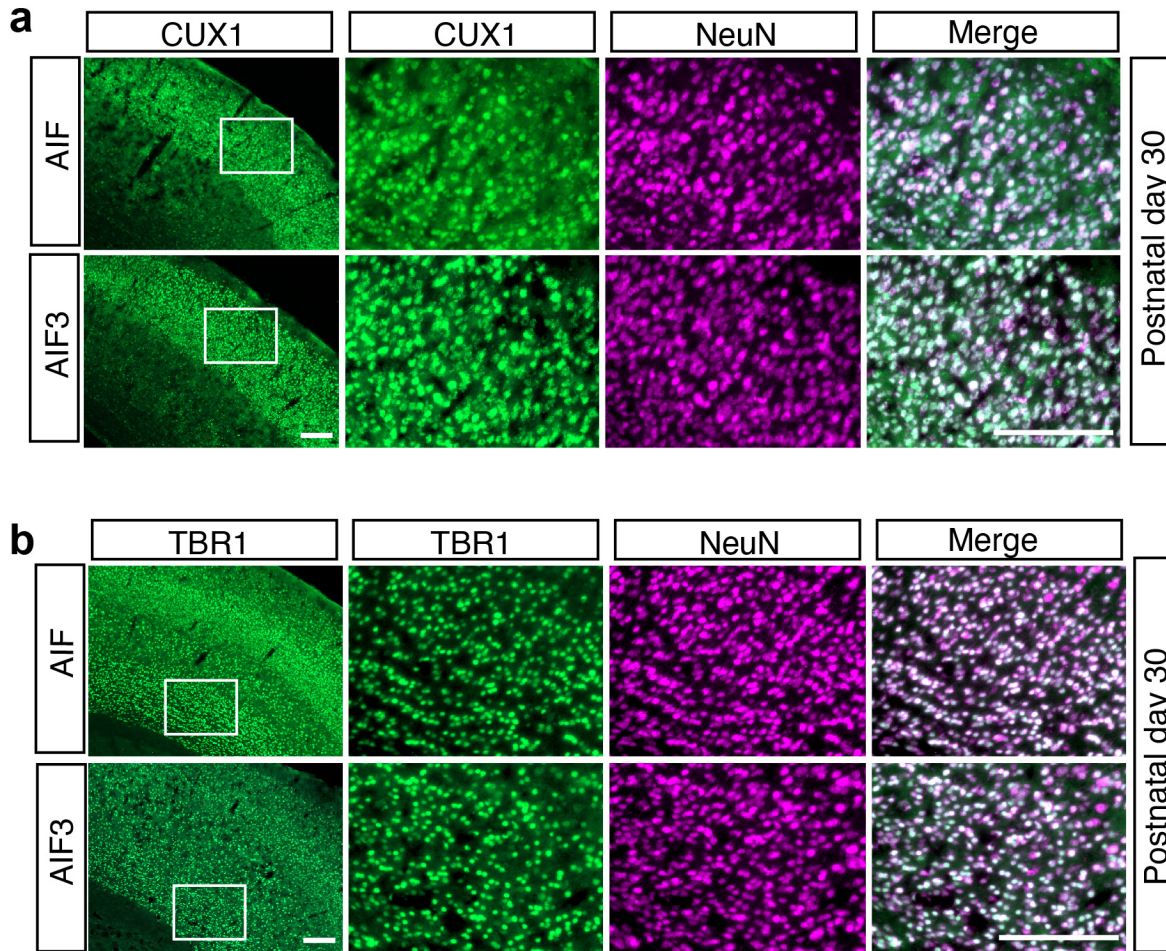


**e**

Id	Age	Sex	Diagnosis	Regions
1	63 yrs	M	normal	Cortex
2	73 yrs	F	normal	Cortex
3	35 yrs	F	normal	Cortex
4	30 yrs	F	normal	Cortex
5	35 yrs	M	normal	Cortex
6	11 yrs	F	normal	Cortex
7	3 mon	F	Acute hypoxic ischemic Infarction,	Cortex
8	6 mon	M	old germinal matrix hemorrhage	Cortex
9	14 yrs	M	vascular malformation with hemorrhage, diffuse ischemia	Cortex
10	20 days	F	Hypoxic ischemic injury	Cortex
11	3 mon	M	Hypoxic ischemic injury	Cortex

**Supplementary Figure 2. Expression of AIF3 in neurons in vitro and mouse cortex under different pathological conditions.** **a**, TTC staining of C57BL/6 mouse brain at 24 h reperfusion after 2 h MCAO. **b**, Expression of AIF3 in cortical neurons 24 h after NMDA (500  $\mu$ M for 5 min or 100  $\mu$ M for 2 h) or Staurosporine (STS, 1  $\mu$ M) treatment. CSS, control saline solution. PC (positive control), cortical lysate of AIF3 splicing mice. **c**, Expression of AIF3 in cortical neurons at 24 h and 48 h after exposure to OGD for 90 min. PC, cortical lysate of AIF3 splicing mice. **d**, Expression of AIF3 in cortical neurons exposed to 24 h, 48 h and 72 h hypoxia (1% O<sub>2</sub>). PC, cortical lysate of AIF3 splicing mice. **e**, De-identified human stroke patients' information.



**Supplementary Figure 3. Characterization of neuron marker expression in the cortex of AIF3 splicing mice at P30.** **a**, Representative images of CUX1+/NeuN+ neurons in AIF3 splicing mice ( $AIF^{fl/Y}/CamKII\alpha-iCre+$ ) and littermate control AIF mice ( $AIF^{fl/Y}/CamKII\alpha-iCre-$ ) at P30. **b**, Representative images of TBR1+ /NeuN+ neurons in AIF3 splicing mice ( $AIF^{fl/Y}/CamKII\alpha-iCre+$ ) and littermate control AIF mice ( $AIF^{fl/Y}/CamKII\alpha-iCre-$ ) at P30. Scale bar, 200  $\mu$ m.