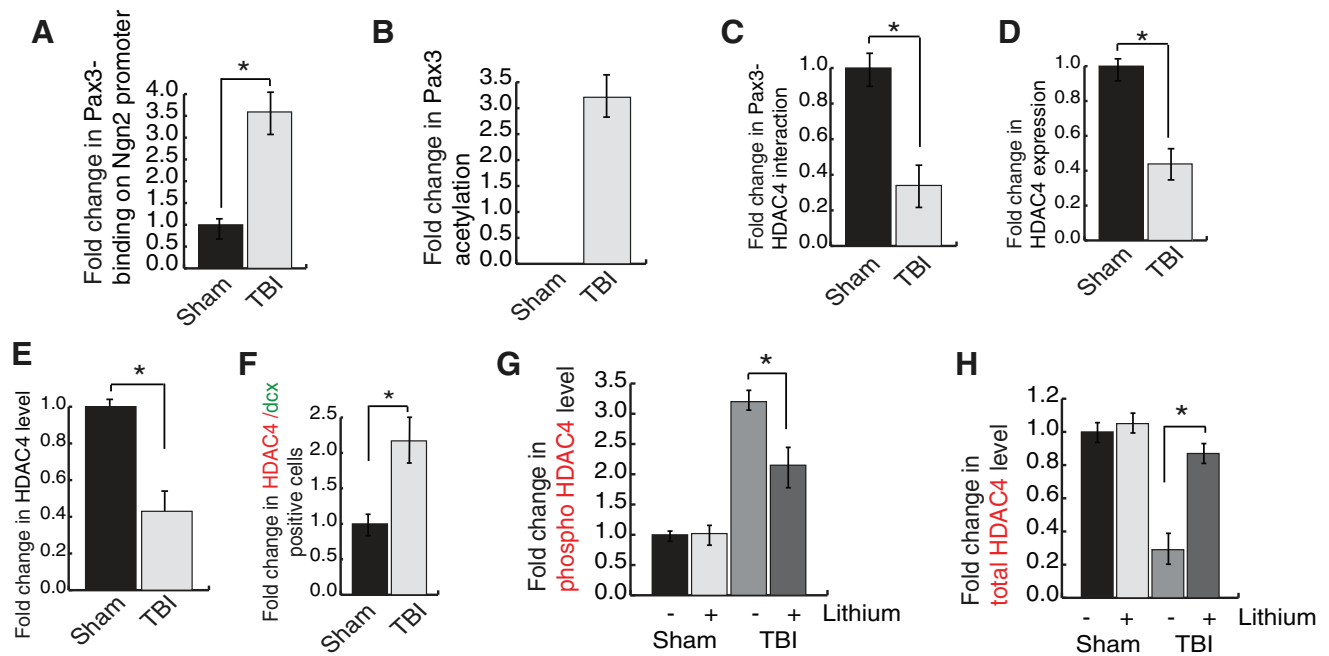**SUPPLEMENTARY FIG. S2.** Quantitative analysis of the influence of Ngn2 on vGlut1 and Mash1 expression. **(A)** The fold changes in the intensity of red fluorescent for Ngn2 staining was monitored between TBI and sham mice. **(B)** The ratio of Ngn2/Dcx-positive cells was increased in TBI mice as the number of Ngn2-positive cells were increased along with a decrease in Dcx-positive cells. **(C)** The fold change in the increase in binding of Ngn2 on vGlut1 promoter was increased significantly. Statistical significance was measured by one-way ANOVA with a Tukey-Kramer post hoc correction, $n = 7$, $*p < 0.05$. All data are expressed as mean ± SEM. ANOVA, analysis of variance; Dcx, Doublecortin; DG, dentate gyrus; SEM, standard error of the mean; TBI, traumatic brain injury; vGlut1, vesicular glutamate transporter 1.

SUPPLEMENTARY FIG. S3. The quantitative analysis of the influence of HDAC4 on Pax3 acetylation and transcription of Ngn2. **(A)** The fold change in binding of Pax3 to Ngn2 promoter was increased significantly after TBI. **(B)** The fold change in Pax3 acetylation was increased after TBI. **(C)** TBI leads to a decrease in Pax3-HDAC4 interaction to 0.3 folds. **(D)** TBI leads to a decrease in the expression level of HDAC4 to 0.35 folds. **(E)** The fold changes in the intensity of red fluorescent for HDAC4 staining was monitored between TBI and sham mice. **(F)** The ratio of Dcx/HDAC4-positive cells was increased in TBI mice as the number of Ngn2-positive cells was increased along with a decrease in Dcx-positive cells. **(G)** The induction of pospho-HDAC4 level was decreased after pre-treatment with lithium (5 mg/kg). **(H)** The reduction in the level of HDAC4 was rescued after treatment with lithium prior to TBI. Statistical significance was measured by one-way ANOVA with a Tukey-Kramer post hoc correction, $n = 7$, $*p < 0.05$. All data are expressed as mean ± SEM. ANOVA, analysis of variance; Dcx, Doublecortin; HDAC4, histone deacetylase 4; SEM, standard error of the mean; TBI, traumatic brain injury.