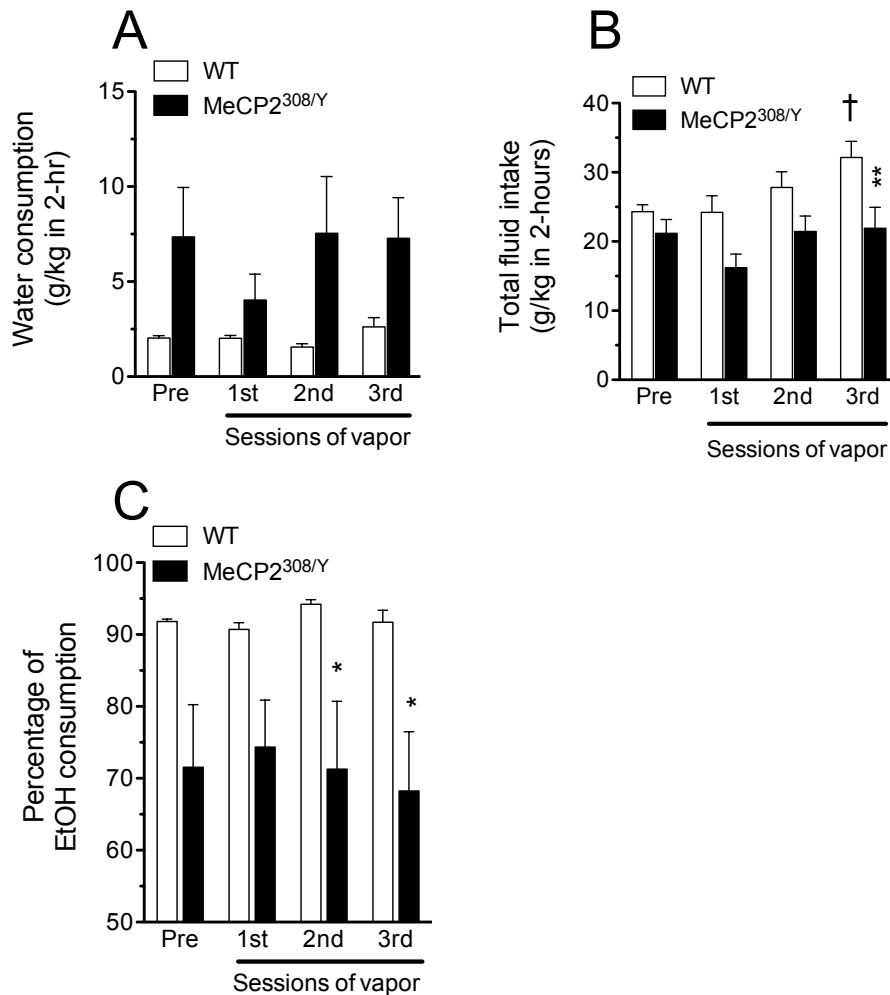


Supporting Information



Supplemental Figure 1. Saccharin and quinine intake by MeCP2^{308/Y} and WT mice. The MeCP2^{308/Y} mutation did not impact taste function as indicated by equal consumption of saccharin and quinine solutions as WT mice. **A)** Intake of 0.033 and 0.066% solutions of saccharin and **B)** quinine solutions of 0.015 and 0.06mM. **C)** Preference for saccharin and **D)** quinine at the same concentration in A, B. Levels of intake and preference of saccharin and quinine are in keeping with previous results with C57BL/6J mice (Lim et al., 2012).



Supplemental Figure 2. Water intake and alcohol preference in the course of the CIE experiment shown in Fig. 4B. **A**) Overall, water intake was higher in MeCP2^{308/Y} mice compared to WT mice (significant main effect of genotype: $F_{1,48}=6.465$, $p=0.0217$). **B**) An increase of total fluid intake in WT mice was observed over the 3 vapor bouts (significant main effect of genotype: $F_{1,48}=15.39$, $p=0.001$; session: $F_{3,48}=3.76$, $p=0.017$; by RM two-way ANOVA). Bonferroni post-hoc tests confirmed a significant increased drinking of WT mice ($\dagger p<0.05$) vs. baseline (Pre) and vs. MeCP2^{308/Y} ($** p<0.01$). **C**) Preference for alcohol was higher in WT compared to MeCP2^{308/Y} mice (significant main effect of genotype: $F_{1,48}=7.437$, $p=0.0149$; with a significant difference ($p<0.05$) between WT and MeCP2^{308/Y} after the 2nd and 3rd post vapor session).

Supplemental Table 1. GSEA results

genes	sign. EtOHvsSAL	tscore Mecp2KOvsWT	pvalue Mecp2KOvsWT	Core Enrichment
Pmvk	UP	15.87618907	0.00054333	YES
Adipor2	UP	11.73368377	0.00133023	YES
Idh2	UP	11.70182799	0.001340936	YES
Mt1	UP	8.948381539	0.002944752	YES
Heph	UP	8.474458416	0.003449706	YES
Fkbp5	UP	5.791292563	0.010242052	YES
Rhou	UP	4.461637305	0.020966991	YES
Msra	UP	3.996037895	0.02808119	YES
Sin3b	UP	3.886093854	0.030200084	YES
Mobp	UP	3.635198851	0.035862315	YES
Sdc4	UP	3.44474331	0.041093668	YES
Rab26	UP	2.971262246	0.059008401	YES
Mkrn1	UP	2.906343711	0.062180902	YES
Ddc	UP	2.905318502	0.062232694	YES
Tcfcp2l1	UP	2.571347103	0.082396594	YES
Osmr	UP	2.505519619	0.087281124	YES
Tpd52l2	UP	2.061749488	0.131275555	YES
Mt2	UP	1.996018168	0.139864818	YES
Mertk	UP	1.926243651	0.149717006	YES
Gpt2	UP	1.689624479	0.1896812	YES
Igfbp4	UP	1.655829969	0.196332496	YES
Nfkbia	UP	1.581658047	0.211871919	YES
Ctla2a	UP	1.555214941	0.21774054	YES
Farp2	UP	1.16869115	0.326948742	NO
Slc37a4	UP	1.019954179	0.382833276	NO
Rps6	UP	0.706852282	0.530615234	NO
S100a6	UP	0.618691423	0.579921019	NO
A730017C20				
Rik	UP	0.618249385	0.580176627	NO
Timp4	UP	0.578277656	0.603629282	NO
Slc2a1	UP	0.566022564	0.610952615	NO
Bok	UP	0.120693758	0.911563347	NO
Map1lc3b	UP	-0.192018599	0.859990042	NO
Blnk	UP	-0.22236135	0.838310822	NO
Thrsp	UP	-0.34481197	0.752993794	NO
Rin1	UP	-0.355519543	0.745728657	NO
Icam4	UP	-0.426896758	0.698237943	NO
Ptplb	UP	-0.585806535	0.599160923	NO

Dkk3	UP	-0.696112372	0.536441959	NO
Fdft1	UP	-1.047606053	0.37178199	NO
Ube2j2	UP	-1.830633807	0.164565787	NO
Tpd52l1	UP	-2.027812234	0.135629793	NO
Pkp2	UP	-2.509584277	0.086969387	NO
Pdk3	UP	-5.519959306	0.011710935	NO
Mat2a	UP	-5.858899118	0.009914091	NO
Fzd6	DOWN	-8.070932158	0.003973783	YES
Cd160	DOWN	-7.694648989	0.004561511	YES
Pvr13	DOWN	-6.862049871	0.006336712	YES
Itm2a	DOWN	-5.91841373	0.009636689	YES
Ugp2	DOWN	-5.801632441	0.010190981	YES
Rsb1	DOWN	-4.058687019	0.026958974	YES
P2ry12	DOWN	-3.589020369	0.037048802	YES
Fgfr1	DOWN	-3.529180162	0.038661921	YES
Idh1	DOWN	-3.133397807	0.051928505	YES
Crtap	DOWN	-2.523382426	0.085921284	YES
Bmpr1a	DOWN	-1.063384591	0.365614364	NO
Gabra2	DOWN	-1.02205402	0.381983138	NO
Nfia	DOWN	-0.86819862	0.449163455	NO
AA408251	DOWN	-0.772365089	0.496165639	NO
Ephb1	DOWN	-0.076870493	0.943566172	NO
Mpeg1	DOWN	0.164187963	0.880021815	NO
BC035044	DOWN	1.309372943	0.28166294	NO
Akap8	DOWN	1.585519499	0.21102976	NO
Fgfr2	DOWN	1.712879289	0.185252671	NO
Ttf2	DOWN	1.776474216	0.173731987	NO

Supplemental literature cited

Lim JP, Zou ME, Janak PH, Messing RO (2012) Responses to ethanol in C57BL/6 versus C57BL/6 x 129 hybrid mice. *Brain and behavior* 2:22-31.