

## **Supplemental Information**

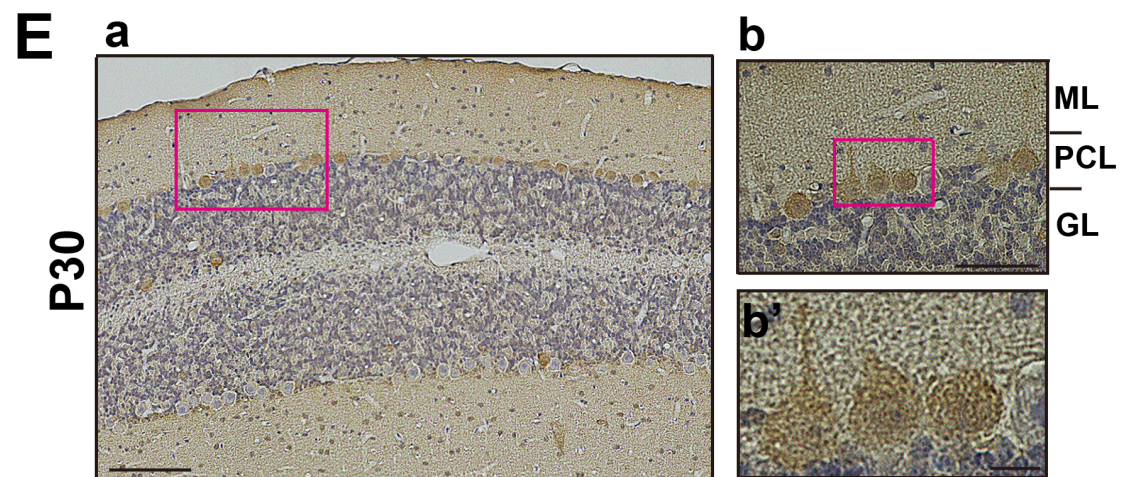
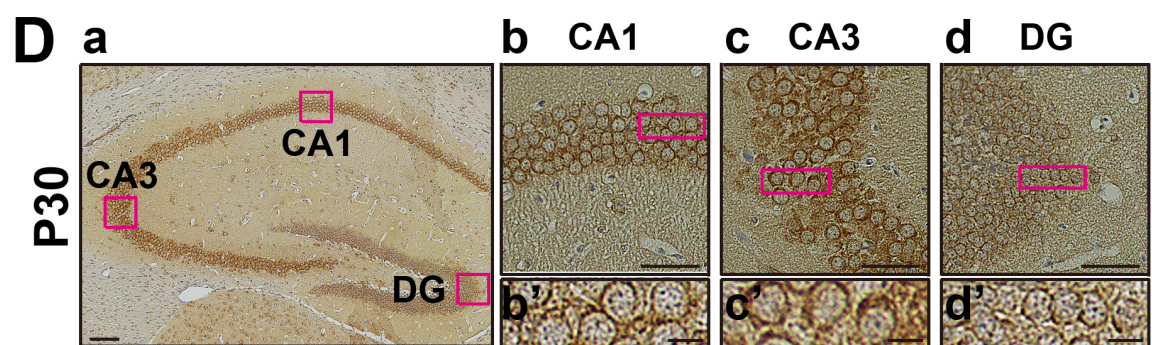
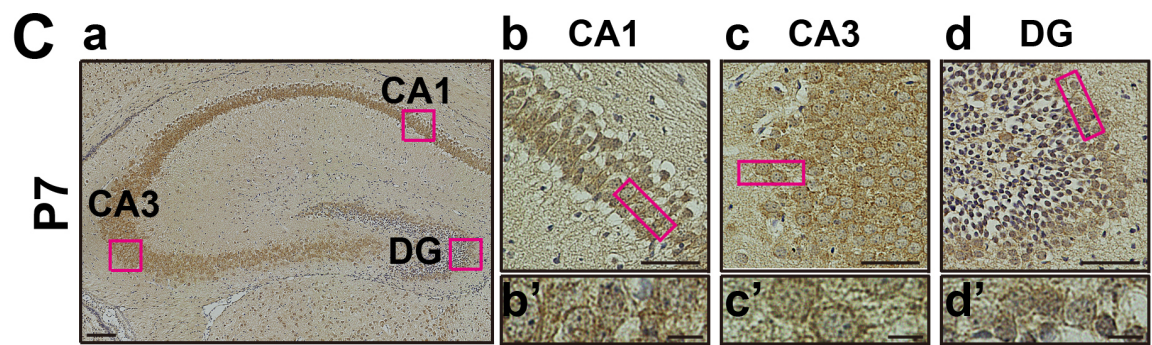
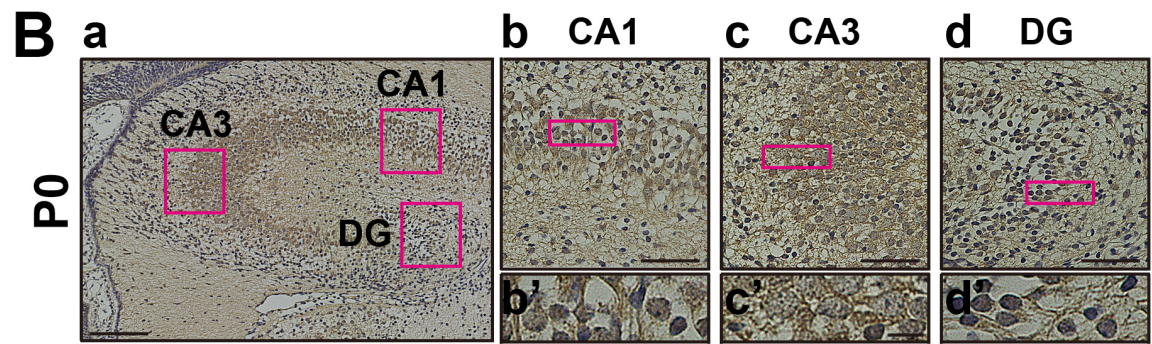
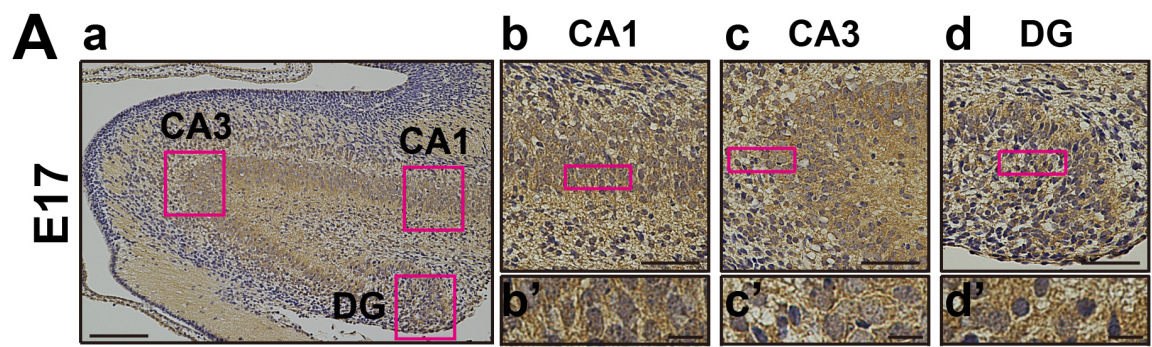
### **Physiological significance of *WDR45*, a responsible gene for b-propeller protein associated neurodegeneration (BPAN), in brain development**

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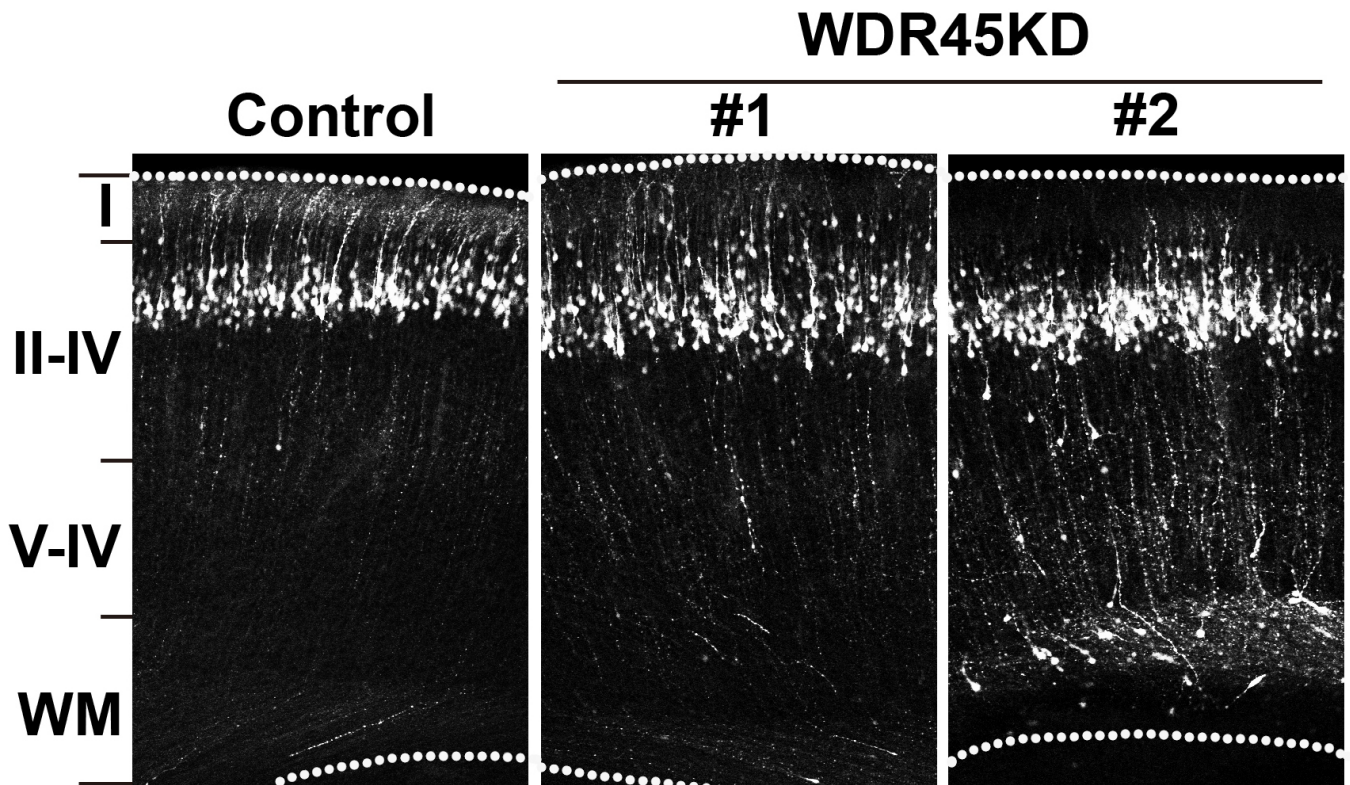
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## **Supplementary Figure 1. Immunohistochemical analyses of Wdr45 in hippocampus and cerebellum**

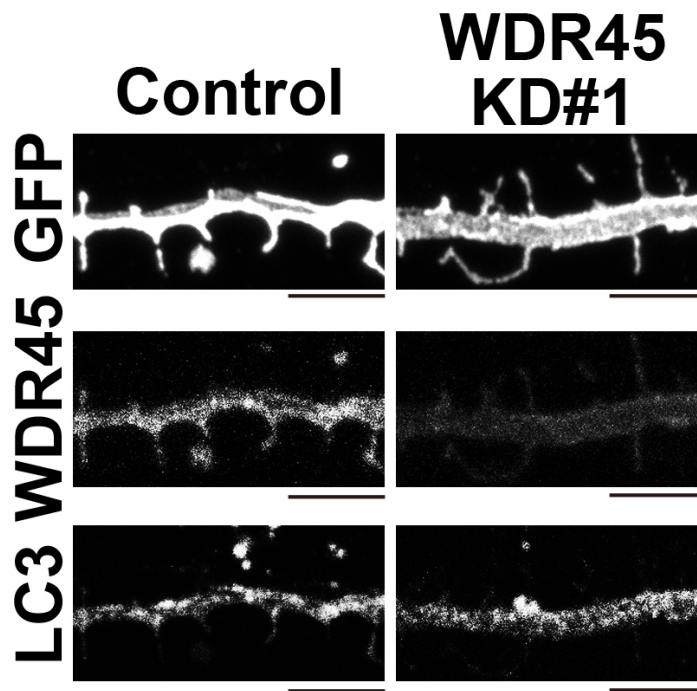
Hippocampal sections at E17 (**A**), P0 (**B**), P7 (**C**) and P30 (**D**) were stained with anti-WDR45. Boxed areas in (a) were magnified in (b) – (d). Boxed areas in (b) – (d) were magnified in (b') – (d'), respectively. CA, *cornu ammonis*; DG, dentate gyrus. (**E**) A cerebellar section at P30 was stained with anti-WDR45. Boxed areas in (a) and (b) were magnified in (b) and (b'), respectively. Layers were indicated in (b). ML, molecular layer; PCL, Purkinje cell layer; GL, granular layer. Counter staining was done with Mayer's hematoxylin. Scale bars; 100  $\mu\text{m}$  (A-E,a), 50  $\mu\text{m}$  (A-D,b-d and E,b) and 10  $\mu\text{m}$  (A-D,b'-d' and E,b').



**Supplementary Figure 2. Effects of Wdr45-knockdown on cortical neuron migration during corticogenesis.**

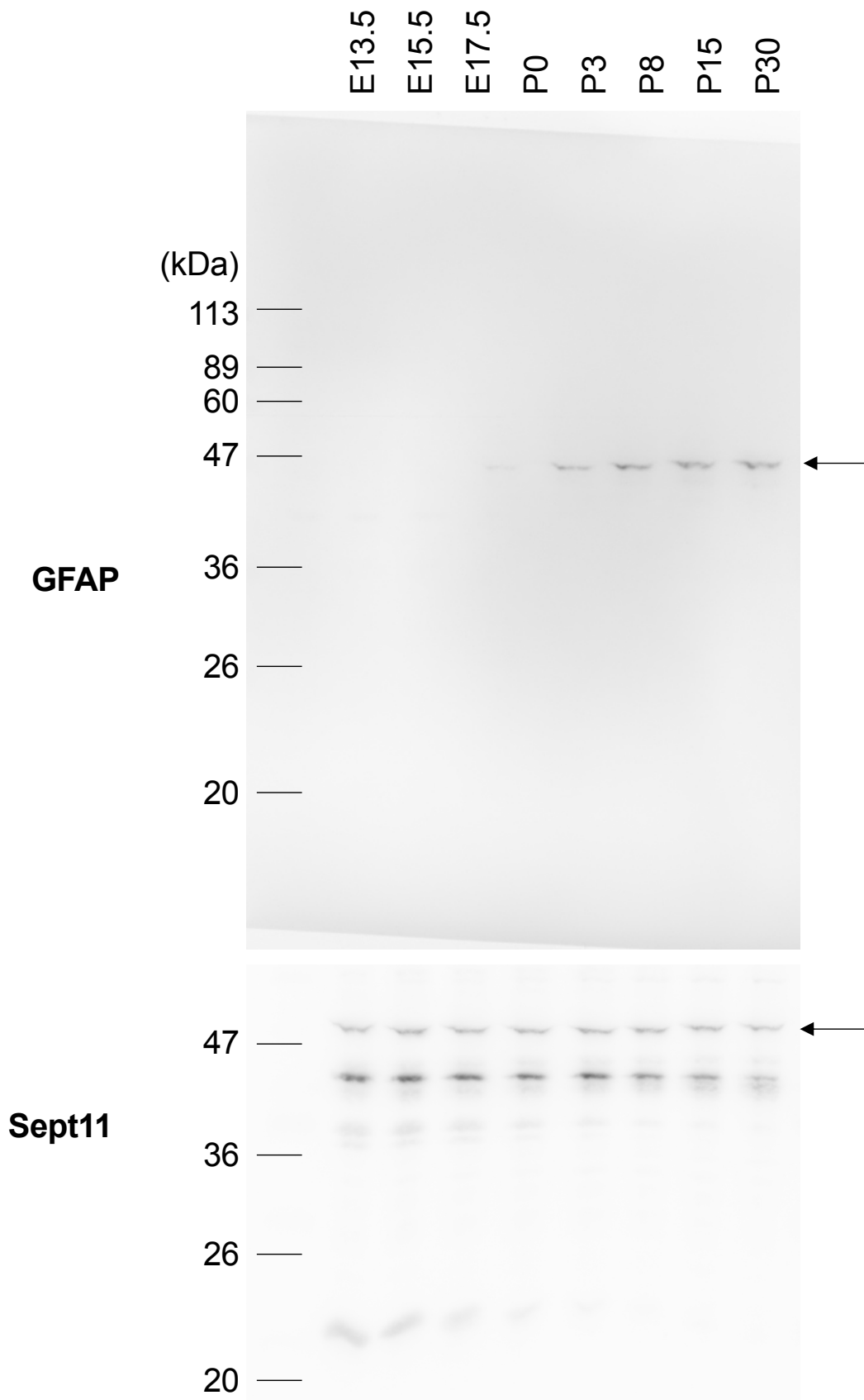
pCAG-TurboRFP was co-electroporated with pSuper-H1.shLuc (control) or pSuper-Wdr45#1 or #2 into the VZ progenitors at E14.5. Coronal sections were prepared at P2 and stained for RFP. Dotted lines represent the pial (*upper*) and the ventricular (*lower*) surfaces.





**Supplementary Figure 3. Effects of Wdr45-knockdown on LC3 expression.**

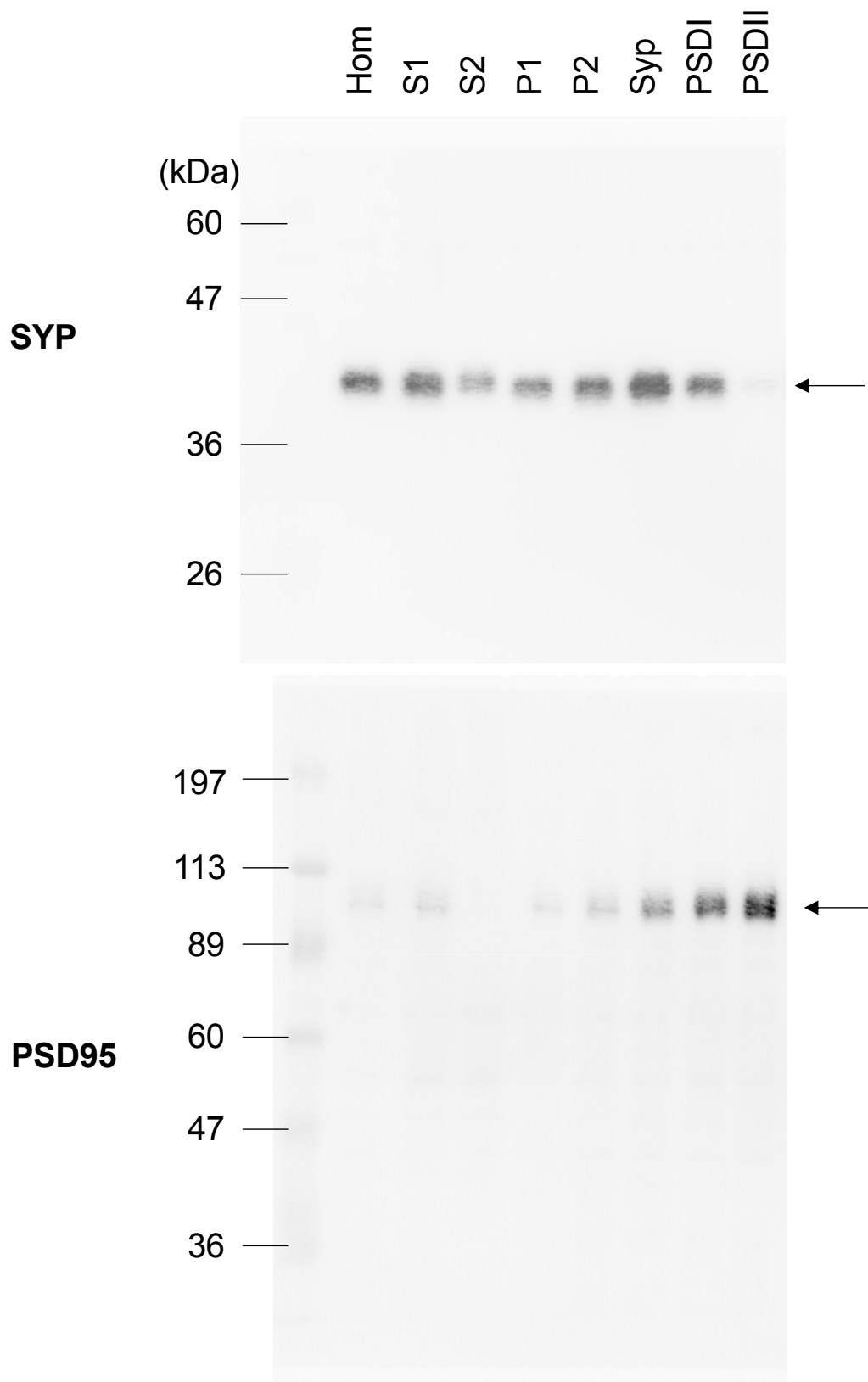
pCAG-TurboRFP was co-electroporated with pSuper-H1.shLuc (Control) or pSuper-Wdr45#1(KD#1) into the VZ progenitors at E14.5. Coronal sections were prepared at P2 and stained for Wdr45 and LC3. Representative images of dendritic spines on the 1st-order apical dendrites were shown. Scale bars, 5  $\mu$ m.



**Supplementary Figure 4. Uncropped blots of Figure 1B**

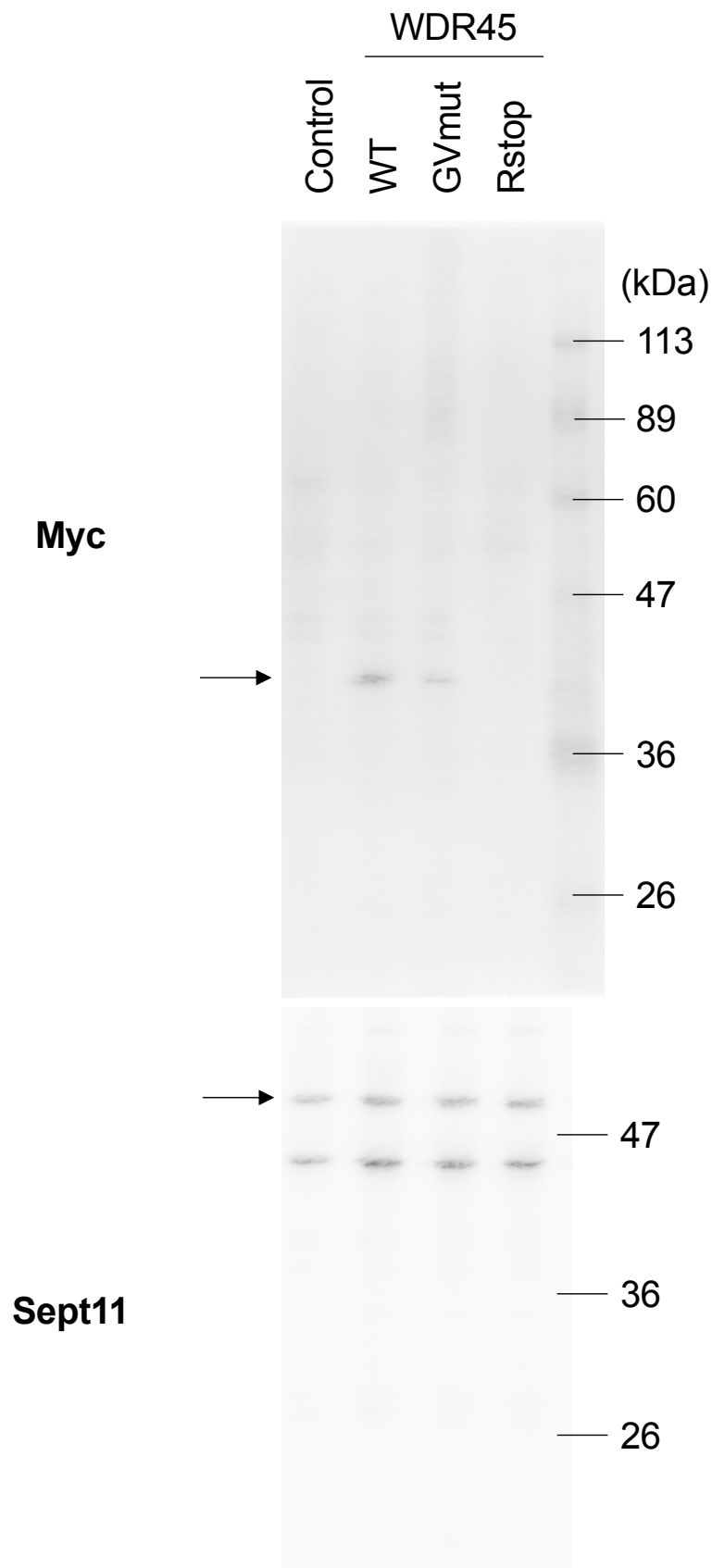
Western blot of protein samples immunoblotted with anti-GFAP and anti-Sept11. The protein bands shown in Figure1B are indicated by arrows.





**Supplementary Figure 5. Uncropped blots of Figure 1C**

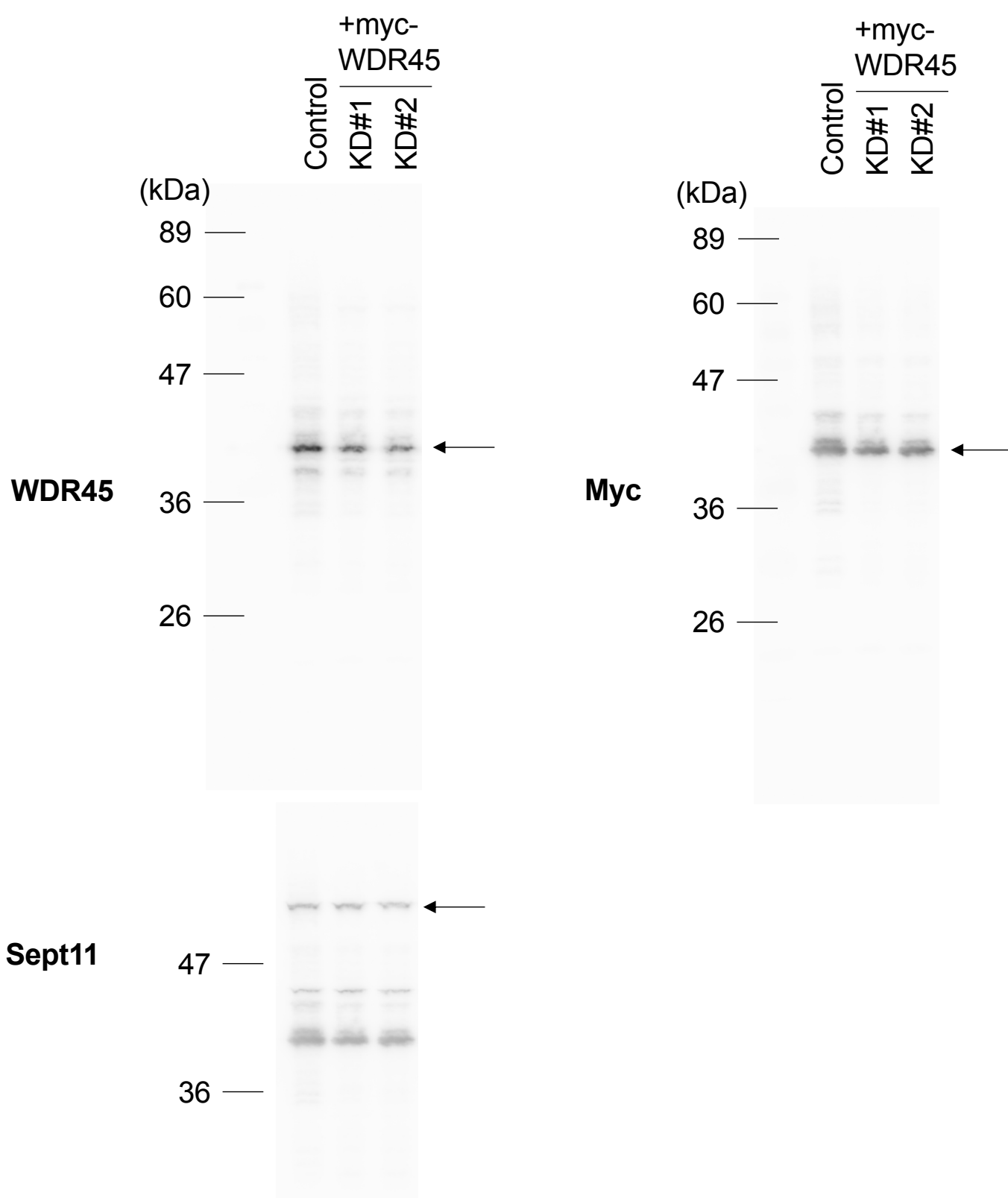
Western blot of protein samples immunoblotted with anti-Synaptophysin (SYP) and anti-PSD95. The protein bands shown in Figure1C are indicated by arrows.



**Supplementary Figure 6. Uncropped blots of Figure 3A**

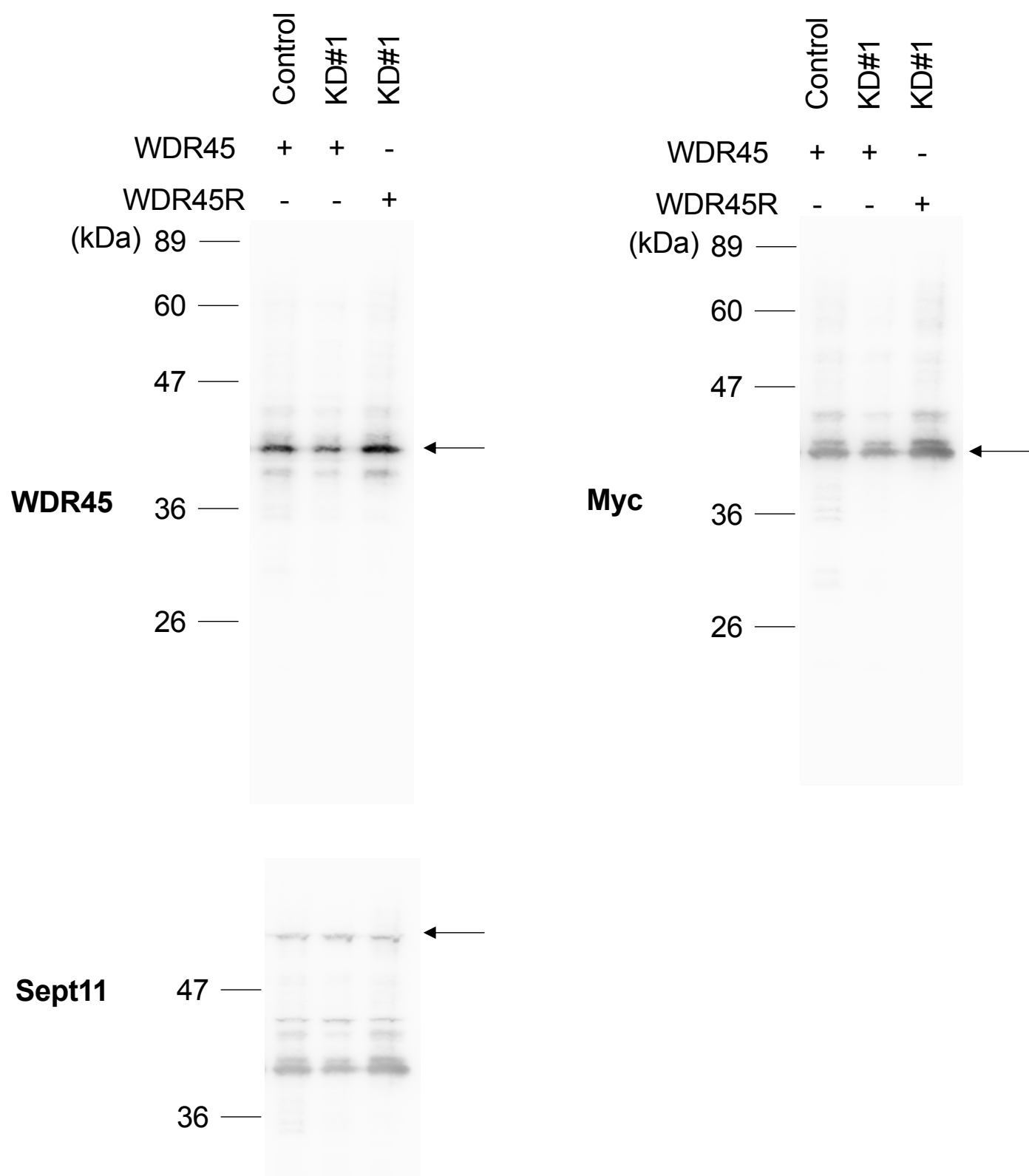
Western blot of protein samples immunoblotted with anti-Myc and anti-Sept11. The protein bands shown in Figure 3A are indicated by arrows.





### Supplementary Figure 7. Uncropped blots of Figure 3B

Western blot of protein samples immunoblotted with anti-WDR45, anti-Myc and anti-Sept11. The protein bands shown in Figure3B are indicated by arrows.



### Supplementary Figure 8. Uncropped blots of Figure 3D

Western blot of protein samples immunoblotted with anti-WDR45, anti-Myc and anti-Sept11. The protein bands shown in Figure3D are indicated by arrows.