

Supplementary Materials

Supplementary Figure S1. Motor learning and coordination behavioral test with the accelerating rota-rod task.

Age and sex matched control (Dnmt12lox/2lox, n=11), heterozygous (Emx1-cre;Dnmt12lox/+, n=13) and mutant (Emx1-cre; Dnmt12lox/2lox, n=14) littermates were subjected to the accelerating rota-rod. The behavior scores of both control and mutant groups did not differ significantly ($p > 0.44-0.93$), indicating that motor coordination and motor learning are intact.

Supplementary Figure S2. Deregulation of neuronal gene expression in hypomethylated forebrain in postnatal stages.

The upregulated genes (A and B) and downregulated genes (C and D) in dorsal cortex of P5 Emx1-cre; Dnmt1 mutant mice were first classified into lists using PANTHER classification categories. Each category was then compared to the reference list using the binomial test for each biological process (A and C) and molecular function (B and D) term in PANTHER. Ontology term are represented on the y axis, and the p value for upregulated or downregulated genes relative to all genes represented on the microarray is shown for each category on x axis.

D.

Supplemental Figure S3. Levels of mRNA and protein of Kv4.2 in control and mutant dorsal cortex.

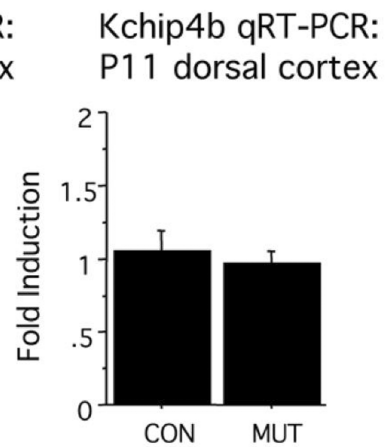
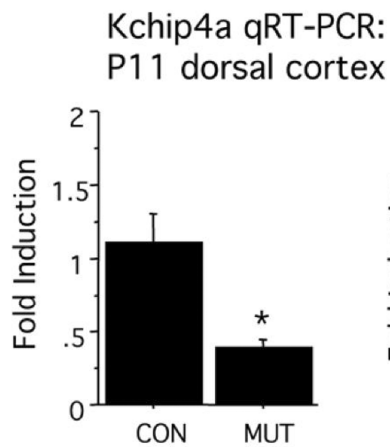
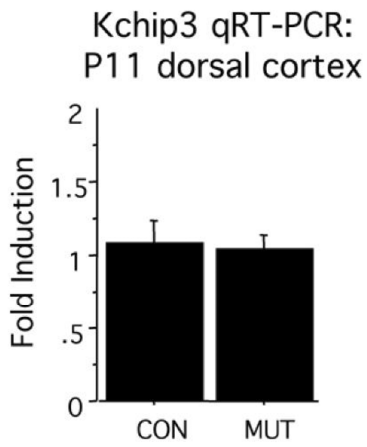
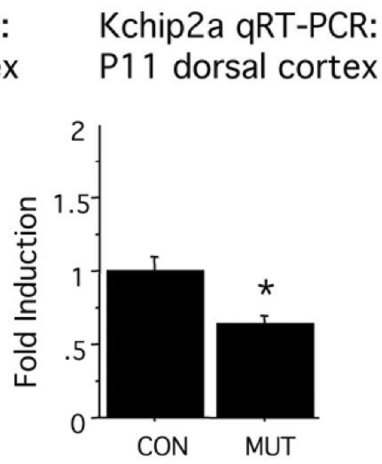
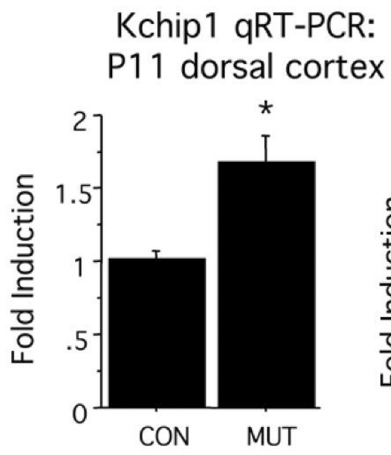
(A) Quantitative real-time RT-PCR for Kv4.2 mRNA levels in P11 control and mutant cortex. Bar values are expressed as mean \pm SE (n = 3). *; $p < 0.05$. (B) Immunoblot data reveals a decrease in Kv4.2 protein in the mutant cortex, as quantified by protein loading ratios to levels of the control protein, GAPDH. (C) Immunostaining for Kv4.2 in coronal sections at P28 verifies the decrease seen via western blot analysis. con= Emx1-cre; Dnmt12lox/+control; mut= Emx1-cre; Dnmt12lox/2lox mutants.

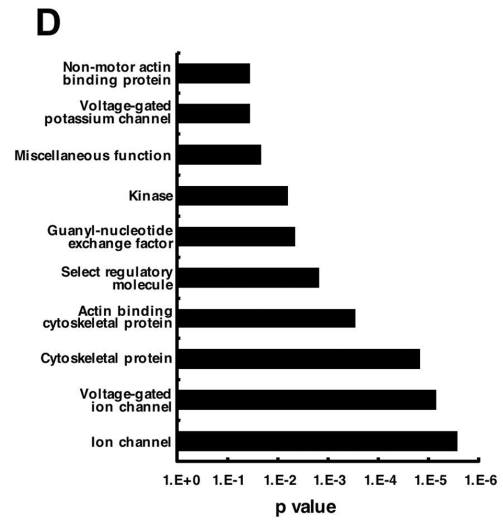
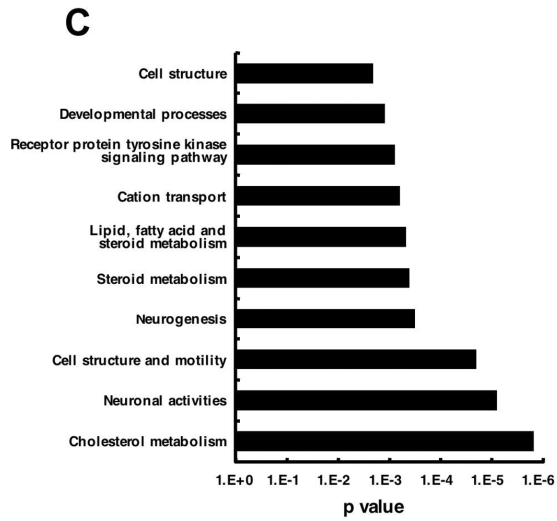
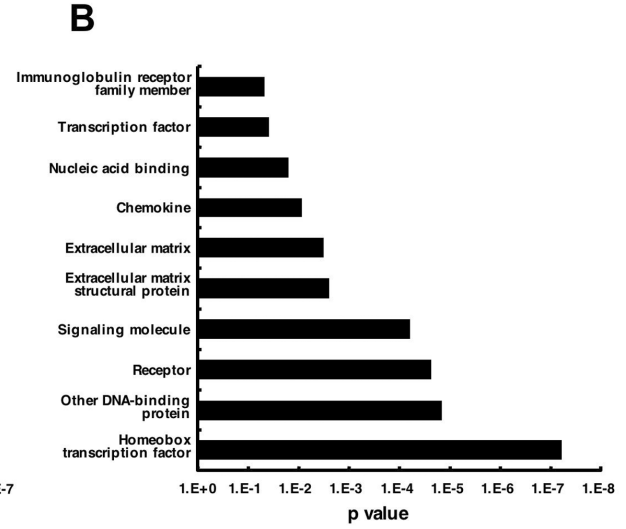
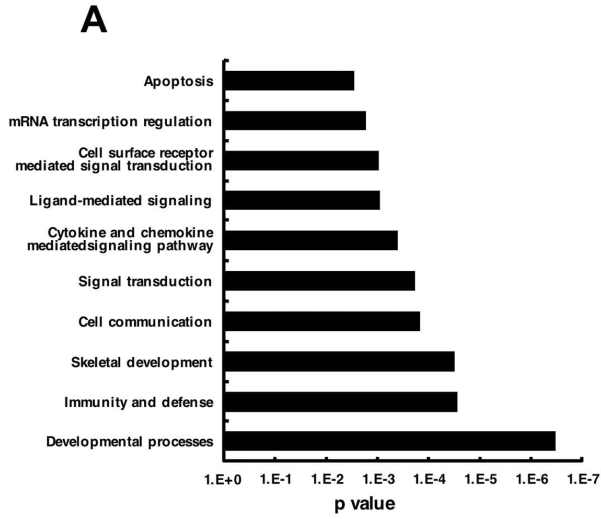
Supplementary Figure S4. Altered expression of KChip genes in mutant cortex as assayed by real-time RT-PCR.

Quantitative RT-PCR assays were performed with control and mutant RNAs from dorsal cortex at P11. Bar values are expressed as mean \pm SE (n = 3). *; $p < 0.05$.

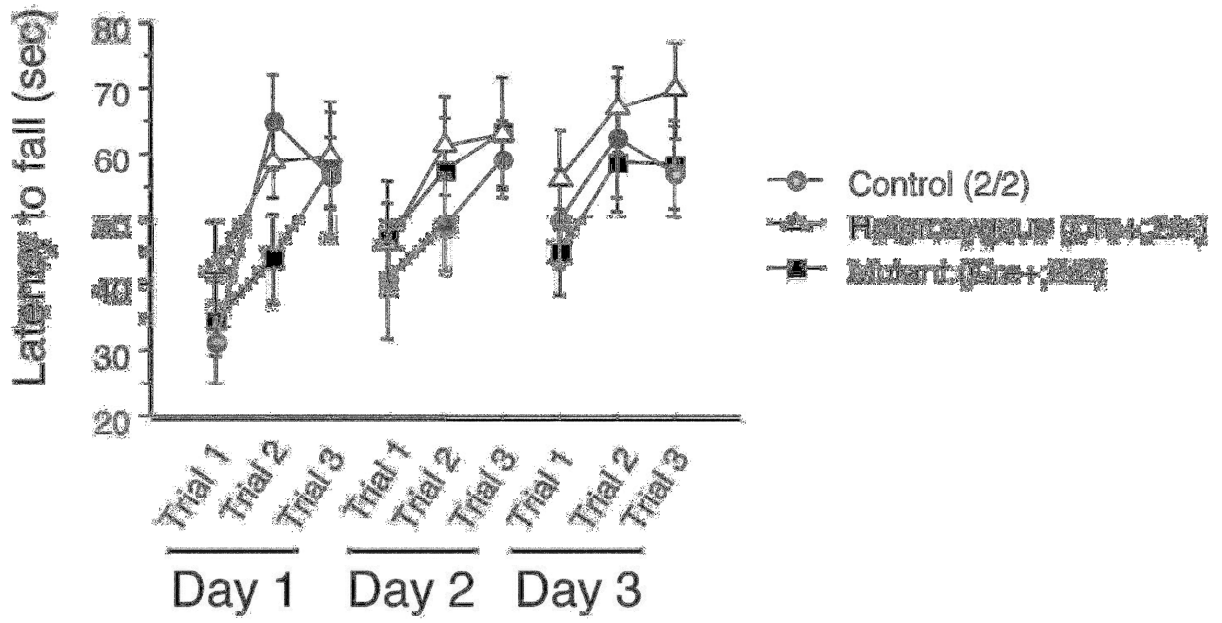
Supplementary Table 1. The list of up-regulated genes in P5 dorsal cortex in Emx1-cre; Dnmt1 mutant mice.

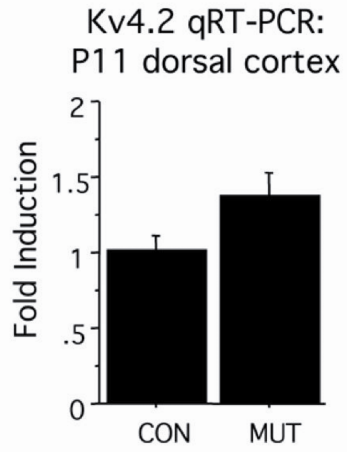
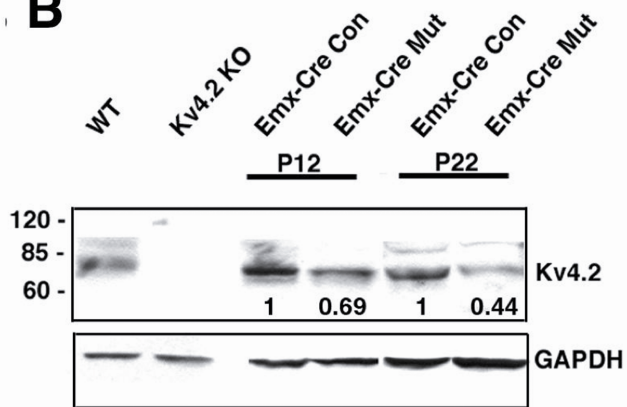
Supplementary Table 2. The list of down-regulated genes in P5 dorsal cortex in Emx1-cre; Dnmt1 mutant mice.





Rotorod Task



A**B****C**