Supplemental Figure 1. Expression of *p35* mRNA in the adult RMS. (A) Schematic drawing showing the entire coronal section and the portion of the anterior telencephalon shown in B. (B) *In situ* hybridization of the adult coronal section, marked by the rectangle in A, showing *p35* mRNA expression in the RMS. (C) Higher magnification view of the RMS (arrow), marked by the rectangle in B. Scale bar: B, 200 μm.

Supplemental Figure 2. Subpopulations of SVZ cells expressing *Emx1*-Cre in the SVZ-RMS-OB pathway of P10 and P0 brains. Brain sections from double-transgenic mice carrying both *Emx1-Cre* and *CAG-CAT-Z* constructs at P10 (A-I) or P0 (J-O) were stained with antibodies against β-galactosidase combined with GFAP (A-C), Mash1 (D-F, J-L), or Dcx (G-I, M-O). In the P10 brains, β-galactosidase$^+$ cells colocalized with a subpopulation of Type B, C, and A cells (dorsal SVZ: 17.5% of GFAP$^+$ cells, n = 40; 32.9% of Mash1$^+$ cells, n = 70; 69.7% of Dcx$^+$ cells, n = 99; RMS: 13.3% of GFAP$^+$ cells, n = 14; 16.9% of Mash1$^+$ cells, n = 77; 58.2% of Dcx$^+$ cells, n = 141; OB: 22.2% of GFAP$^+$ cells, n = 9; 15.4% of Mash1$^+$ cells, n = 13; 50.7% of Dcx$^+$ cells, n = 67). In the P0 brains,

β-galactosidase$^+$ cells colocalized with a subpopulation of Type C and A cells (dorsal SVZ: 50.0% of Mash1$^+$ cells, n = 82; 50.7% of Dcx$^+$ cells, n = 154; RMS: 46.2% of Mash1$^+$ cells, n = 39; 49.0% of Dcx$^+$ cells, n = 96; OB: 23.5% of Mash1$^+$ cells, n = 17; 22.5% of Dcx$^+$ cells, n = 120). Arrowheads indicate β-galactosidase$^+$ cells (red) colabeled with the indicated marker (green). Nuclei were stained with Hoechst (blue) in A-C, G-I, and M-O. Scale bar: A-O, 10 μm.

Supplemental Figure 3. *Emx1-Cre*-mediated conditional KO of *Cdk5* causes a decrease in the level of Cdk5 protein in the SVZ. Representative Western blot of three separate P11 lysates prepared from control and *Cdk5* ECKO cortex or SVZ showed a substantial decrease in the level of Cdk5 protein in the *Cdk5* ECKO samples, compared with controls.

Supplemental Movie 1. Time-lapse imaging of control and *Cdk5* KO neuroblasts migrating in the wild-type RMS, recorded at 10-minute intervals for 6 hours.

PKH26-Red-labeled SVZ cells were transplanted into the posterior RMS of cultured sagittal brain slices from wild-type mice. Both control and *Cdk5* KO neuroblasts migrated from the transplanted site and moved along the RMS. Note that the *Cdk5* KO neuroblasts migrated more slowly and irregularly compared with the control neuroblasts.

Supplemental Movie 2. Tracking of the route of neuroblast migration in time-lapse movies at a higher magnification at 5-minute intervals for 6 hours. The tracking lines of representative cell movements are shown. In the control experiment, most neuroblasts migrated in a straight path in the direction of the RMS. Note that one of the labeled cells placed outside of the RMS migrated across the RMS (indicated by arrow), and it was not included in the quantification. Some *Cdk5* KO neuroblasts showed winding migratory paths (indicated by light blue lines).