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Cover: This image shows the dendritic trees of two Purkinje cells from wild-type (left, orange) and mutant mice lacking the alpha- and gamma-Protocadherin gene clusters (*Pcdhs*) (right, blue). Purkinje cells were labelled with fluorophores, and shown as confocal projections with surface rendering and color to illustrate depth. *Pcdhs* promote dendrite self-avoidance to ensure that Purkinje dendrites are evenly arranged across the arbor, with minimal overlaps between branches. **Courtesy with permission:** Samantha Ing-Esteves, Dimitar Kostadinov, Julie Marocha, Anson D. Sing, Kezia S. Joseph, Mallory A. Laboulaye, Joshua R. Sanes and Julie L. Lefebvre. *Journal of Neuroscience* 14 March 2018, 38 (11) 2713-2729.

Page 2: This image shows mature cochlear heminodes beneath hair cells and nodes of Ranvier within osseous spiral lamina in adult mouse auditory nerve. The nodes and their flanking paranodes were immunolabeled for neuronal cell adhesion molecule (NrcAM, green) and contactin 1 (*Cntn1*, red), respectively. Myelin of the auditory nerve (following the heminodes) was detected by immunolabeling for myelin basic protein (MBP, blue; nuclei were counterstained with DAPI also in blue). The integrity of myelin and nodal structures in the cochlea is needed for fast transfer of sound information from the hair cells to the brain. **Courtesy with permission:** Clarisse H. Panganiban, Jeremy L. Barth, Lama Darbelli, Yazhi Xing, Jianning Zhang, Hui Li, Kenyaria V. Noble, Ting Liu, LaShardai N. Brown, Bradley A. Schulte, Stéphane Richard and Hainan Lang. *Journal of Neuroscience* 7 March 2018, 38 (10) 2551-2568.

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Page 9: This image shows a male brain of *Drosophila subobscura* doubly stained by the Venus marker knocked into the fruitless locus (green) and the antibody against *Fruitless* (purple), a neural masculinizer protein. Optogenetic activation of this *fruitless*-labeled circuitry induces a series of species-specific courtship behavior, including actions for nuptial gift transfer. This study opens up an avenue for genetic studies on the neural basis of diversified behavior in non-model organisms. **Courtesy with permission:** Ryoya Tanaka, Tomohiro Higuchi, Soh Kohatsu, Kosei Sato and Daisuke Yamamoto. *Journal of Neuroscience* 29 November 2017, 37 (48) 11662-11674.

Page 13: Corpus callosum axons in coronal brain slices labeled with antibodies against neurofilaments (magenta) and glial nuclei (yellow) labeled with Sytox. Note the dimly fluorescent cell bodies with clear cytoplasm containing three to five nuclear inclusions (dark yellow) characteristic of uninjured glial nuclei. **Courtesy with permission:** Selva Baltan, Sean P. Murphy, Camelia A. Danilov, Amelia Bachleda and Richard S. Morrison. *Journal of Neuroscience* 16 March 2011, 31 (11) 3990-3999.

Page 21: Unprocessed pro-Neuregulin 1 (type I) accumulates as discrete puncta on the soma and proximal dendrites of cultured hippocampal neurons at contact sites, known as subsurface cisterns, between the somatic plasma membrane and the ER (white). Note that Neuregulin puncta are absent from axons (initial segments labeled with Ankyrin G, green) and more distal dendrites (labeled with MAP2, magenta). In response to NMDAR activity pro-NRG1 is processed and released. **Courtesy with permission:** Detlef Vullhorst, Tanveer Ahmad, Irina Karavanova, Carolyn Keating and Andres Buonanno. *Journal of Neuroscience* 24 May 2017, 37 (21) 5232-5249.

Page 24: This image shows Nestin-GFP-expressing cells in the dentate gyrus of the adult mouse hippocampus, rendered using a depth-coding palette. A small proportion of Nestin-GFP-expressing cells coexpress the epithelial growth factor receptor (cells with black puncta). These cells are predominantly neurosphere-forming precursor cells. The adult hippocampus contains two phenotypically similar populations of quiescent neural precursors that are activated by different stimuli. **Courtesy with permission:** Dhanisha Jhaveri and Luke Hammond. *Journal of Neuroscience* 27 May 2015, 35 (21) 8132-8144.

Page 28: This artistic rendering shows papaverine-induced ribosomal S6 phosphorylation in striatonigral and striatopallidal medium-sized spiny neurons. The original image showed triple-labeled nNOS-positive interneurons and phospho-rpS6 in *Drd2*-EGFP mice. **Courtesy with permission:** Emma Puighermanal, Anne Biever, and Emmanuel Valjent. *Journal of Neuroscience* 11 March 2015, 35 (10) 4113-4130.

Page 80: This image is an artistic rendering of mouse hippocampus, stained with antibodies against α -synuclein (yellow) and the sphingolipid glucosylceramide (blue). α -Synuclein interacts with select sphingolipids in the context of GBA-associated Parkinson's disease. **Courtesy with permission:** *Journal of Neuroscience* 4 October 2017, 37 (40) 9617-9631.

Page 83: Intratelencephalic projection neurons (IT-PNs, red retrograde label) in mouse motor cortex express different proteins implicated in molecular control of neuron phenotype. The transcription factor *Fezf2* (green transgenic GFP label) is expressed specifically by IT-PNs in layer 5A (red + green = yellow neurons), whereas, *Cux1* protein (blue immunostain) is specific to layer 2/3 IT-PNs (red + blue). The dendritic reconstructions of *Fezf2*-positive IT-PNs are superimposed in gray to illustrate their unique morphology. **Courtesy with permission:** *Journal of Neuroscience* 19 March 2014, 34 (12) 4303-4308.

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Page 91: This image shows a layer 3 pyramidal neuron and surrounding inhibitory axon terminals in the monkey anterior cingulate cortex. Pyramidal neurons (green) were labeled using whole-cell patchclamp and intracellular filling techniques, and immunohistochemical staining of vesicular GABAergic transporter positive (VGAT+) was used to visualize axon terminals (magenta). **Courtesy with permission:** *Journal of Neuroscience* 3 May 2018, 37 (18) 4717-4734.

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