

SUPPLEMENTARY INFORMATION

Genetic labeling of embryonically-born dentate granule neurons in young mice using the *Penk*^{Cre} mouse line

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SUPPLEMENTARY FIGURE LEGENDS

Figure S1: Repartition of Penk^{Cre}+ cells in the mouse brain.

(A) Penk^{Cre}+ cells along the septo-temporal axis (coordinates from the Bregma in white) in the *Penk^{Cre};Ai6* mouse brain at P35. One series of 40 μ m sections with 400 μ m between two successive sections. (B) Illustration of Penk^{Cre}+ neurons in the hilus of a 1-month-old *Penk^{Cre};Ai6* mouse that express the interneuron markers VIP or calretinin. White arrowheads indicate double positive cells. GCL: granule cell layer, ML: molecular layer.

Scale bars represent 2.5 mm (A), 20 μ m (B).

Figure S2: Birthdating of PenkCre+ cells in the two blades of the DG.

Quantification of the percentage of ZsGreen+/EdU cells over total ZsGreen+ cells in the (A) supra and (B) infra-pyramidal blades at P35 and after injection of EdU at different time points during pregnancy, n = 3 mice per time point from at least two different litters.

Figure S3: Contributions of principal components and synaptic properties of DGNs in *Penk^{Cre};Ai6* mice

(A) Oblique contrast image of DGNs in the suprapyramidal blade from an acute horizontal slice. A whole-cell patch-clamp pipette can be seen in contact with a ZsGreen– neuron (arrow). (B) Examples of voltage-clamp recordings from ZsGreen+ and ZsGreen– DGNs showing post synaptic currents (PSC) in the absence of pharmacological isolation. (C) (D) Boxplots of PSC frequency (Mann-Whitney test) and PSC amplitude (t-test) from ZsGreen+ and ZsGreen– neurons show no difference in post-synaptic properties. (E) Plot showing the contribution of the selected morpho-electric parameters to the first two principal components.

Figure S4: Temporal DG of *Penk^{Cre}; Ai6* mice at 1, 3 and 6 months

Scale represents 50 μm .

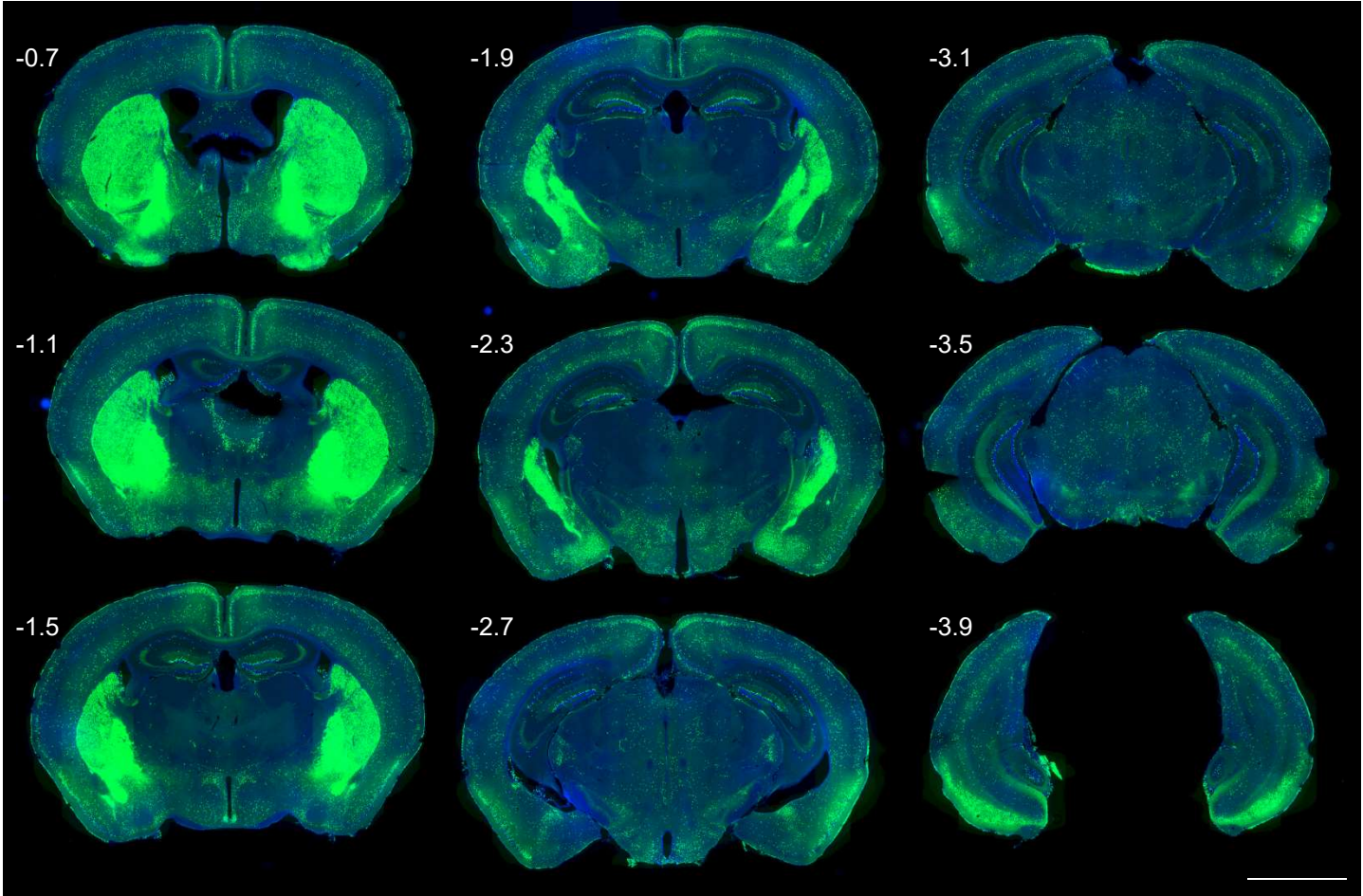
Figure S5: *Penk* is progressively expressed from the outer GCL to the inner GCL with age.

(A-D) DG of *Penk*^{Cre};*Ail4* mice in (A, C) 1 month-old and (B, D) 1 year-old animals. (C, D) Higher magnifications were acquired from different sections and the white box is indicative of the location. (E) *Penk* in situ hybridization in mouse sagittal sections from the Allen Brain Atlas.

Scale bars represent 100 μm (A, B, E) and 20 μm (C, D).

Figure S1

A



B

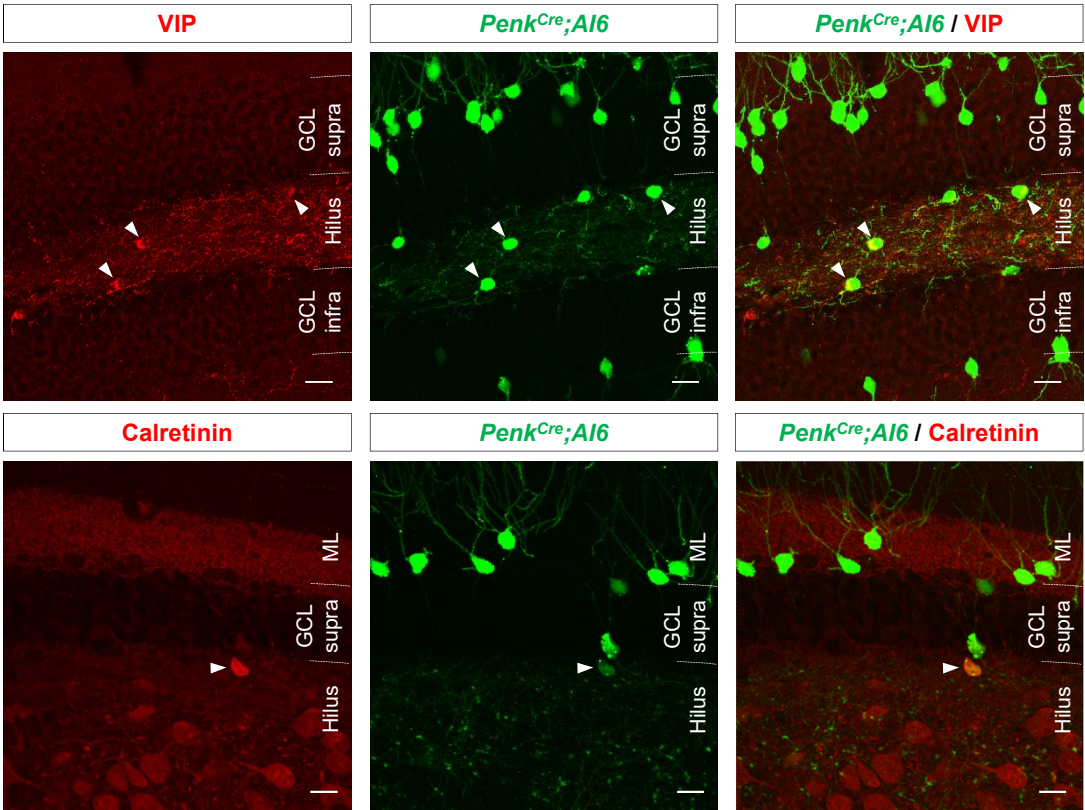


Figure S2

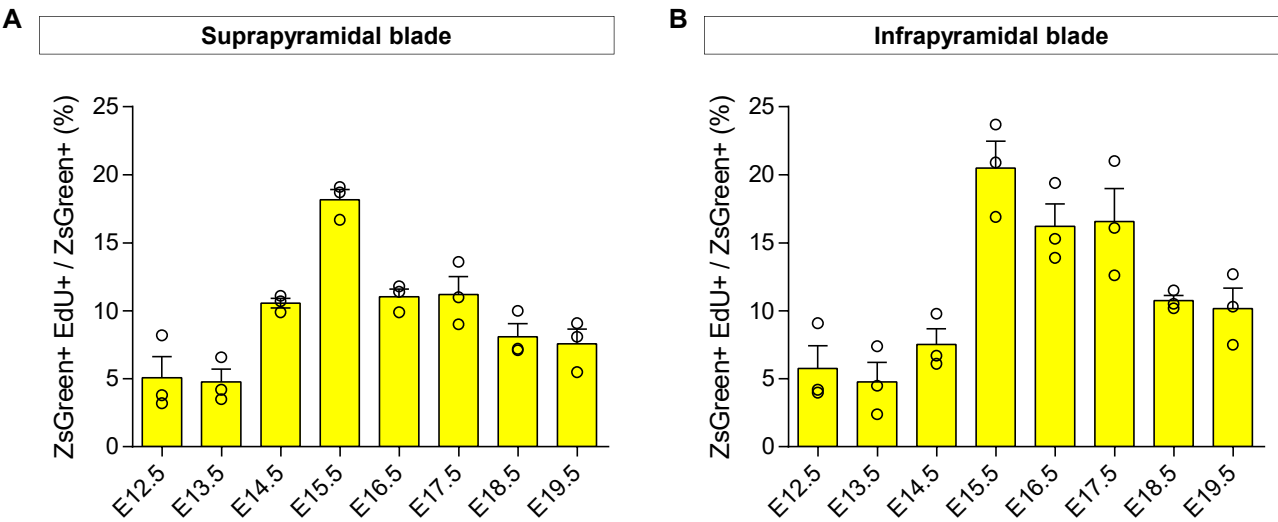


Figure S3

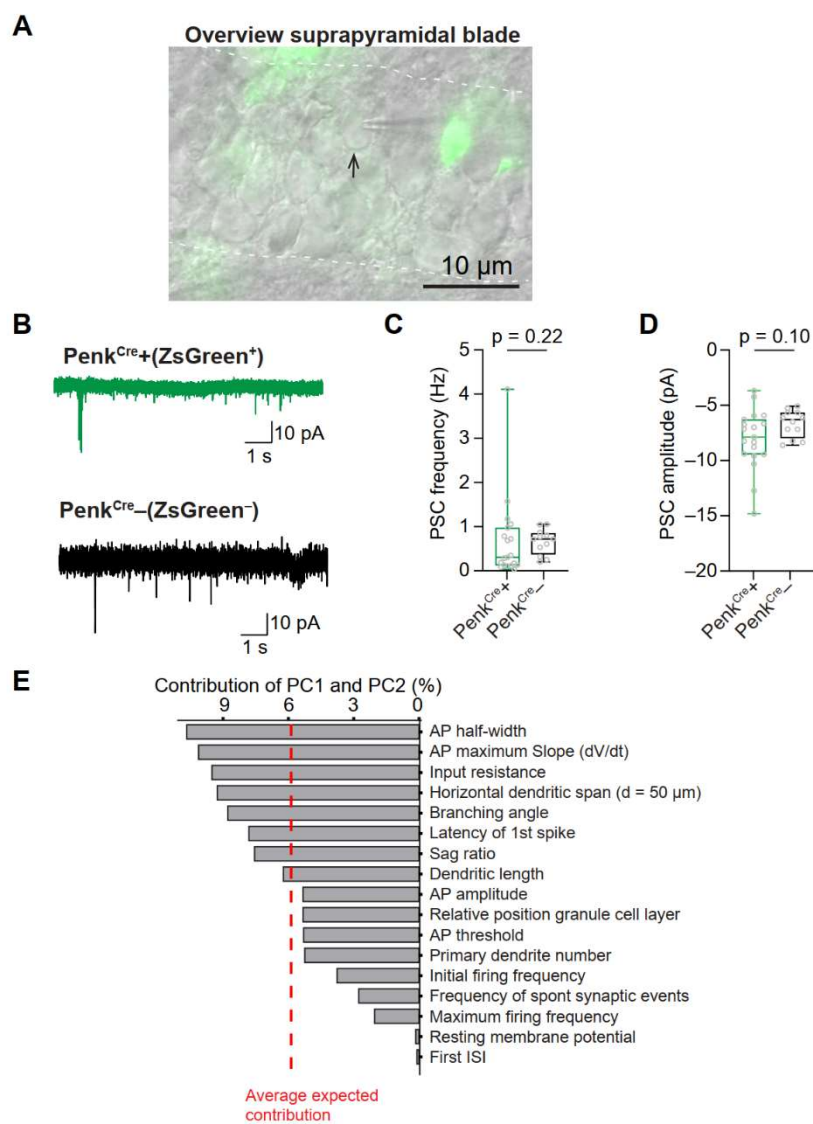


Figure S4

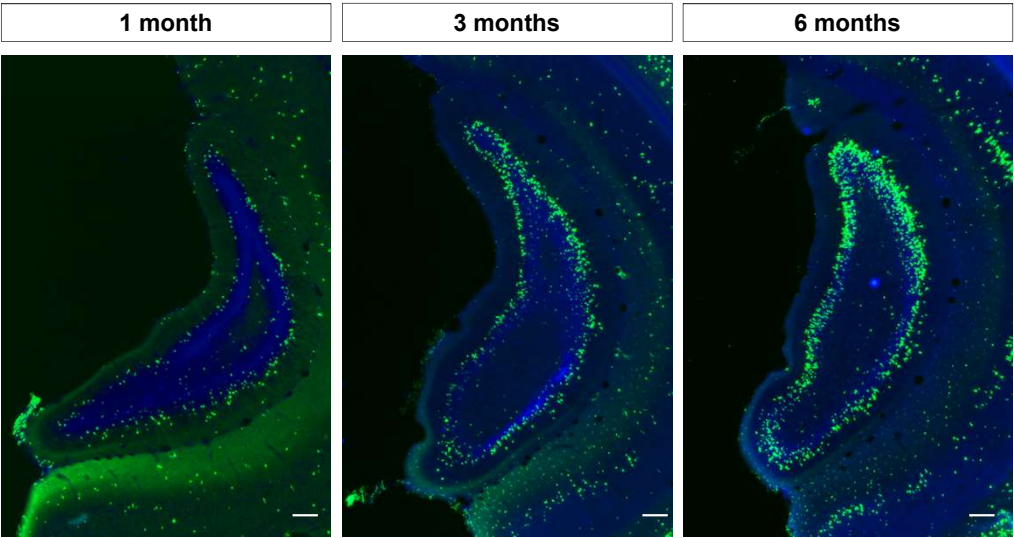


Figure S5

