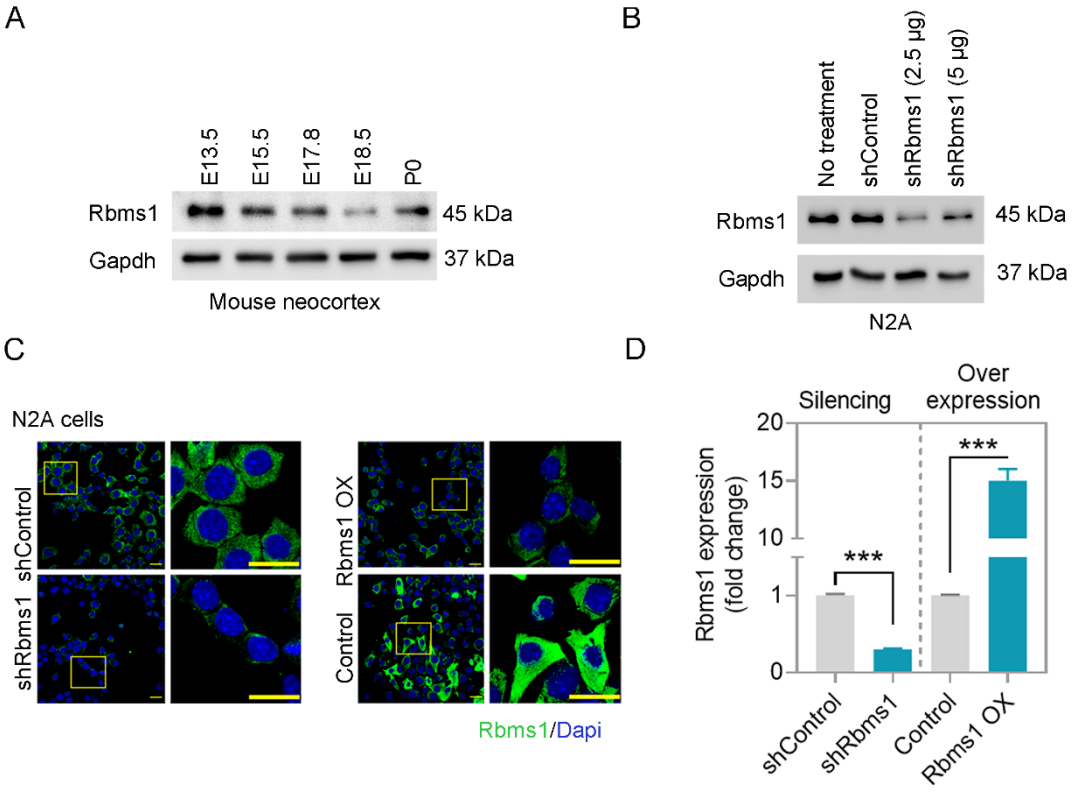
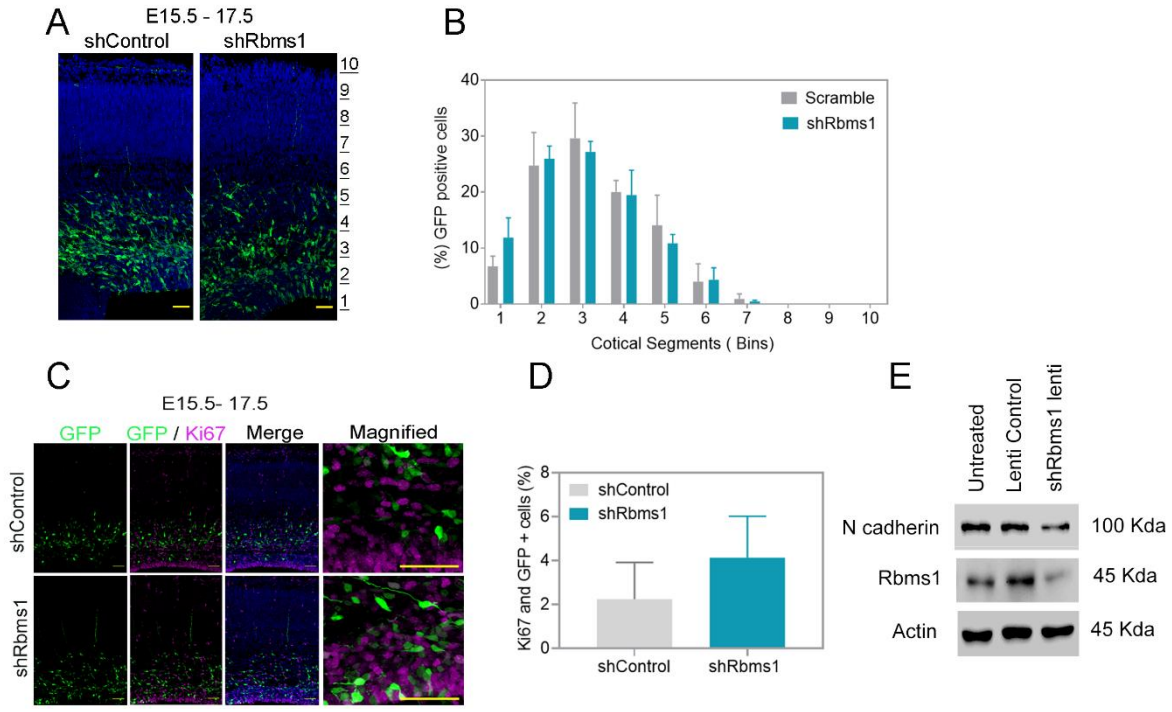
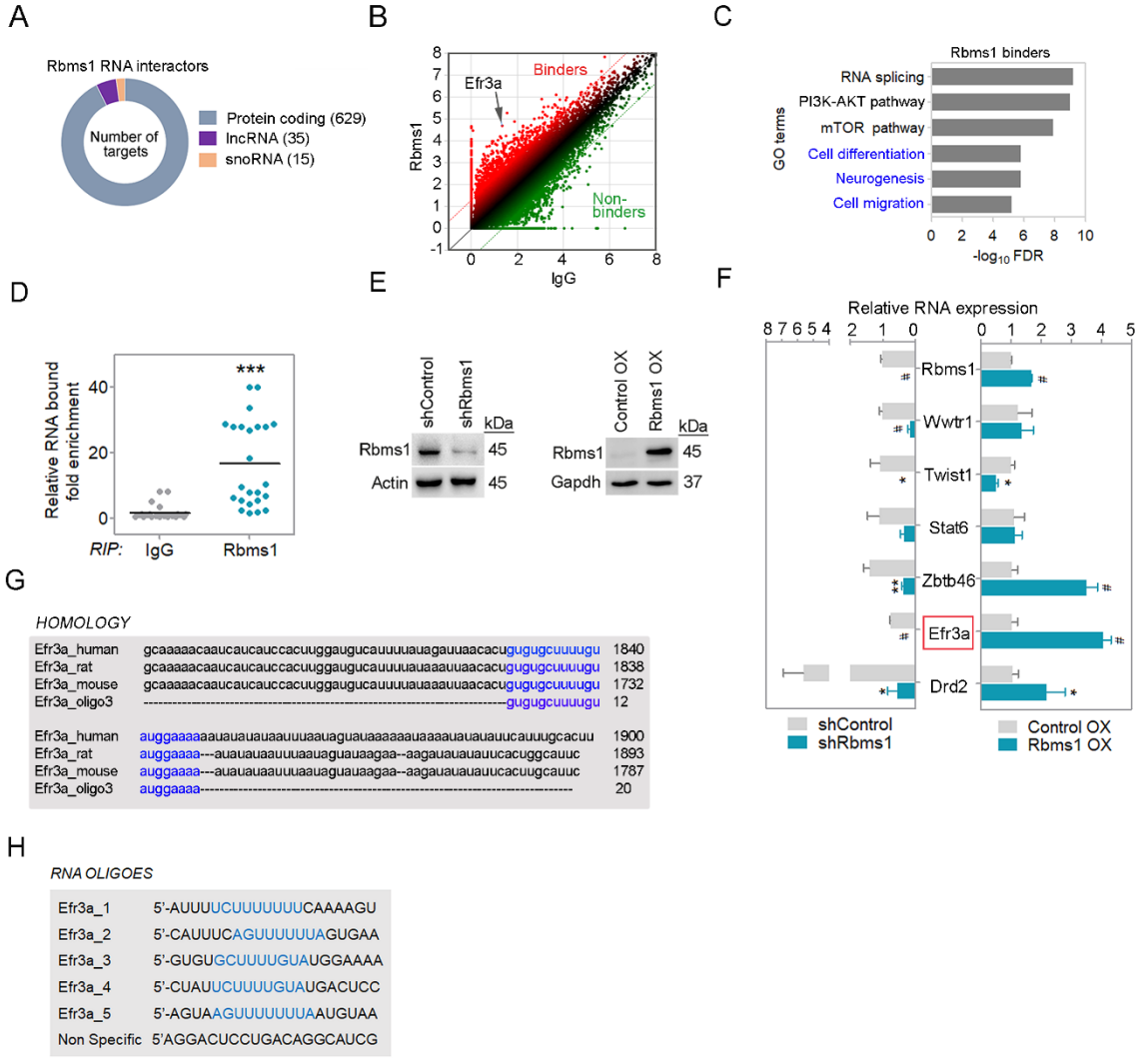


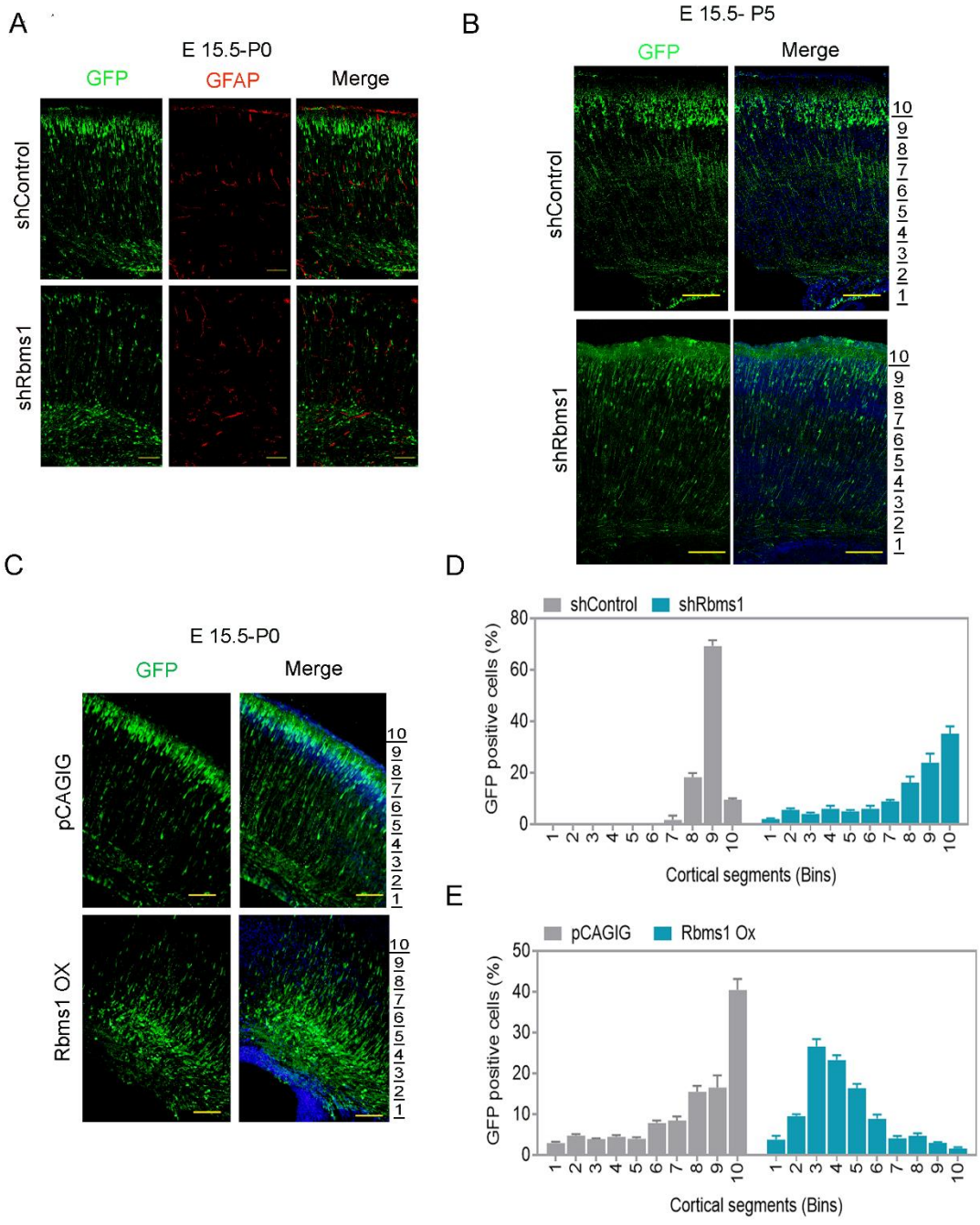
Supplementary Fig. S1. (A) Western blot of Different stage neocortical lysate against Rbms1 and Gapdh as a loading control. (B) Transfected N2A cells with control and shcontrol vector were run for western blot and Gapdh as a loading control. (C) Left panel: shRbms1 and shcontrol vector were transfected with N2A cells and immunostained against Rbms1 specific antibody. Right panel : Rbms1 overexpression vector and control vector were transfected with N2A cells for 48 h and immunostained against Rbms1 specific antibody. (D) Quantification of Relative protein expression of (C). Data presented as mean ± SEM; *t*-test; ***$P < 0.001$ (n = 3).



Supplementary Fig. S2. (A) Immunostaining of GFP (green) and Dapi (blue) mouse cortices at E17.5 two days after electroporation at E15.5 of Rbms1 knockdown vector (shRbms1) and backbone control vector. The area from the outer layer of the CP to the inner layer of the VZ was divided into 10 different bins (n = 3 brain from three different injections). (B) Quantification of Supplementary Fig. S2A. (C) Immunostaining of GFP (green) and Dapi (blue) and ki67 (purple) mouse cortices at E17.5 two days after electroporation at E15.5 of Rbms1 knockdown vector (shRbms1) and backbone control vector (n = 3 brain from three different injections). (D) Quantification of Supplementary Fig. S2C. Data are presented as mean ± SEM (n = 3). (E) Neurons harvested from E15.5 and infected with shRbms1 lenti and corresponding control lenti particles and incubated at 37°C for 48 h and run western against anti N-cadherin and anti Rbms1, beta actin was a loading control.



Supplementary Fig. S3. (A) Total Rbms1 RNA interactors graph, 629 Protein coding, 35 long non-coding and 15 snoRNA. (B) Volcano plot shows the binding of Efr3a and total binders and non- binders. (C) Gene ontology analysis of the RIP seq data with respect to molecular function categories. Top enriched Gene Ontology terms among Rbms1 mRNA targets are related to cell differentiation, neurogenesis, and cell migration highlighted in blue. (D) qPCR after RIP against Rbms1 and IgG from brain lysate and validate the binding targets of Rbms1. (E) Primary Neuron Infected with shRbms1 and overexpress Rbms1 lentivirus particles and their corresponding control lentivirus particles, and cells were harvested after 48 h and run western against Rbms1 and Actin and Gapdh as a loading control. (F) Primary Neuron Infected with shRbms1 and overexpress Rbms1 lenti particle and their corresponding control lenti particles, cells were harvested after 48 h and run qPCR for Relative mRNA expression of the targets of Rbms1. Data presented as mean ± SEM; *t*-test; $*P < 0.05$, $**P < 0.01$, $^{\#}P < 0.001$ (n = 3). (G) Homology of Efr3a RNA oligo 3 in different species. (H) Sequences of Efr3a oligoes with negative control RNA sequence.



Supplementary Fig. S4. (A) Immunostaining of GFP (green), GFAP (red) and Dapi (blue) mouse cortices at P0 five days after electroporation at E15.5 of Rbms1 knockdown vector (shRbms1) and backbone control vector. Scale bars = 50 μM. (B) Immunostaining of GFP (green) and Dapi (blue) mouse cortices at P5, 10 days after electroporation at E15.5 of Rbms1 knockdown vector (shRbms1) and backbone control vector. The area from the outer layer of the CP to the inner layer of the VZ was divided into 10 different bins; (n = 3 brain from three different injections) and (D) their relative quantification. Data presented as mean ± SEM; *t*-test (n = 3). Scale bars = 100 μM. (C) Immunostaining of GFP (green) and Dapi (blue) mouse cortices at P0 five days after electroporation at E15.5 of Rbms1 overexpression vector and backbone control vector (pCAGIG), (n = 3 brain from three different injections) and (E) their relative quantification. Data represent as mean ± SEM; *t*-test (n = 3). Scale bars = 50 μM.