

Supplementary information

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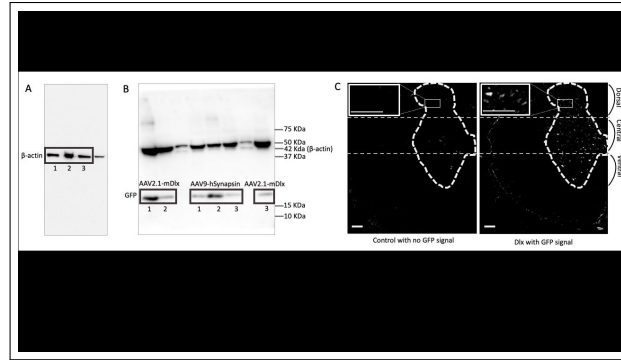


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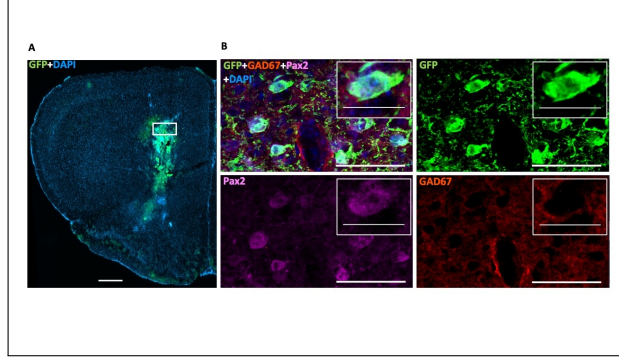


Fig. S2. mDlx expression in the mice brain. (A) Coronal section of mouse prefrontal cortex (Scale bar: 500 μm) where the green labelling (GFP) indicates expression of AAV9 virus with mDlx promoter. (B) Zoomed-in images (of a ROI highlighted with white square in A) of viral expressed cells labelled by GFP showed co-localization with PAX2 whereas GAD67 biomarker (in red) showed lack of colocalization. Scale bars: 50 μm in image B and 20 μm in the zoomed-in images which represent single cell (B). Note $N = 3$, $n = 3-4$, where N represents the number of mice brains and n shows the number of sections used per mice brain.

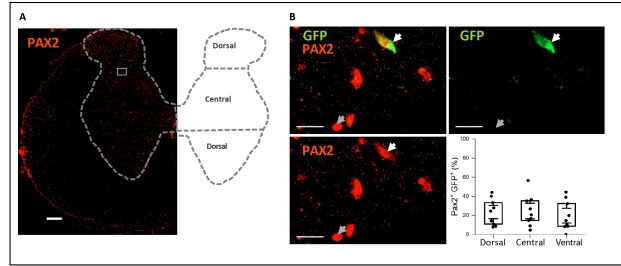


Fig. S3. mDlx has some colocalization with PAX2. (A) Transverse section of the lumbar spinal cord indicating an inset region and the segregation of dorsal, central and ventral portions. (B) Combined fluorescent images of the GFP-positive neurons (green), where the AAV infected, and the PAX2 positive immunostaining (red). Colocalizing cells were counted in all three regions (bottom right). Scale bars: 200 μ m in image A and 20 μ m in the zoom-in images (B).

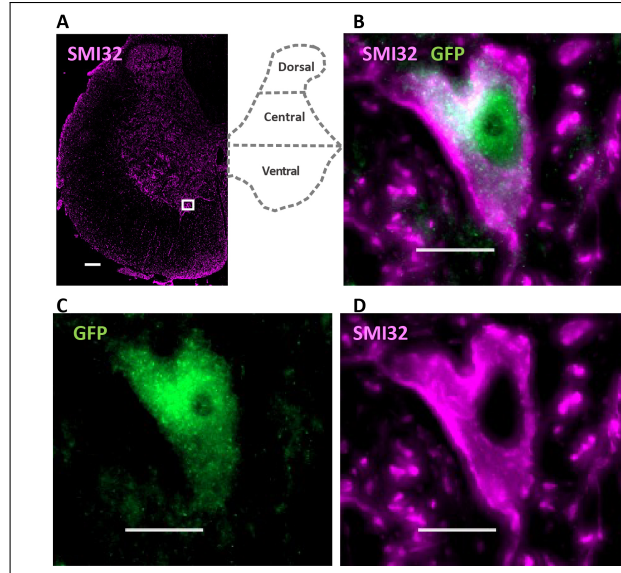


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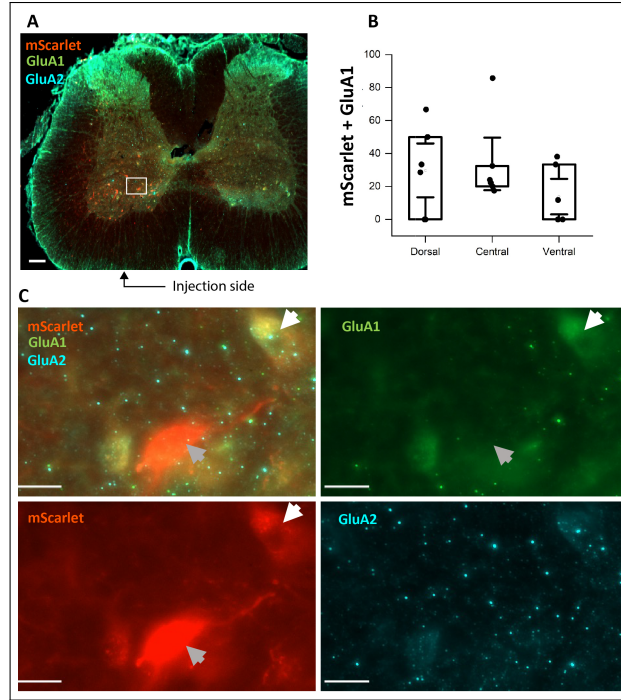


Fig. S5. The mScarlet expression in CamKIIa neurons has some colocalization with GluA1 neurons. **(A)** Overview showing the infected cells in red (mScarlet). **(B)** Counting of cells with colocalization using GluA1 biomarker (glutamatergic neuron) in the three regions. **(C)** The highlighted region in (A) with GluA1 and 2. Scale bars: 200 μm in image A and 20 μm in the zoom-in images.