

Publications



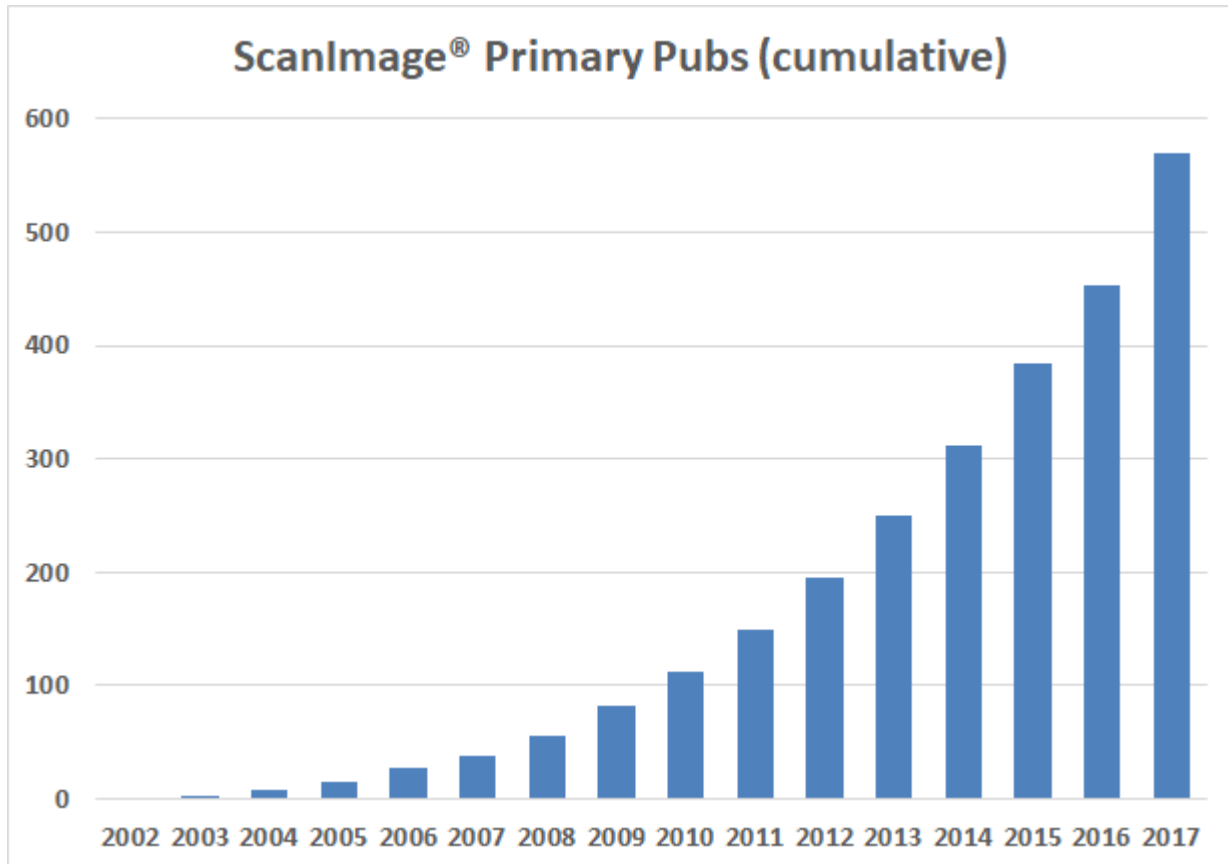
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- [1]M. C. Fischer, J. W. Wilson, F. E. Robles, and W. S. Warren, "Invited Review Article: Pump-probe microscopy.," *Rev Sci Instrum*, vol. 87, no. 3, p. 031101, Mar. 2016.
- [2]T. Lalanne, J. Oyrer, A. Mancino, E. Gregor, A. Chung, L. Huynh, S. Burwell, J. Maheux, M. Farrant, and P. J. Sjoström, "Synapse-specific expression of calcium-permeable AMPA receptors in neocortical layer 5.," *J Physiol*, vol. 594, no. 4, pp. 837–861, Feb. 2016.
- [3]J. C. Tuthill and R. I. Wilson, "Supplemental Information," Feb. 2016.
- [4]W. Yang, J.-E. K. Miller, L. Carrillo-Reid, E. Pnevmatikakis, L. Paninski, R. Yuste, and D. S. Peterka, "Simultaneous Multi-plane Imaging of Neural Circuits.," *Neuron*, vol. 89, no. 2, pp. 269–284, Jan. 2016.
- [5]B.-J. Zandt, J. H. Liu, M. L. Veruki, and E. Hartveit, "All amacrine cells: quantitative reconstruction and morphometric analysis of electrophysiologically identified cells in live rat retinal slices imaged with multi-photon excitation microscopy," *Brain Structure and Function*, pp. 1–32, 2016.
- [6]J. W. Wilson, W. S. Warren, and M. C. Fischer, "Real-time digital signal processing in multiphoton and time-resolved microscopy," in *SPIE BiOS*, 2016, p. 97030O–97030O.
- [7]D. Vallentin, G. Kosche, D. Lipkind, and M. A. Long, "Inhibition protects acquired song segments during vocal learning in zebra finches.," *Science*, vol. 351, no. 6270, pp. 267–271, 2016.
- [8]P. Rupprecht, A. Prendergast, C. Wyart, and R. W. Friedrich, "Remote z-scanning with a macroscopic voice coil motor for fast 3D multiphoton laser scanning microscopy," *Biomedical Optics Express*, vol. 7, no. 5, pp. 1656–1671, 2016.
- [9]J. M. Rosa, S. Ruehle, H. Ding, and L. Lagnado, "Crossover Inhibition Generates Sustained Visual Responses in the Inner Retina," *Neuron*, 2016.
- [10]V. Phoumthippavong, F. Barthas, S. Hassett, and A. C. Kwan, "Longitudinal effects of ketamine on dendritic architecture in vivo in the mouse

- medial frontal cortex," *eneuro*, vol. 3, no. 2, p. ENEURO-0133, 2016.
- [11]H. Y. Park and M. Song, "Visualizing mRNA Dynamics in Live Neurons and Brain Tissues," *Post-Transcriptional Gene Regulation*, pp. 325–334, 2016.
- [12]R. Mongeon, V. Venkatachalam, and G. Yellen, "Cytosolic NADH-NAD⁺ redox visualized in brain slices by two-photon fluorescence lifetime biosensor imaging," *Antioxidants & redox signaling*, 2016.
- [13]P. Mächler, M. T. Wyss, M. Elsayed, J. Stobart, R. Gutierrez, A. von Faber-Castell, V. Kaelin, M. Zuend, A. San Martín, I. Romero-Gómez, and others, "In Vivo Evidence for a Lactate Gradient from Astrocytes to Neurons," *Cell metabolism*, vol. 23, no. 1, pp. 94–102, 2016.
- [14]N. Körber and V. Stein, "In vivo imaging demonstrates dendritic spine stabilization by SynCAM 1," *Scientific Reports*, vol. 6, p. 24241, 2016.
- [15]L. A. Ibrahim, L. Mesik, X. Ji, Q. Fang, H. Li, Y. Li, B. Zingg, L. I. Zhang, and H. W. Tao, "Cross-Modality Sharpening of Visual Cortical Processing through Layer-1-Mediated Inhibition and Disinhibition," *Neuron*, vol. 89, no. 5, pp. 1031–1045, 2016.
- [16]E. Ganmor, M. Krumin, L. F. Rossi, M. Carandini, and E. P. Simoncelli, "Direct Estimation of Firing Rates from Calcium Imaging Data," *arXiv preprint arXiv:1601.00364*, 2016.
- [17]G. Ferrati, F. J. Martini, and M. Maravall, "Presynaptic Adenosine Receptor-Mediated Regulation of Diverse Thalamocortical Short-Term Plasticity in the Mouse Whisker Pathway," *Front Neural Circuits*, vol. 10, p. 9, 2016.
- [18]M. N. Economo, N. G. Clack, L. D. Lavis, C. R. Gerfen, K. Svoboda, E. W. Myers, and J. Chandrashekar, "A platform for brain-wide imaging and reconstruction of individual neurons," *Elife*, vol. 5, 2016.
- [19]J. Cox, L. Pinto, and Y. Dan, "Calcium imaging of sleep-wake related neuronal activity in the dorsal pons," *Nat Commun*, vol. 7, p. 10763, 2016.
- [20]O. Barnstedt, D. Oswald, J. Felsenberg, R. Brain, J.-P. Moszynski, C. B. Talbot, P. N. Perrat, and S. Waddell, "Memory-Relevant Mushroom Body Output Synapses Are Cholinergic," *Neuron*, vol. 89, no. 6, pp. 1237–1247, 2016.
- [21]A. S. Bar-Noam, N. Farah, and S. Shoham, "Correction-free remotely scanned two-photon in vivo mouse retinal imaging," *Light: Science & Applications*, vol. 5, no. 1, p. e16007, 2016.
- [22]F. Baeza-Lehnert, S. Lengacher, B. L. Schneider, P. Aebischer, P. J. Magistretti, L. F. Barros, and B. Weber, "In Vivo Evidence for a Lactate Gradient from Astrocytes to Neurons," *Cell Metabolism*, vol. 23, pp. 1–9, 2016.
- [23]G. Thériault, Y. De Koninck, and N. McCarthy, Method and system for obtaining an extended-depth-of-field volumetric image using laser scanning imaging. Google Patents, 2015.
- [24]S. Jayabal, L. Ljungberg, T. Erwes, A. Cormier, S. Quilez, S. El Jaouhari, and A. J. Watt, "Rapid Onset of Motor Deficits in a Mouse Model of Spinocerebellar Ataxia Type 6 Precedes Late Cerebellar Degeneration," *eNeuro*, vol. 2, no. 6, Dec. 2015.
- [25]D. Sinefeld, H. P. Paudel, D. G. Ouzounov, T. G. Bifano, and C. Xu, "Adaptive optics in multiphoton microscopy: comparison of two, three and four photon fluorescence," *Opt Express*, vol. 23, no. 24, pp. 31472–31483, Nov. 2015.
- [26]K. Dore, J. Aow, and R. Malinow, "Agonist binding to the NMDA receptor drives movement of its cytoplasmic domain without ion flow," *Proc Natl Acad Sci U S A*, vol. 112, no. 47, pp. 14705–14710, Nov. 2015.
- [27]S. R. Cooper, M. R. Emond, P. Q. Duy, B. G. Liebau, M. A. Wolman, and J. D. Jontes, "Protocadherins control the modular assembly of neuronal columns in the zebrafish optic tectum," *J Cell Biol*, vol. 211, no. 4, pp. 807–814, Nov. 2015.
- [28]J. M. Mayrhofer, F. Haiss, D. Haenni, S. Weber, M. Zuend, M. J. P. Barrett, K. D. Ferrari, P. Maechler, A. S. Saab, J. L. Stobart, M. T. Wyss, H. Johannssen, H. Osswald, L. M. Palmer, V. Revol, C.-D. Schuh, C. Urban, A. Hall, M. E. Larkum, E. Rutz-Innerhofer, H. U. Zeilhofer, U. Ziegler, and B. Weber, "Design and performance of an ultra-flexible two-photon microscope for in vivo research," *Biomed Opt Express*, vol. 6, no. 11, pp. 4228–4237, Nov. 2015.
- [29]W. T. Birdsong, S. Arttamangkul, J. R. Bunzow, and J. T. Williams, "Agonist Binding and Desensitization of the mu-Opioid Receptor Is Modulated by Phosphorylation of the C-Terminal Tail Domain," *Mol Pharmacol*, vol. 88, no. 4, pp. 816–824, Oct. 2015.
- [30]I. S. Stein, J. A. Gray, and K. Zito, "Non-Ionotropic NMDA Receptor Signaling Drives Activity-Induced Dendritic Spine Shrinkage," *J Neurosci*, vol. 35, no. 35, pp. 12303–12308, Sep. 2015.
- [31]H. Makino and T. Komiyama, "Learning enhances the relative impact of top-down processing in the visual cortex," *Nat Neurosci*, vol. 18, no. 8, pp. 1116–1122, Aug. 2015.
- [32]S. J. H. Park, B. G. Borghuis, P. Rahmani, Q. Zeng, I.-J. Kim, and J. B. Demb, "Function and Circuitry of VIP+ Interneurons in the Mouse Retina," *J Neurosci*, vol. 35, no. 30, pp. 10685–10700, Jul. 2015.
- [33]J. H. Siegle, G. J. Hale, J. P. Newman, and J. Voigts, "Neural ensemble communities: open-source approaches to hardware for large-scale electrophysiology," *Curr Opin Neurobiol*, vol. 32, pp. 53–59, Jun. 2015.
- [34]N. Chen, H. Sugihara, and M. Sur, "An acetylcholine-activated microcircuit drives temporal dynamics of cortical activity," *Nat Neurosci*, vol. 18, no. 6, pp. 892–902, Jun. 2015.
- [35]M. F. Davis, D. X. Figueroa Velez, R. P. Guevarra, M. C. Yang, M. Habeeb, M. C. Carathedathu, and S. P. Gandhi, "Inhibitory Neuron Transplantation into Adult Visual Cortex Creates a New Critical Period that Rescues Impaired Vision," *Neuron*, vol. 86, no. 4, pp. 1055–1066, May 2015.
- [36]J. D. Seelig and V. Jayaraman, "Neural dynamics for landmark orientation and angular path integration," *Nature*, vol. 521, no. 7551, pp. 186–191, May 2015.
- [37]A. Miquelajauregui, S. Kribakaran, R. Mostany, A. Badaloni, G. G. Consalez, and C. Portera-Cailliau, "Layer 4 pyramidal neurons exhibit robust dendritic spine plasticity in vivo after input deprivation," *J Neurosci*, vol. 35, no. 18, pp. 7287–7294, May 2015.
- [38]R. Srinivasan, B. S. Huang, S. Venugopal, A. D. Johnston, H. Chai, H. Zeng, P. Golshani, and B. S. Khakh, Ca(2+) signaling in astrocytes from *Ip3r2(-/-)* mice in brain slices and during startle responses in vivo," vol. 18. United States, 2015.
- [39]D. Oswald, J. Felsenberg, C. B. Talbot, G. Das, E. Perisse, W. Huetteroth, and S. Waddell, "Activity of defined mushroom body output neurons underlies learned olfactory behavior in *Drosophila*," *Neuron*, vol. 86, no. 2, pp. 417–427, Apr. 2015.
- [40]K. B. Clancy, P. Schnepel, A. T. Rao, and D. E. Feldman, "Structure of a single whisker representation in layer 2 of mouse somatosensory cortex," *J Neurosci*, vol. 35, no. 9, pp. 3946–3958, Mar. 2015.
- [41]S. C. Weber and C. P. Brangwynne, "Inverse size scaling of the nucleolus by a concentration-dependent phase transition," *Curr Biol*, vol. 25, no. 5, pp. 641–646, Mar. 2015.
- [42]Y. Zhang, R. H. Cudmore, D.-T. Lin, D. J. Linden, and R. L. Huganir, "Visualization of NMDA receptor-dependent AMPA receptor synaptic plasticity in vivo," *Nat Neurosci*, vol. 18, no. 3, pp. 402–407, Mar. 2015.
- [43]G. Wang, D. R. Wyskiel, W. Yang, Y. Wang, L. C. Milbern, T. Lalanne, X. Jiang, Y. Shen, Q.-Q. Sun, and J. J. Zhu, "An optogenetics- and imaging-assisted simultaneous multiple patch-clamp recording system for decoding complex neural circuits," *Nat Protoc*, vol. 10, no. 3, pp. 397–412, Mar. 2015.
- [44]W. C. Oh, L. K. Parajuli, and K. Zito, "Heterosynaptic structural plasticity on local dendritic segments of hippocampal CA1 neurons," *Cell Rep*, vol. 10, no. 2, pp. 162–169, Jan. 2015.

- [45]M. E. J. Sheffield and D. A. Dombeck, "Calcium transient prevalence across the dendritic arbour predicts place field properties.," *Nature*, vol. 517, no. 7533, pp. 200–204, Jan. 2015.
- [46]S. Arttamangkul, W. Birdsong, and J. T. Williams, "Does PKC activation increase the homologous desensitization of mu opioid receptors?," *Br J Pharmacol*, vol. 172, no. 2, pp. 583–592, Jan. 2015.
- [47]J. Winnubst, J. E. Cheyne, D. Niculescu, and C. Lohmann, "Spontaneous Activity Drives Local Synaptic Plasticity In Vivo," *Neuron*, vol. 87, no. 2, pp. 399–410, 2015.
- [48]C. D. Wilms and M. Hausser, "Reading out a spatiotemporal population code by imaging neighbouring parallel fibre axons in vivo.," *Nat Commun*, vol. 6, p. 6464, 2015.
- [49]W. Wang, Z. Wu, and H. Zeng, "Image distortion and its correction in linear galvanometric mirrors–based laser-scanning microscopy," *Journal of biomedical optics*, vol. 20, no. 5, pp. 056001–056001, 2015.
- [50]S. Wang, Z.-Y. Tsun, R. L. Wolfson, K. Shen, G. A. Wyant, M. E. Plovanich, E. D. Yuan, T. D. Jones, L. Chantranupong, W. Comb, and others, "Lysosomal amino acid transporter SLC38A9 signals arginine sufficiency to mTORC1," *Science*, vol. 347, no. 6218, pp. 188–194, 2015.
- [51]S. Tsutsumi, M. Yamazaki, T. Miyazaki, M. Watanabe, K. Sakimura, M. Kano, and K. Kitamura, "Structure–Function Relationships between Aldolase C/Zebirin II Expression and Complex Spike Synchrony in the Cerebellum," *The Journal of Neuroscience*, vol. 35, no. 2, pp. 843–852, 2015.
- [52]R. Srinivasan, B. S. Huang, S. Venugopal, A. D. Johnston, H. Chai, H. Zeng, P. Golshani, and B. S. Khakh, "Ca²⁺ signaling in astrocytes from *Ip3r2*^{-/-} mice in brain slices and during startle responses in vivo," *Nature neuroscience*, vol. 18, no. 5, pp. 708–717, 2015.
- [53]T. Sotelo-Hitschfeld, M. I. Niemeyer, P. Mächler, I. Ruminot, R. Lerchundi, M. T. Wyss, J. Stobart, I. Fernández-Moncada, R. Valdebenito, P. Garrido-Gerter, and others, "Channel-mediated lactate release by k⁺-stimulated astrocytes," *The Journal of Neuroscience*, vol. 35, no. 10, pp. 4168–4178, 2015.
- [54]D. Sinefeld, H. P. Paudel, D. G. Ouzounov, T. G. Bifano, and C. Xu, "Adaptive Optics in Three-Photon Fluorescence Microscopy," in *CLEO: Science and Innovations*, 2015, p. STu2K–8.
- [55]A. C. E. Shibata, H. K. Maebashi, Y. Nakahata, J. Nabekura, and H. Murakoshi, "Development of a molecularly evolved, highly sensitive CaMKII FRET sensor with improved expression pattern.," *PLoS One*, vol. 10, no. 3, p. e0121109, 2015.
- [56]C. D. Schuh, D. Haenni, E. Craigie, U. Ziegler, B. Weber, O. Devuyt, and A. M. Hall, "Long wavelength multiphoton excitation is advantageous for intravital kidney imaging," *Kidney international*, 2015.
- [57]M. M. Roth, J. C. Dahmen, D. R. Muir, F. Imhof, F. J. Martini, and S. B. Hofer, "Thalamic nuclei convey diverse contextual information to layer 1 of visual cortex," *Nature neuroscience*, 2015.
- [58]S. A. Romano, T. Pietri, V. Pérez-Schuster, A. Jouary, M. Haudrechy, and G. Sumbre, "Spontaneous neuronal network dynamics reveal circuit's functional adaptations for behavior," *Neuron*, vol. 85, no. 5, pp. 1070–1085, 2015.
- [59]B. C. Reiner and A. Dunaevsky, "Deficit in motor training-induced clustering, but not stabilization, of new dendritic spines in FMR1 knock-out mice.," *PLoS One*, vol. 10, no. 5, p. e0126572, 2015.
- [60]C. Pilger, H. Hachmeister, M. Müller, G. Wiebusch, and T. Huser, "SI-CARS: CARS Microscopy beyond the Diffraction Limit by Structured Illumination," in *Asia Communications and Photonics Conference*, 2015, p. ASu2A–160.
- [61]J. Picao-Osorio, J. Johnston, M. Landgraf, J. Berni, and C. R. Alonso, "MicroRNA-encoded behavior in *Drosophila*," *Science*, vol. 350, no. 6262, pp. 815–820, 2015.
- [62]S. P. Peron, J. Freeman, V. Iyer, C. Guo, and K. Svoboda, "A cellular resolution map of barrel cortex activity during tactile behavior," *Neuron*, vol. 86, no. 3, pp. 783–799, 2015.
- [63]R. Padmashri, A. Suresh, M. D. Boska, and A. Dunaevsky, "Motor-Skill Learning Is Dependent on Astrocytic Activity.," *Neural Plast*, vol. 2015, p. 938023, 2015.
- [64]H. Murakoshi and A. C. Shibata, "Optogenetic Imaging of Protein Activity in the Synapse Using 2-Photon Fluorescence Lifetime Imaging Microscopy," in *Optogenetics*, Springer, 2015, pp. 185–197.
- [65]H. Murakoshi, A. C. E. Shibata, Y. Nakahata, and J. Nabekura, "A dark green fluorescent protein as an acceptor for measurement of Förster resonance energy transfer.," *Sci Rep*, vol. 5, p. 15334, 2015.
- [66]R. Mostany, A. Miquelajauregui, M. Shtrahman, and C. Portera-Cailliau, "Two-photon excitation microscopy and its applications in neuroscience," *Advanced Fluorescence Microscopy: Methods and Protocols*, pp. 25–42, 2015.
- [67]L. Mesik, W. Ma, L. Li, L. A. Ibrahim, Z. J. Huang, L. I. Zhang, and H. W. Tao, "Functional response properties of VIP-expressing inhibitory neurons in mouse visual and auditory cortex.," *Front Neural Circuits*, vol. 9, p. 22, 2015.
- [68]J. M. Mayrhofer, F. Haiss, F. Helmchen, and B. Weber, "Sparse, reliable, and long-term stable representation of periodic whisker deflections in the mouse barrel cortex," *Neuroimage*, vol. 115, pp. 52–63, 2015.
- [69]G. Lur and M. J. Higley, "Glutamate receptor modulation is restricted to synaptic microdomains," *Cell reports*, vol. 12, no. 2, pp. 326–334, 2015.
- [70]S. E. Lindsey, P. G. Menon, W. J. Kowalski, A. Shekhar, H. C. Yalcin, N. Nishimura, C. B. Schaffer, J. T. Butcher, and K. Pekkan, "Growth and hemodynamics after early embryonic aortic arch occlusion," *Biomechanics and modeling in mechanobiology*, vol. 14, no. 4, pp. 735–751, 2015.
- [71]X. Li and Q. Wang, "3D Imaging System of Two-Photon Excitation Laser Scanning Microscopy," in *2015 Fifth International Conference on Instrumentation and Measurement, Computer, Communication and Control (IMCCC)*, 2015, pp. 443–448.
- [72]Y. Kozorovitskiy, R. Peixoto, W. Wang, A. Saunders, and B. L. Sabatini, "Neuromodulation of excitatory synaptogenesis in striatal development.," *Elife*, vol. 4, 2015.
- [73]T. Huser, H. Hachmeister, C. Pilger, V. Mönkemöller, W. Hübner, S. Hennig, M. Müller, and G. Wiebusch, "Label-free Super-resolution Optical Microscopy of Cellular Dynamics," in *Asia Communications and Photonics Conference*, 2015, p. AS3I–1.
- [74]M. Hashizume, T. Miyazaki, K. Sakimura, M. Watanabe, K. Kitamura, and M. Kano, "Disruption of cerebellar microzonal organization in GluD2 (GluR 2) knockout mouse," *Neural Circuits: Japan*, 2015.
- [75]M. I. Hamad, M. Krause, and P. Wahle, "Improving AM ester calcium dye loading efficiency," *Journal of neuroscience methods*, vol. 240, pp. 48–60, 2015.
- [76]H. Hachmeister, C. Pilger, G. Wiebusch, and T. Huser, "Enhancing the Molecular Sensitivity of Coherent Raman Scattering by Doubly-Resonant CARS (DR-CARS)," in *Asia Communications and Photonics Conference*, 2015, p. AM2B–3.
- [77]S. C. Gantz, "Leveraging the occurrence of spontaneous D2 receptor-mediated IPSCs to understand the dopamine synapse," 2015.
- [78]S. C. Gantz, B. G. Robinson, D. C. Buck, J. R. Bunzow, R. L. Neve, J. T. Williams, and K. A. Neve, "Distinct regulation of dopamine D2S and D2L autoreceptor signaling by calcium.," *Elife*, vol. 4, 2015.
- [79]M. G. Frantz, R. J. Kast, H. M. Dorton, K. S. Chapman, and A. W. McGee, "Nogo receptor 1 limits ocular dominance plasticity but not turnover of axonal boutons in a model of amblyopia," *Cerebral Cortex*, p. bhv014, 2015.

- [80]B. F. Fosque, Y. Sun, H. Dana, C.-T. Yang, T. Ohyama, M. R. Tadross, R. Patel, M. Zlatić, D. S. Kim, M. B. Ahrens, and others, "Labeling of active neural circuits in vivo with designed calcium integrators," *Science*, vol. 347, no. 6223, pp. 755–760, 2015.
- [81]P. Ferrand, "GPScan: VI: A general-purpose LabVIEW program for scanning imaging or any application requiring synchronous analog voltage generation and data acquisition," *Computer Physics Communications*, vol. 192, pp. 342–347, 2015.
- [82]O. H. Do, J. T. Low, and P. Thorn, "Leprdb Mouse Model of Type 2 Diabetes: Pancreatic Islet Isolation and Live-cell 2-Photon Imaging Of Intact Islets," *JoVE (Journal of Visualized Experiments)*, no. 99, pp. e52632–e52632, 2015.
- [83]M. Collot, C. D. Wilms, A. Bentkhaty, P. Marcaggi, K. Couchman, S. Charpak, S. Dieudonne, M. Hausser, A. Feltz, and J.-M. Mallet, "CaRuby-Nano: a novel high affinity calcium probe for dual color imaging," *Elife*, vol. 4, 2015.
- [84]P. Coiro, R. Padmashri, A. Suresh, E. Spartz, G. Pendyala, S. Chou, Y. Jung, B. Meays, S. Roy, N. Gautam, and others, "Impaired synaptic development in a maternal immune activation mouse model of neurodevelopmental disorders," *Brain, behavior, and immunity*, vol. 50, pp. 249–258, 2015.
- [85]Á. Castilho, A. F. Ambrósio, E. Hartveit, and M. L. Veruki, "Disruption of a neural microcircuit in the rod pathway of the mammalian retina by diabetes mellitus," *The Journal of Neuroscience*, vol. 35, no. 13, pp. 5422–5433, 2015.
- [86]C. Blumer, C. Vivien, C. Genoud, A. Perez-Alvarez, J. S. Wiegert, T. Vetter, and T. G. Oertner, "Automated analysis of spine dynamics on live CA1 pyramidal cells," *Medical image analysis*, vol. 19, no. 1, pp. 87–97, 2015.
- [87]W. T. Birdsong, S. Arttamangkul, J. R. Bunzow, and J. T. Williams, "Agonist binding and desensitization of the μ -opioid receptor is modulated by phosphorylation of the C-terminal tail domain," *Molecular pharmacology*, vol. 88, no. 4, pp. 816–824, 2015.
- [88]A. J. Barker and H. Baier, "Sensorimotor Decision Making in the Zebrafish Tectum," *Current Biology*, vol. 25, no. 21, pp. 2804–2814, 2015.
- [89]S. Arttamangkul, W. Birdsong, and J. T. Williams, "Does PKC activation increase the homologous desensitization of μ opioid receptors?," *British journal of pharmacology*, vol. 172, no. 2, pp. 583–592, 2015.
- [90]D. A. Fortin, S. E. Tillo, G. Yang, J.-C. Rah, J. B. Melander, S. Bai, O. Soler-Cedeno, M. Qin, B. V. Zemelman, C. Guo, T. Mao, and H. Zhong, "Live imaging of endogenous PSD-95 using ENABLED: a conditional strategy to fluorescently label endogenous proteins," *J Neurosci*, vol. 34, no. 50, pp. 16698–16712, Dec. 2014.
- [91]J. G. Heys, K. V. Rangarajan, and D. A. Dombeck, "The functional micro-organization of grid cells revealed by cellular-resolution imaging," *Neuron*, vol. 84, no. 5, pp. 1079–1090, Dec. 2014.
- [92]Y. T. Tang, J. M. Mendez, J. J. Theriot, P. M. Sawant, H. E. Lopez-Valdes, Y. S. Ju, and K. C. Brennan, "Minimum conditions for the induction of cortical spreading depression in brain slices," *J Neurophysiol*, vol. 112, no. 10, pp. 2572–2579, Nov. 2014.
- [93]J. Johnston, H. Ding, S. H. Seibel, F. Esposti, and L. Lagnado, "Rapid mapping of visual receptive fields by filtered back projection: application to multi-neuronal electrophysiology and imaging," *J Physiol*, vol. 592, no. 22, pp. 4839–4854, Nov. 2014.
- [94]S. Lin, D. Oswald, V. Chandra, C. Talbot, W. Huetteroth, and S. Waddell, "Neural correlates of water reward in thirsty *Drosophila*," *Nat Neurosci*, vol. 17, no. 11, pp. 1536–1542, Nov. 2014.
- [95]T. Baden, A. Nikolaeov, F. Esposti, E. Dreosti, B. Odermatt, and L. Lagnado, "A synaptic mechanism for temporal filtering of visual signals," *PLoS Biol*, vol. 12, no. 10, pp. e1001972, Oct. 2014.
- [96]K. M. Werner, L. J. Perez, R. Ghosh, M. F. Semmelhack, and B. L. Bassler, "Caenorhabditis elegans recognizes a bacterial quorum-sensing signal molecule through the AWCON neuron," *J Biol Chem*, vol. 289, no. 38, pp. 26566–26573, Sep. 2014.
- [97]T. R. Thiele, J. C. Donovan, and H. Baier, "Descending control of swim posture by a midbrain nucleus in zebrafish," *Neuron*, vol. 83, no. 3, pp. 679–691, Aug. 2014.
- [98]E. R. Schreiter, L. L. Looger, and B. F. Fosque, Fluorescent protein-based indicators. Google Patents, 2014.
- [99]M. Xue, B. V. Atallah, and M. Scanziani, "Equalizing excitation-inhibition ratios across visual cortical neurons," *Nature*, vol. 511, no. 7511, pp. 596–600, Jul. 2014.
- [100]J. Elstrott, K. B. Clancy, H. Jafri, I. Akimenko, and D. E. Feldman, "Cellular mechanisms for response heterogeneity among L2/3 pyramidal cells in whisker somatosensory cortex," *J Neurophysiol*, vol. 112, no. 2, pp. 233–248, Jul. 2014.
- [101]K. M. Seemann and B. Kuhn, "Multi-photon excited luminescence of magnetic FePt core-shell nanoparticles," *Biomed Opt Express*, vol. 5, no. 7, pp. 2446–2457, Jul. 2014.
- [102]E. A. Calle, S. Vesuna, S. Dimitrievska, K. Zhou, A. Huang, L. Zhao, L. E. Niklason, and M. J. Levene, "The use of optical clearing and multiphoton microscopy for investigation of three-dimensional tissue-engineered constructs," *Tissue Eng Part C Methods*, vol. 20, no. 7, pp. 570–577, Jul. 2014.
- [103]M. Paukert, A. Agarwal, J. Cha, V. A. Doze, J. U. Kang, and D. E. Bergles, "Norepinephrine controls astroglial responsiveness to local circuit activity," *Neuron*, vol. 82, no. 6, pp. 1263–1270, Jun. 2014.
- [104]S. E. Crowe and G. C. R. Ellis-Davies, "Longitudinal in vivo two-photon fluorescence imaging," *J Comp Neurol*, vol. 522, no. 8, pp. 1708–1727, Jun. 2014.
- [105]M. Tada, A. Takeuchi, M. Hashizume, K. Kitamura, and M. Kano, "A highly sensitive fluorescent indicator dye for calcium imaging of neural activity in vitro and in vivo," *Eur J Neurosci*, vol. 39, no. 11, pp. 1720–1728, Jun. 2014.
- [106]K. B. Clancy, A. C. Koralek, R. M. Costa, D. E. Feldman, and J. M. Carmena, "Volitional modulation of optically recorded calcium signals during neuroprosthetic learning," *Nat Neurosci*, vol. 17, no. 6, pp. 807–809, Jun. 2014.
- [107]M. L. Viger, W. Sheng, K. Dore, A. H. Alhasan, C.-J. Carling, J. Lux, C. de Gracia Lux, M. Grossman, R. Malinow, and A. Almutairi, "Near-infrared-induced heating of confined water in polymeric particles for efficient payload release," *ACS Nano*, vol. 8, no. 5, pp. 4815–4826, May 2014.
- [108]B. G. Borghuis, L. L. Looger, S. Tomita, and J. B. Demb, "Kainate receptors mediate signaling in both transient and sustained OFF bipolar cell pathways in mouse retina," *J Neurosci*, vol. 34, no. 18, pp. 6128–6139, Apr. 2014.
- [109]S. J. Kuhlman, D. H. O'Connor, K. Fox, and K. Svoboda, "Structural plasticity within the barrel cortex during initial phases of whisker-dependent learning," *J Neurosci*, vol. 34, no. 17, pp. 6078–6083, Apr. 2014.
- [110]B. He, K. Doubrovinski, O. Polyakov, and E. Wieschaus, "Apical constriction drives tissue-scale hydrodynamic flow to mediate cell elongation," *Nature*, vol. 508, no. 7496, pp. 392–396, Apr. 2014.
- [111]A. Cruz-Martin, R. N. El-Danaf, F. Osakada, B. Sriram, O. S. Dhande, P. L. Nguyen, E. M. Callaway, A. Ghosh, and A. D. Huberman, "A dedicated circuit links direction-selective retinal ganglion cells to the primary visual cortex," *Nature*, vol. 507, no. 7492, pp. 358–361, Mar. 2014.
- [112]S. J. H. Park, I.-J. Kim, L. L. Looger, J. B. Demb, and B. G. Borghuis, "Excitatory synaptic inputs to mouse on-off direction-selective retinal ganglion cells lack direction tuning," *J Neurosci*, vol. 34, no. 11, pp. 3976–3981, Mar. 2014.
- [113]T.-M. Wang, L. C. Holzhausen, and R. H. Kramer, "Imaging an optogenetic pH sensor reveals that protons mediate lateral inhibition in the retina," *Nat Neurosci*, vol. 17, no. 2, pp. 262–268, Feb. 2014.
- [114]M. Fisek and R. I. Wilson, "Stereotyped connectivity and computations in higher-order olfactory neurons," *Nat Neurosci*, vol. 17, no. 2, pp. 280–288, Feb. 2014.

- [115]A. F. Oliveira and R. Yasuda, "Neurofibromin is the major ras inactivator in dendritic spines.," *J Neurosci*, vol. 34, no. 3, pp. 776–783, Jan. 2014.
- [116]J. A. Murphy, I. S. Stein, C. G. Lau, R. T. Peixoto, T. K. Aman, N. Kaneko, K. Aromolaran, J. L. Saulnier, G. K. Popescu, B. L. Sabatini, J. W. Hell, and R. S. Zukin, "Phosphorylation of Ser1166 on GluN2B by PKA is critical to synaptic NMDA receptor function and Ca²⁺ signaling in spines.," *J Neurosci*, vol. 34, no. 3, pp. 869–879, Jan. 2014.
- [117]M. Zou, P. De Koninck, R. L. Neve, and R. W. Friedrich, "Fast gene transfer into the adult zebrafish brain by herpes simplex virus 1 (HSV-1) and electroporation: methods and optogenetic applications.," *Front Neural Circuits*, vol. 8, p. 41, 2014.
- [118]J. A. Wright, T. Richards, and S. K. Srari, "The role of iron in the skin and cutaneous wound healing.," *Frontiers in pharmacology*, vol. 5, 2014.
- [119]N. X. Tritsch, W.-J. Oh, C. Gu, and B. L. Sabatini, "Midbrain dopamine neurons sustain inhibitory transmission using plasma membrane uptake of GABA, not synthesis.," *Elife*, vol. 3, p. e01936, 2014.
- [120]C. Tischer, V. Hilsenstein, K. Hanson, and R. Pepperkok, "Adaptive fluorescence microscopy by online feedback image analysis," *Methods in cell biology*, vol. 123, pp. 489–503, 2014.
- [121]P. Thorn, "Measurement of Dynamic F-Actin Changes During Exocytosis," *Exocytosis and Endocytosis*, pp. 423–431, 2014.
- [122]R. Tatti, K. Bhaukaurally, O. Gschwend, R. P. Seal, R. H. Edwards, I. Rodriguez, and A. Carleton, "A population of glomerular glutamatergic neurons controls sensory information transfer in the mouse olfactory bulb.," *Nat Commun*, vol. 5, p. 3791, 2014.
- [123]C. Straub, A. J. Granger, J. L. Saulnier, and B. L. Sabatini, "CRISPR/Cas9-mediated gene knock-down in post-mitotic neurons.," *PLoS One*, vol. 9, no. 8, p. e105584, 2014.
- [124]P. Soda, "Biolmage Informatics: the challenge of knowledge extraction from biological images," in *Digital Technologies (DT), 2014 10th International Conference on*, 2014, pp. 311–320.
- [125]T. P. Santisakultarm, C. Q. Paduano, T. Stokol, T. L. Southard, N. Nishimura, R. C. Skoda, W. L. Olbricht, A. I. Schafer, R. T. Silver, and C. B. Schaffer, "Stalled cerebral capillary blood flow in mouse models of essential thrombocythemia and polycythemia vera revealed by in vivo two-photon imaging," *Journal of Thrombosis and Haemostasis*, vol. 12, no. 12, pp. 2120–2130, 2014.
- [126]J. I. Sanders and A. Kepecs, "A low-cost programmable pulse generator for physiology and behavior.," *Front Neuroeng*, vol. 7, p. 43, 2014.
- [127]M. Rothermel and M. Wachowiak, "Functional imaging of cortical feedback projections to the olfactory bulb.," *Front Neural Circuits*, vol. 8, p. 73, 2014.
- [128]J. A. Rosenthal, C.-J. Huang, A. M. Doody, T. Leung, K. Mineta, D. D. Feng, E. C. Wayne, N. Nishimura, C. Leifer, M. P. DeLisa, S. Mendez, and D. Putnam, "Mechanistic insight into the TH1-biased immune response to recombinant subunit vaccines delivered by probiotic bacteria-derived outer membrane vesicles.," *PLoS One*, vol. 9, no. 11, p. e112802, 2014.
- [129]D. G. Rosenegger, C. H. T. Tran, J. LeDue, N. Zhou, and G. R. Gordon, "A high performance, cost-effective, open-source microscope for scanning two-photon microscopy that is modular and readily adaptable.," *PLoS One*, vol. 9, no. 10, p. e110475, 2014.
- [130]E. Robles, E. Laurell, and H. Baier, "The retinal projectome reveals brain-area-specific visual representations generated by ganglion cell diversity," *Current Biology*, vol. 24, no. 18, pp. 2085–2096, 2014.
- [131]J. P. Rickgauer, K. Deisseroth, and D. W. Tank, "Simultaneous cellular-resolution optical perturbation and imaging of place cell firing fields," *Nature neuroscience*, vol. 17, no. 12, pp. 1816–1824, 2014.
- [132]H. Peng, J. Tang, H. Xiao, A. Bria, J. Zhou, V. Butler, Z. Zhou, P. T. Gonzalez-Bellido, S. W. Oh, J. Chen, A. Mitra, R. W. Tsien, H. Zeng, G. A. Ascoli, G. Iannello, M. Hawrylycz, E. Myers, and F. Long, "Virtual finger boosts three-dimensional imaging and microsurgery as well as terabyte volume image visualization and analysis.," *Nat Commun*, vol. 5, p. 4342, 2014.
- [133]J. I. Park, M. G. Frantz, R. J. Kast, K. S. Chapman, H. M. Dorton, C.-E. Stephany, M. T. Arnett, D. H. Herman, and A. W. McGee, "Nogo receptor 1 limits tactile task performance independent of basal anatomical plasticity.," *PLoS One*, vol. 9, no. 11, p. e112678, 2014.
- [134]H. Y. Park, H. Lim, Y. J. Yoon, A. Follenzi, C. Nwokafor, M. Lopez-Jones, X. Meng, and R. H. Singer, "Visualization of dynamics of single endogenous mRNA labeled in live mouse," *Science*, vol. 343, no. 6169, pp. 422–424, 2014.
- [135]F. Najafi, "Trial-by-trial coding of instructive signals in the cerebellum: Insights from eyeblink conditioning in mice," 2014.
- [136]F. Najafi, A. Giovannucci, S. S.-H. Wang, and J. F. Medina, "Coding of stimulus strength via analog calcium signals in Purkinje cell dendrites of awake mice.," *Elife*, vol. 3, p. e03663, 2014.
- [137]L. B. Mostaço-Guidolin, E. K. Kohlenberg, M. Smith, M. Hewko, A. Major, M. G. Sowa, and A. C.-T. Ko, "Quantitative nonlinear optical assessment of atherosclerosis progression in rabbits," *Analytical chemistry*, vol. 86, no. 13, pp. 6346–6354, 2014.
- [138]J. Lecoq, J. Savall, D. Vucinic, B. F. Grewe, H. Kim, J. Z. Li, L. J. Kitch, and M. J. Schnitzer, "Visualizing mammalian brain area interactions by dual-axis two-photon calcium imaging," *Nature neuroscience*, vol. 17, no. 12, pp. 1825–1829, 2014.
- [139]A. C. Koralek, "Large-Scale Neuronal Network Changes Underlying Neuroprosthetic Learning," 2014.
- [140]C. K. Kim, A. Miri, L. C. Leung, A. Berndt, P. Mourrain, D. W. Tank, and R. D. Burdine, "Prolonged, brain-wide expression of nuclear-localized GCaMP3 for functional circuit mapping.," *Front Neural Circuits*, vol. 8, p. 138, 2014.
- [141]D. M. Huland, D. G. Ouzounov, D. R. Rivera, C. M. Brown, and C. Xu, "Intravital Multiphoton Endoscopy," in *Advances in Intravital Microscopy*, Springer, 2014, pp. 305–370.
- [142]E. Hopp, A. Borst, and J. Haag, "Subcellular mapping of dendritic activity in optic flow processing neurons," *Journal of Comparative Physiology A*, vol. 200, no. 5, pp. 359–370, 2014.
- [143]M. I. Hamad, A. Jack, O. Klatt, M. Lorkowski, T. Strasdeit, S. Kott, C. Sager, M. Hollmann, and P. Wahle, "Type I TARPs promote dendritic growth of early postnatal neocortical pyramidal cells in organotypic cultures," *Development*, vol. 141, no. 8, pp. 1737–1748, 2014.
- [144]J. M. Gee, N. A. Smith, F. R. Fernandez, M. N. Economo, D. Brunert, M. Rothermel, S. C. Morris, A. Talbot, S. Palumbos, J. M. Ichida, and others, "Imaging activity in neurons and glia with a Polr2a-based and cre-dependent GCaMP5G-IRES-tdTomato reporter mouse," *Neuron*, vol. 83, no. 5, pp. 1058–1072, 2014.
- [145]F. Gambino, S. Pagès, V. Kehayas, D. Baptista, R. Tatti, A. Carleton, and A. Holtmaat, "Sensory-evoked LTP driven by dendritic plateau potentials in vivo," *Nature*, vol. 515, no. 7525, pp. 116–119, 2014.
- [146]J. Freeman, N. Vladimirov, T. Kawashima, Y. Mu, N. J. Sofroniew, D. V. Bennett, J. Rosen, C.-T. Yang, L. L. Looger, and M. B. Ahrens, "Mapping brain activity at scale with cluster computing," *Nature methods*, vol. 11, no. 9, pp. 941–950, 2014.
- [147]M. Fisek, "Connectivity and computations in higher-order olfactory neurons in *Drosophila*," 2014.
- [148]H. Dana, A. Marom, S. Paluch, R. Dvorkin, I. Brosh, and S. Shoham, "Hybrid multiphoton volumetric functional imaging of large-scale bioengineered neuronal networks.," *Nat Commun*, vol. 5, p. 3997, 2014.
- [149]H. Dana, T.-W. Chen, A. Hu, B. C. Shields, C. Guo, L. L. Looger, D. S. Kim, and K. Svoboda, "Thy1-GCaMP6 transgenic mice for neuronal population imaging in vivo.," *PLoS One*, vol. 9, no. 9, p. e108697, 2014.
- [150]A. Cupido, B. Catalin, H. Steffens, and F. Kirchhoff, "Surgical Procedures to Study Microglial Motility in the Brain and in the Spinal Cord by In Vivo Two-Photon Laser-Scanning Microscopy," *Laser scanning microscopy and quantitative image analysis of neuronal tissue*, pp. 37–50, 2014.
- [151]A. Cruz-Martin and C. Portera-Cailliau, "In vivo imaging of axonal and dendritic structures in neonatal mouse cortex," *Cold Spring Harbor*

Protocols, vol. 2014, no. 1, p. pdb-prot080150, 2014.

[152]K. B. Clancy, "Using calcium imaging to understand function and learning in layer 2/3 of cerebral cortex," University of California, Berkeley, 2014.

[153]Y. Chen, J. L. Saulnier, G. Yellen, and B. L. Sabatini, "A PKA activity sensor for quantitative analysis of endogenous GPCR signaling via 2-photon FRET-FLIM imaging," 2014.

[154]M. Cane, B. Maco, G. Knott, and A. Holtmaat, "The relationship between PSD-95 clustering and spine stability in vivo," *The Journal of Neuroscience*, vol. 34, no. 6, pp. 2075–2086, 2014.

[155]R. A. A. Campbell, R. W. Eifert, and G. C. Turner, "OpenStage: a low-cost motorized microscope stage with sub-micron positioning accuracy.," *PLoS One*, vol. 9, no. 2, p. e88977, 2014.

[156]L. Campagnola, M. B. Kratz, and P. B. Manis, "ACQ4: an open-source software platform for data acquisition and analysis in neurophysiology research.," *Front Neuroinform*, vol. 8, p. 3, 2014.

[157]A. V. Blackman, S. Grabuschnig, R. Legenstein, and P. J. Sjöström, "A comparison of manual neuronal reconstruction from biocytin histology or," *Front Neuroanat*, vol. 8, p. 65, 2014.

[158]B. Biermann, S. Sokoll, J. Klueva, M. Missler, J. S. Wiegert, J.-B. Sibarita, and M. Heine, "Imaging of molecular surface dynamics in brain slices using single-particle tracking.," *Nat Commun*, vol. 5, p. 3024, 2014.

[159]S. Arunkarthick, M. M. Bijeesh, A. S. Vetcha, N. Rastogi, P. Nandakumar, and G. K. Varier, "Design and construction of a confocal laser scanning microscope for biomolecular imaging," *CURRENT SCIENCE*, vol. 107, no. 12, p. 1965, 2014.

[160]K. S. Sinsimer, J. J. Lee, S. Y. Thiberge, and E. R. Gavis, "Germ plasm anchoring is a dynamic state that requires persistent trafficking.," *Cell Rep*, vol. 5, no. 5, pp. 1169–1177, Dec. 2013.

[161]R. Padmashri, B. C. Reiner, A. Suresh, E. Spartz, and A. Dunaevsky, "Altered structural and functional synaptic plasticity with motor skill learning in a mouse model of fragile X syndrome.," *J Neurosci*, vol. 33, no. 50, pp. 19715–19723, Dec. 2013.

[162]E.-M. Schotz, M. Lanio, J. A. Talbot, and M. L. Manning, "Glassy dynamics in three-dimensional embryonic tissues.," *J R Soc Interface*, vol. 10, no. 89, p. 20130726, Dec. 2013.

[163]R. G. Fernandez and A. T. De Computadores, "Estudios De Ingenieria en Informatica," Dec. 2013.

[164]S. Zhai, E. D. Ark, P. Parra-Bueno, and R. Yasuda, "Long-distance integration of nuclear ERK signaling triggered by activation of a few dendritic spines.," *Science*, vol. 342, no. 6162, pp. 1107–1111, Nov. 2013.

[165]M. L. Andermann, N. B. Gilfoy, G. J. Goldey, R. N. S. Sachdev, M. Wolfel, D. A. McCormick, R. C. Reid, and M. J. Levene, "Chronic cellular imaging of entire cortical columns in awake mice using microprisms.," *Neuron*, vol. 80, no. 4, pp. 900–913, Nov. 2013.

[166]J. S. Wiegert and T. G. Oertner, "Long-term depression triggers the selective elimination of weakly integrated synapses.," *Proc Natl Acad Sci U S A*, vol. 110, no. 47, pp. E4510–4519, Nov. 2013.

[167]J. D. Seelig and V. Jayaraman, "Feature detection and orientation tuning in the Drosophila central complex," *Nature*, vol. 503, no. 7475, pp. 262–266, Nov. 2013.

[168]P. Garcia-Junco-Clemente, D. K. Chow, E. Tring, M. T. Lazaro, J. T. Trachtenberg, and P. Golshani, "Overexpression of calcium-activated potassium channels underlies cortical dysfunction in a model of PTEN-associated autism.," *Proc Natl Acad Sci U S A*, vol. 110, no. 45, pp. 18297–18302, Nov. 2013.

[169]B. B. Scott, C. D. Brody, and D. W. Tank, "Cellular resolution functional imaging in behaving rats using voluntary head restraint," *Neuron*, vol. 80, no. 2, pp. 371–384, Oct. 2013.

[170]B. Nahir and C. E. Jahr, "Activation of extrasynaptic NMDARs at individual parallel fiber-molecular layer interneuron synapses in cerebellum.," *J Neurosci*, vol. 33, no. 41, pp. 16323–16333, Oct. 2013.

[171]S. J. Kuhlman, N. D. Olivas, E. Tring, T. Ikrar, X. Xu, and J. T. Trachtenberg, "A disinhibitory microcircuit initiates critical-period plasticity in the visual cortex.," *Nature*, vol. 501, no. 7468, pp. 543–546, Sep. 2013.

[172]A. E. Granstedt, J. B. Bosse, S. Y. Thiberge, and L. W. Enquist, "In vivo imaging of alphaherpesvirus infection reveals synchronized activity dependent on axonal sorting of viral proteins.," *Proc Natl Acad Sci U S A*, vol. 110, no. 37, pp. E3516–3525, Sep. 2013.

[173]P.-O. Polack, J. Friedman, and P. Golshani, "Cellular mechanisms of brain state-dependent gain modulation in visual cortex.," *Nat Neurosci*, vol. 16, no. 9, pp. 1331–1339, Sep. 2013.

[174]P. S. Holcomb, B. K. Hoffpauir, M. C. Hoyson, D. R. Jackson, T. J. Deerinck, G. S. Marrs, M. Dehoff, J. Wu, M. H. Ellisman, and G. A. Spirou, "Synaptic inputs compete during rapid formation of the calyx of Held: a new model system for neural development.," *J Neurosci*, vol. 33, no. 32, pp. 12954–12969, Aug. 2013.

[175]J. Onativia, S. R. Schultz, and P. L. Dragotti, "A finite rate of innovation algorithm for fast and accurate spike detection from two-photon calcium imaging.," *J Neural Eng*, vol. 10, no. 4, p. 046017, Aug. 2013.

[176]T.-W. Chen, T. J. Wardill, Y. Sun, S. R. Pulver, S. L. Renninger, A. Baohan, E. R. Schreiter, R. A. Kerr, M. B. Orger, V. Jayaraman, L. L. Looger, K. Svoboda, and D. S. Kim, "Ultrasensitive fluorescent proteins for imaging neuronal activity," *Nature*, vol. 499, no. 7458, pp. 295–300, Jul. 2013.

[177]F. Esposti, J. Johnston, J. M. Rosa, K.-M. Leung, and L. Lagnado, "Olfactory stimulation selectively modulates the OFF pathway in the retina of zebrafish.," *Neuron*, vol. 79, no. 1, pp. 97–110, Jul. 2013.

[178]J. T. Goncalves, J. E. Anstey, P. Golshani, and C. Portera-Cailliau, "Circuit level defects in the developing neocortex of Fragile X mice.," *Nat Neurosci*, vol. 16, no. 7, pp. 903–909, Jul. 2013.

[179]B. Catalin, S. Mitran, C. Albu, and M. Iancau, "Comparative aspects of microglia reaction in white and gray matter.," *Curr Health Sci J*, vol. 39, no. 3, pp. 151–154, Jul. 2013.

[180]N. R. Wilson, J. Schummers, C. A. Runyan, S. X. Yan, R. E. Chen, Y. Deng, and M. Sur, "Two-way communication with neural networks in vivo using focused light.," *Nat Protoc*, vol. 8, no. 6, pp. 1184–1203, Jun. 2013.

[181]E. R. Schneider, E. F. Civillico, and S. S.-H. Wang, "Calcium-based dendritic excitability and its regulation in the deep cerebellar nuclei.," *J Neurophysiol*, vol. 109, no. 9, pp. 2282–2292, May 2013.

[182]R. Bock, J. H. Shin, A. R. Kaplan, A. Dobi, E. Markey, P. F. Kramer, C. M. Gremel, C. H. Christensen, M. F. Adrover, and V. A. Alvarez, "Strengthening the accumbal indirect pathway promotes resilience to compulsive cocaine use.," *Nat Neurosci*, vol. 16, no. 5, pp. 632–638, May 2013.

[183]D. G. Johnston, M. Denizet, R. Mostany, and C. Portera-Cailliau, "Chronic in vivo imaging shows no evidence of dendritic plasticity or functional remapping in the contralateral cortex after stroke.," *Cereb Cortex*, vol. 23, no. 4, pp. 751–762, Apr. 2013.

[184]M. Wachowiak, M. N. Economo, M. Diaz-Quesada, D. Brunert, D. W. Wesson, J. A. White, and M. Rothermel, "Optical dissection of odor information processing in vivo using GCaMPs expressed in specified cell types of the olfactory bulb.," *J Neurosci*, vol. 33, no. 12, pp. 5285–5300, Mar. 2013.

[185]E. M. Szatmari, A. F. Oliveira, E. J. Sumner, and R. Yasuda, "Centaurin-alpha1-Ras-Elk-1 signaling at mitochondria mediates

beta-amyloid-induced synaptic dysfunction.," *J Neurosci*, vol. 33, no. 12, pp. 5367–5374, Mar. 2013.

[186]E. Robles, A. Filosa, and H. Baier, "Precise lamination of retinal axons generates multiple parallel input pathways in the tectum.," *J Neurosci*, vol. 33, no. 11, pp. 5027–5039, Mar. 2013.

[187]N. G. Horton, K. Wang, D. Kobat, C. G. Clark, F. W. Wise, C. B. Schaffer, and C. Xu, "three-photon microscopy of subcortical structures within an intact mouse brain.," *Nat Photonics*, vol. 7, no. 3, Mar. 2013.

[188]K. T. Takasaki, J. B. Ding, and B. L. Sabatini, "Live-cell superresolution imaging by pulsed STED two-photon excitation microscopy.," *Biophys J*, vol. 104, no. 4, pp. 770–777, Feb. 2013.

[189]W. C. Oh, T. C. Hill, and K. Zito, "Synapse-specific and size-dependent mechanisms of spine structural plasticity accompanying synaptic weakening.," *Proc Natl Acad Sci U S A*, vol. 110, no. 4, pp. E305–312, Jan. 2013.

[190]P. Zhu, T. Frank, and R. W. Friedrich, "Equalization of odor representations by a network of electrically coupled inhibitory interneurons.," *Nature neuroscience*, vol. 16, no. 11, pp. 1678–1686, 2013.

[191]R. Weber, "Nonlinear microscopy for material characterization," 2013.

[192]F. Wang, A. Saiz-Lopez, A. S. Mahajan, J. C. G. Martín, D. Armstrong, M. Lemes, T. Hay, and C. Prados-Roman, "Supplementary Material for," 2013.

[193]G. Thériault, Y. De Koninck, and N. McCarthy, "Extended depth of field microscopy for rapid volumetric two-photon imaging," *Optics express*, vol. 21, no. 8, pp. 10095–10104, 2013.

[194]J. C. Tang, T. Szikra, Y. Kozorovitskiy, M. Teixeira, B. L. Sabatini, B. Roska, and C. L. Cepko, "A nanobody-based system using fluorescent proteins as scaffolds for cell-specific gene manipulation," *Cell*, vol. 154, no. 4, pp. 928–939, 2013.

[195]E. M. Szatmari, A. F. Oliveira, E. J. Sumner, and R. Yasuda, "Centaurin-1-Ras-Elk-1 signaling at mitochondria mediates -amyloid-induced synaptic dysfunction," *The Journal of Neuroscience*, vol. 33, no. 12, pp. 5367–5374, 2013.

[196]X. R. Sun, A. Badura, D. A. Pacheco, L. A. Lynch, E. R. Schneider, M. P. Taylor, I. B. Hogue, L. W. Enquist, M. Murthy, and S. S.-H. Wang, "Fast GCaMPs for improved tracking of neuronal activity.," *Nat Commun*, vol. 4, p. 2170, 2013.

[197]S. L. Smith, I. T. Smith, T. Branco, and M. Häusser, "Dendritic spikes enhance stimulus selectivity in cortical neurons in vivo," *Nature*, vol. 503, no. 7474, pp. 115–120, 2013.

[198]V. Schubert, D. Lebrecht, and A. Holtmaat, "Peripheral deafferentation-driven functional somatosensory map shifts are associated with local, not large-scale dendritic structural plasticity," *The Journal of Neuroscience*, vol. 33, no. 22, pp. 9474–9487, 2013.

[199]I. W. Schie, L. Nolte, T. L. Pedersen, Z. Smith, J. Wu, I. Yahiatene, J. W. Newman, and T. Huser, "Direct comparison of fatty acid ratios in single cellular lipid droplets as determined by comparative Raman spectroscopy and gas chromatography," *Analyst*, vol. 138, no. 21, pp. 6662–6670, 2013.

[200]T. Rose, P. Schoenenberger, K. Jezek, and T. G. Oertner, "Developmental refinement of vesicle cycling at Schaffer collateral synapses," *Neuron*, vol. 77, no. 6, pp. 1109–1121, 2013.

[201]S. L. Renninger and M. B. Orger, "Two-photon imaging of neural population activity in zebrafish," *Methods*, vol. 62, no. 3, pp. 255–267, 2013.

[202]F. J. Probst, R. R. Corrigan, D. Del Gaudio, A. P. Salinger, I. Lorenzo, S. S. Gao, I. Chiu, A. Xia, J. S. Oghalai, and M. J. Justice, "A point mutation in the gene for asparagine-linked glycosylation 10B (Alg10b) causes nonsyndromic hearing impairment in mice (*Mus musculus*).," *PLoS One*, vol. 8, no. 11, p. e80408, 2013.

[203]A. F. Oliveira and R. Yasuda, "An improved Ras sensor for highly sensitive and quantitative FRET-FLIM imaging.," *PLoS One*, vol. 8, no. 1, p. e52874, 2013.

[204]B. Nahir and C. E. Jahr, "Activation of Extrasynaptic NMDARs at Individual Parallel Fiber–Molecular Layer Interneuron Synapses in Cerebellum," *The Journal of Neuroscience*, vol. 33, no. 41, pp. 16323–16333, 2013.

[205]R. Mostany, J. E. Anstey, K. L. Crump, B. Maco, G. Knott, and C. Portera-Cailliau, "Altered synaptic dynamics during normal brain aging," *The Journal of Neuroscience*, vol. 33, no. 9, pp. 4094–4104, 2013.

[206]J. S. Marvin, B. G. Borghuis, L. Tian, J. Cichon, M. T. Harnett, J. Akerboom, A. Gordus, S. L. Renninger, T.-W. Chen, C. I. Bargmann, and others, "An optimized fluorescent probe for visualizing glutamate neurotransmission," *Nature methods*, vol. 10, no. 2, pp. 162–170, 2013.

[207]M. S. Maisak, J. Haag, G. Ammer, E. Serbe, M. Meier, A. Leonhardt, T. Schilling, A. Bahl, G. M. Rubin, A. Nern, and others, "A directional tuning map of *Drosophila* elementary motion detectors," *Nature*, vol. 500, no. 7461, pp. 212–216, 2013.

[208]D. Langer, M. van't Hoff, A. J. Keller, C. Nagaraja, O. A. Pfäffli, M. Göldi, H. Kasper, and F. Helmchen, "HelioScan: A software framework for controlling in vivo microscopy setups with high hardware flexibility, functional diversity and extendibility," *Journal of neuroscience methods*, vol. 215, no. 1, pp. 38–52, 2013.

[209]N. G. Horton, K. Wang, D. Kobat, C. G. Clark, F. W. Wise, C. B. Schaffer, and C. Xu, "In vivo three-photon microscopy of subcortical structures within an intact mouse brain," *Nature photonics*, vol. 7, no. 3, pp. 205–209, 2013.

[210]C. Hinz, I. Namekawa, J. Behrmann-Godel, C. Oppelt, A. Jaeschke, A. Muller, R. W. Friedrich, and G. Gerlach, "Olfactory imprinting is triggered by MHC peptide ligands.," *Sci Rep*, vol. 3, p. 2800, 2013.

[211]T. C. Hill and K. Zito, "LTP-induced long-term stabilization of individual nascent dendritic spines," *The Journal of Neuroscience*, vol. 33, no. 2, pp. 678–686, 2013.

[212]M. Hashizume, T. Miyazaki, K. Sakimura, M. Watanabe, K. Kitamura, and M. Kano, "Disruption of cerebellar microzonal organization in *GluD2* (*GluRdelta2*) knockout mouse.," *Front Neural Circuits*, vol. 7, p. 130, 2013.

[213]A. E. Granstedt, "In vivo imaging of alphaherpesvirus infection in the mouse peripheral nervous system," PRINCETON UNIVERSITY, 2013.

[214]O. Fajardo, P. Zhu, and R. W. Friedrich, "Control of a specific motor program by a small brain area in zebrafish.," *Front Neural Circuits*, vol. 7, p. 67, 2013.

[215]H. Dehez, M. Piché, and Y. De Koninck, "Resolution and contrast enhancement in laser scanning microscopy using dark beam imaging," *Optics express*, vol. 21, no. 13, pp. 15912–15925, 2013.

[216]B. Catalin, D. Alexandru, C. Alub, and M. Iancau, "Microglia branching using a Sholl analysis method," 2013.

[217]N. Xu, M. T. Harnett, S. R. Williams, D. Huber, D. H. O'Connor, K. Svoboda, and J. C. Magee, "Nonlinear dendritic integration of sensory and motor input during an active sensing task," *Nature*, vol. 492, no. 7428, pp. 247–251, Dec. 2012.

[218]M. A. Gelbart, B. He, A. C. Martin, S. Y. Thiberge, E. F. Wieschaus, and M. Kaschube, "Volume conservation principle involved in cell lengthening and nucleus movement during tissue morphogenesis.," *Proc Natl Acad Sci U S A*, vol. 109, no. 47, pp. 19298–19303, Nov. 2012.

[219]V. Marra, J. J. Burden, J. R. Thorpe, I. T. Smith, S. L. Smith, M. Häusser, T. Branco, and K. Staras, "A preferentially segregated recycling vesicle pool of limited size supports neurotransmission in native central synapses.," *Neuron*, vol. 76, no. 3, pp. 579–589, Nov. 2012.

[220]N. X. Tritsch, J. B. Ding, and B. L. Sabatini, "Dopaminergic neurons inhibit striatal output through non-canonical release of GABA.," *Nature*, vol. 490, no. 7419, pp. 262–266, Oct. 2012.

[221]J. Akerboom, T.-W. Chen, T. J. Wardill, L. Tian, J. S. Marvin, S. Mutlu, N. C. Calderon, F. Esposti, B. G. Borghuis, X. R. Sun, A. Gordus, M. B. Orger, R. Portugues, F. Engert, J. J. Macklin, A. Filosa, A. Aggarwal, R. A. Kerr, R. Takagi, S. Kracun, E. Shigetomi, B. S. Khakh, H. Baier, L.

- Lagnado, S. S.-H. Wang, C. I. Bargmann, B. E. Kimmel, V. Jayaraman, K. Svoboda, D. S. Kim, E. R. Schreiter, and L. L. Looger, "Optimization of a GCaMP calcium indicator for neural activity imaging.," *J Neurosci*, vol. 32, no. 40, pp. 13819–13840, Oct. 2012.
- [222]J. A. Drocco, E. F. Wieschaus, and D. W. Tank, "The synthesis-diffusion-degradation model explains Bicoid gradient formation in unfertilized eggs.," *Phys Biol*, vol. 9, no. 5, p. 055004, Oct. 2012.
- [223]L. Petreanu, D. A. Gutnisky, D. Huber, N. Xu, D. H. O'Connor, L. Tian, L. Looger, and K. Svoboda, "Activity in motor-sensory projections reveals distributed coding in somatosensation," *Nature*, vol. 489, no. 7415, pp. 299–303, Sep. 2012.
- [224]K. A. Buchanan, A. V. Blackman, A. W. Moreau, D. Elgar, R. P. Costa, T. Lalanne, A. A. T. Jones, J. Oyrer, and P. J. Sjöström, "Supplemental Information Target-Specific Expression of Presynaptic NMDA Receptors in Neocortical Microcircuits," Aug. 2012.
- [225]A. Gdalyahu, E. Tring, P.-O. Polack, R. Gruver, P. Golshani, M. S. Fanselow, A. J. Silva, and J. T. Trachtenberg, "Associative fear learning enhances sparse network coding in primary sensory cortex.," *Neuron*, vol. 75, no. 1, pp. 121–132, Jul. 2012.
- [226]M. Paukert and D. E. Bergles, "Reduction of motion artifacts during in vivo two-photon imaging of brain through heartbeat triggered scanning.," *J Physiol*, vol. 590, no. 13, pp. 2955–2963, Jul. 2012.
- [227]R. M. Wyatt, E. Tring, and J. T. Trachtenberg, "Pattern and not magnitude of neural activity determines dendritic spine stability in awake mice.," *Nat Neurosci*, vol. 15, no. 7, pp. 949–951, Jul. 2012.
- [228]K. W. Eliceiri, M. R. Berthold, I. G. Goldberg, L. Ibanez, B. S. Manjunath, M. E. Martone, R. F. Murphy, H. Peng, A. L. Plant, B. Roysam, N. Stuurman, J. R. Swedlow, P. Tomancak, and A. E. Carpenter, "Biological imaging software tools.," *Nat Methods*, vol. 9, no. 7, pp. 697–710, Jul. 2012.
- [229]Y. Li, H. Lu, P. Cheng, S. Ge, H. Xu, S.-H. Shi, and Y. Dan, "Clonally related visual cortical neurons show similar stimulus feature selectivity.," *Nature*, vol. 486, no. 7401, pp. 118–121, Jun. 2012.
- [230]A. M. Hamilton, W. C. Oh, H. Vega-Ramirez, I. S. Stein, J. W. Hell, G. N. Patrick, and K. Zito, "Supplemental Information Activity-Dependent Growth of New Dendritic Spines Is Regulated by the Proteasome," Jun. 2012.
- [231]D. Huber, D. A. Gutnisky, S. Peron, D. H. O'Connor, J. S. Wiegert, L. Tian, T. G. Oertner, L. L. Looger, and K. Svoboda, "Multiple dynamic representations in the motor cortex during sensorimotor learning," *Nature*, vol. 484, no. 7395, pp. 473–478, Apr. 2012.
- [232]C. D. Harvey, P. Coen, and D. W. Tank, "Choice-specific sequences in parietal cortex during a virtual-navigation decision task," *Nature*, vol. 484, no. 7392, pp. 62–68, Apr. 2012.
- [233]A. H. Morrison, M. Scheeler, J. Dubuis, and T. Gregor, "Quantifying the Bicoid morphogen gradient in living fly embryos.," *Cold Spring Harb Protoc*, vol. 2012, no. 4, pp. 398–406, Apr. 2012.
- [234]S. Arttamangkul, E. K. Lau, H.-W. Lu, and J. T. Williams, "Desensitization and trafficking of mu-opioid receptors in locus ceruleus neurons: modulation by kinases.," *Mol Pharmacol*, vol. 81, no. 3, pp. 348–355, Mar. 2012.
- [235]H. A. Zariwala, B. G. Borghuis, T. M. Hoogland, L. Madisen, L. Tian, C. I. De Zeeuw, H. Zeng, L. L. Looger, K. Svoboda, and T.-W. Chen, "A Cre-dependent GCaMP3 reporter mouse for neuronal imaging in vivo.," *J Neurosci*, vol. 32, no. 9, pp. 3131–3141, Feb. 2012.
- [236]B. Odermatt, A. Nikolaev, and L. Lagnado, "Encoding of luminance and contrast by linear and nonlinear synapses in the retina.," *Neuron*, vol. 73, no. 4, pp. 758–773, Feb. 2012.
- [237]J. Nauhaus, K. J. Nielsen, and E. M. Callaway, "Nonlinearity of two-photon Ca²⁺ imaging yields distorted measurements of tuning for V1 neuronal populations.," *J Neurophysiol*, vol. 107, no. 3, pp. 923–936, Feb. 2012.
- [238]J. B. Ding, W.-J. Oh, B. L. Sabatini, and C. Gu, "Semaphorin 3E-Plexin-D1 signaling controls pathway-specific synapse formation in the striatum.," *Nat Neurosci*, vol. 15, no. 2, pp. 215–223, Feb. 2012.
- [239]P. Zhu, O. Fajardo, J. Shum, Y.-P. Z. Schäfer, and R. W. Friedrich, "High-resolution optical control of spatiotemporal neuronal activity patterns in zebrafish using a digital micromirror device," *Nature protocols*, vol. 7, no. 7, pp. 1410–1425, 2012.
- [240]M. Wienisch, D. G. Blauvelt, T. F. Sato, and V. N. Murthy, "Two-photon imaging of neural activity in awake, head-restrained mice," *Neuronal Network Analysis: Concepts and Experimental Approaches*, pp. 45–60, 2012.
- [241]C. Varela, D. A. Llano, and B. B. Theyel, "An Introduction to in vitro slice approaches for the study of neuronal circuitry," *Neuronal Network Analysis: Concepts and Experimental Approaches*, pp. 103–125, 2012.
- [242]J. Vanzetta, T. Deneux, A. Kaszás, G. Katona, and B. Rozsa, "Functional imaging using two-photon microscopy in living tissue," *Visualization Techniques: From Immunohistochemistry to Magnetic Resonance Imaging*, pp. 129–164, 2012.
- [243]J. C. Tuthill, Behavioral and electrophysiological investigation of early visual processing in the fly. THE UNIVERSITY OF CHICAGO, 2012.
- [244]H. Steffens, F. Nadrigny, and F. Kirchhoff, "In vivo two-photon imaging of neurons and glia in the mouse spinal cord," *Cold Spring Harbor Protocols*, vol. 2012, no. 12, p. pdb-prot072264, 2012.
- [245]K. M. Seemann, R. Kiefersauer, U. Jacob, and B. Kuhn, "Optical pH detection within a protein crystal," *The Journal of Physical Chemistry B*, vol. 116, no. 33, pp. 9873–9881, 2012.
- [246]B. B. Scott, T. Gardner, N. Ji, M. S. Fee, and C. Lois, "Wandering neuronal migration in the postnatal vertebrate forebrain," *The Journal of Neuroscience*, vol. 32, no. 4, pp. 1436–1446, 2012.
- [247]Y.-P. Z. Scharer, J. Shum, A. Moressis, and R. W. Friedrich, "Dopaminergic modulation of synaptic transmission and neuronal activity patterns in the zebrafish homolog of olfactory cortex.," *Front Neural Circuits*, vol. 6, p. 76, 2012.
- [248]D. R. Rivera, C. M. Brown, D. G. Ouzounov, W. W. Webb, and C. Xu, "Multifocal multiphoton endoscope," *Optics letters*, vol. 37, no. 8, pp. 1349–1351, 2012.
- [249]S. G. Parra, S. S. Vesuna, T. A. Murray, and M. J. Levene, "YFP ifade Temizlendi Fare Beyin Multiphoton Mikroskopisi," 2012.
- [250]S. G. Parra, S. S. Vesuna, T. A. Murray, and M. J. Levene, Multiphoton microscopy of cleared mouse brain expressing YFP. United States, 2012.
- [251]J. Ozden, D. A. Dombeck, T. M. Hoogland, D. W. Tank, and S. S.-H. Wang, "Widespread state-dependent shifts in cerebellar activity in locomoting mice.," *PLoS One*, vol. 7, no. 8, p. e42650, 2012.
- [252]A. I. F. M. de Oliveira, "Regulation of the Ras Pathway by Neurofibromin in Dendritic Spines," 2012.
- [253]C. Nicoletti, N. Offenhauser, D. Jorks, S. Major, and J. P. Dreier, "Assessment of neurovascular coupling," *Animal Models of Acute Neurological Injuries II: Injury and Mechanistic Assessments, Volume 1*, pp. 353–372, 2012.
- [254]J. Nauhaus, K. J. Nielsen, A. A. Disney, and E. M. Callaway, "Orthogonal micro-organization of orientation and spatial frequency in primate primary visual cortex," *Nature neuroscience*, vol. 15, no. 12, pp. 1683–1690, 2012.
- [255]B. P. Lehnert, "The Role of TRP Channels in Auditory Transduction and Amplification in Drosophila," 2012.
- [256]B. Kuhn, J. Ozden, Y. Lampi, M. T. Hasan, and S. S.-H. Wang, "An amplified promoter system for targeted expression of calcium indicator proteins in the cerebellar cortex.," *Front Neural Circuits*, vol. 6, p. 49, 2012.
- [257]N. G. Horton, D. Kobat, K. Wang, and C. Xu, "In Vivo, Deep Tissue Three-Photon Imaging at the 1700-nm Spectral Window," in *Biomedical Optics*, 2012, p. BSu2B–2.
- [258]A. Holtmaat, V. de Paola, L. Wilbrecht, J. T. Trachtenberg, K. Svoboda, and C. Portera-Cailliau, "Imaging neocortical neurons through a

chronic cranial window," *Cold Spring Harbor Protocols*, vol. 2012, no. 6, p. pdb-prot069617, 2012.

[259]J. A. Drocco, E. F. Wieschaus, and D. W. Tank, "The synthesis-diffusion-degradation model explains Bicoid gradient formation in unfertilized eggs," *Physical biology*, vol. 9, no. 5, p. 055004, 2012.

[260]A. Cruz-Martin, M. Crespo, and C. Portera-Cailliau, "Glutamate induces the elongation of early dendritic protrusions via mGluRs in wild type mice, but not in fragile X mice.," *PLoS One*, vol. 7, no. 2, p. e32446, 2012.

[261]S. T. Bundschuh, P. Zhu, Y.-P. Z. Schäfer, and R. W. Friedrich, "Dopaminergic modulation of mitral cells and odor responses in the zebrafish olfactory bulb," *The Journal of Neuroscience*, vol. 32, no. 20, pp. 6830-6840, 2012.

[262]J. M. Bélisle, "Développement et caractérisation d'une méthode photonique pour créer des distributions spatiales de protéines," 2012.

[263]S. Arttamangkul, E. K. Lau, H.-W. Lu, and J. T. Williams, "Desensitization and trafficking of -opioid receptors in locus ceruleus neurons: modulation by kinases," *Molecular pharmacology*, vol. 81, no. 3, pp. 348-355, 2012.

[264]M. L. Andermann, A. M. Kerlin, D. K. Roumis, L. L. Glickfeld, and R. C. Reid, "Functional specialization of mouse higher visual cortical areas.," *Neuron*, vol. 72, no. 6, pp. 1025-1039, Dec. 2011.

[265]T. Baden, F. Esposti, A. Nikolaev, and L. Lagnado, "Spikes in retinal bipolar cells phase-lock to visual stimuli with millisecond precision.," *Curr Biol*, vol. 21, no. 22, pp. 1859-1869, Nov. 2011.

[266]J. R. Pugh and C. E. Jahr, "NMDA receptor agonists fail to alter release from cerebellar basket cells.," *J Neurosci*, vol. 31, no. 46, pp. 16550-16555, Nov. 2011.

[267]C. C. Liu, S. S. Gao, T. Yuan, C. Steele, S. Puria, and J. S. Oghalai, "Biophysical mechanisms underlying outer hair cell loss associated with a shortened tectorial membrane.," *J Assoc Res Otolaryngol*, vol. 12, no. 5, pp. 577-594, Oct. 2011.

[268]G. F. Woods, W. C. Oh, L. C. Boudewyn, S. K. Mikula, and K. Zito, "Loss of PSD-95 enrichment is not a prerequisite for spine retraction.," *J Neurosci*, vol. 31, no. 34, pp. 12129-12138, Aug. 2011.

[269]K. Kitamura and M. Hausser, "Dendritic calcium signaling triggered by spontaneous and sensory-evoked climbing fiber input to cerebellar Purkinje cells in vivo.," *J Neurosci*, vol. 31, no. 30, pp. 10847-10858, Jul. 2011.

[270]A. J. Ramsey, M. Milenkovic, A. F. Oliveira, Y. Escobedo-Lozoya, S. Seshadri, A. Salahpour, A. Sawa, R. Yasuda, and M. G. Caron, "Impaired NMDA receptor transmission alters striatal synapses and DISC1 protein in an age-dependent manner.," *Proc Natl Acad Sci U S A*, vol. 108, no. 14, pp. 5795-5800, Apr. 2011.

[271]B. G. Borghuis, L. Tian, Y. Xu, S. S. Nikonov, N. Vardi, B. V. Zemelman, and L. L. Looger, "Imaging light responses of targeted neuron populations in the rodent retina.," *J Neurosci*, vol. 31, no. 8, pp. 2855-2867, Feb. 2011.

[272]R. Mostany and C. Portera-Cailliau, "Absence of large-scale dendritic plasticity of layer 5 pyramidal neurons in peri-infarct cortex," *J Neurosci*, vol. 31, no. 5, pp. 1734-1738, Feb. 2011.

[273]J. R. Pugh and C. E. Jahr, "Axonal GABAA receptors increase cerebellar granule cell excitability and synaptic activity.," *J Neurosci*, vol. 31, no. 2, pp. 565-574, Jan. 2011.

[274]R. A. Weber, C. Rodriguez, D. N. Nguyen, L. A. Emmert, W. Rudolph, D. Patel, and C. S. Menoni, "Third harmonic microscopy for optical material characterization," in *XLIII Annual Symposium on Optical Materials for High Power Lasers*, 2011, p. 81900V-81900V.

[275]S. Vesuna, R. Torres, and M. J. Levene, "Multiphoton fluorescence, second harmonic generation, and fluorescence lifetime imaging of whole cleared mouse organs," *Journal of biomedical optics*, vol. 16, no. 10, pp. 106009-106009, 2011.

[276]T. V. Truong, W. Supatto, D. S. Koos, J. M. Choi, and S. E. Fraser, "Deep and fast live imaging with two-photon scanned light-sheet microscopy," *Nature Methods*, vol. 8, no. 9, pp. 757-760, 2011.

[277]P. Schönenberger Lawrence, "Optogenetic approaches to the study of hippocampal long-term plasticity," *University_of_Basel*, 2011.

[278]H. Murakoshi, H. Wang, and R. Yasuda, "Local, persistent activation of Rho GTPases during plasticity of single dendritic spines," *Nature*, vol. 472, no. 7341, pp. 100-104, 2011.

[279]L. B. Mostaçõ-Guidolin, A. C. Ko, D. P. Popescu, M. S. Smith, E. K. Kohlenberg, M. Shiomi, A. Major, and M. G. Sowa, "Evaluation of texture parameters for the quantitative description of multimodal nonlinear optical images from atherosclerotic rabbit arteries," *Physics in medicine and biology*, vol. 56, no. 16, p. 5319, 2011.

[280]S.-J. Lee, "Spatiotemporal Dynamics of," *Duke University*, 2011.

[281]S. J. Kuhlman, E. Tring, and J. T. Trachtenberg, "Fast-spiking interneurons have an initial orientation bias that is lost with vision," *Nature neuroscience*, vol. 14, no. 9, pp. 1121-1123, 2011.

[282]E. Herzog, F. Nadrigny, K. Silm, C. Biesemann, I. Helling, T. Bersot, H. Steffens, R. Schwartzmann, U. V. Nägerl, S. El Mestikawy, and others, "In vivo imaging of intersynaptic vesicle exchange using VGLUT1Venus knock-in mice," *The Journal of Neuroscience*, vol. 31, no. 43, pp. 15544-15559, 2011.

[283]M. A. Herman, B. Nahir, and C. E. Jahr, "Distribution of extracellular glutamate in the neuropil of hippocampus.," *PLoS One*, vol. 6, no. 11, p. e26501, 2011.

[284]M. I. Hamad, Z.-L. Ma-Högemeier, C. Riedel, C. Conrads, T. Veitinger, T. Habijan, J.-N. Schulz, M. Krause, M. J. Wirth, M. Hollmann, and others, "Cell class-specific regulation of neocortical dendrite and spine growth by AMPA receptor splice and editing variants," *Development*, vol. 138, no. 19, pp. 4301-4313, 2011.

[285]E. F. Civillico, J. P. Rickgauer, and S. S.-H. Wang, "Targeting and excitation of photoactivatable molecules: design considerations for neurophysiology experiments," *Photosensitive Molecules for Controlling Biological Function*, pp. 7-37, 2011.

[286]F. Blumhagen, P. Zhu, J. Shum, Y.-P. Z. Schäfer, E. Yaksi, K. Deisseroth, and R. W. Friedrich, "Neuronal filtering of multiplexed odour representations," *Nature*, vol. 479, no. 7374, pp. 493-498, 2011.

[287]S. Begin, B. Burgoyne, V. Mercier, A. Villeneuve, R. Vallee, and D. Cote, "Coherent anti-Stokes Raman scattering hyperspectral tissue imaging with a wavelength-swept system.," *Biomed Opt Express*, vol. 2, no. 5, pp. 1296-1306, 2011.

[288]S. M. Martin, G. S. O'Brien, C. Portera-Cailliau, and A. Sagasti, "Wallerian degeneration of zebrafish trigeminal axons in the skin is required for regeneration and developmental pruning.," *Development*, vol. 137, no. 23, pp. 3985-3994, Dec. 2010.

[289]D. A. Dombeck, C. D. Harvey, L. Tian, L. L. Looger, and D. W. Tank, "Functional imaging of hippocampal place cells at cellular resolution during virtual navigation," *Nat. Neurosci*, vol. 13, no. 11, pp. 1433-1440, Nov. 2010.

[290]A. M. Kerlin, M. L. Andermann, V. K. Berezovskii, and R. C. Reid, "Broadly tuned response properties of diverse inhibitory neuron subtypes in mouse visual cortex.," *Neuron*, vol. 67, no. 5, pp. 858-871, Sep. 2010.

[291]M. A. Patterson, E. M. Szatmari, and R. Yasuda, "AMPA receptors are exocytosed in stimulated spines and adjacent dendrites in a Ras-ERK-dependent manner during long-term potentiation.," *Proc Natl Acad Sci U S A*, vol. 107, no. 36, pp. 15951-15956, Sep. 2010.

[292]M. J. Higley and B. L. Sabatini, "Competitive regulation of synaptic Ca²⁺ influx by D2 dopamine and A2A adenosine receptors.," *Nat Neurosci*, vol. 13, no. 8, pp. 958-966, Aug. 2010.

[293]J. D. Seelig, M. E. Chiappe, G. K. Lott, A. Dutta, J. E. Osborne, M. B. Reiser, and V. Jayaraman, "Two-photon calcium imaging from head-fixed *Drosophila* during optomotor walking behavior," *Nat. Methods*, vol. 7, no. 7, pp. 535-540, Jul. 2010.

- [294]A. Cruz-Martin, M. Crespo, and C. Portera-Cailliau, "Delayed stabilization of dendritic spines in fragile X mice.," *J Neurosci*, vol. 30, no. 23, pp. 7793–7803, Jun. 2010.
- [295]M. M. Dorostkar, E. Dreosti, B. Odermatt, and L. Lagnado, "Computational processing of optical measurements of neuronal and synaptic activity in networks.," *J Neurosci Methods*, vol. 188, no. 1, pp. 141–150, Apr. 2010.
- [296]L. Wilbrecht, A. Holtmaat, N. Wright, K. Fox, and K. Svoboda, "Structural plasticity underlies experience-dependent functional plasticity of cortical circuits.," *J Neurosci*, vol. 30, no. 14, pp. 4927–4932, Apr. 2010.
- [297]A. Xia, S. S. Gao, T. Yuan, A. Osborn, A. Bress, M. Pfister, S. M. Maricich, F. A. Pereira, and J. S. Oghalai, "Deficient forward transduction and enhanced reverse transduction in the alpha tectorin C1509G human hearing loss mutation.," *Dis Model Mech*, vol. 3, no. 3–4, pp. 209–223, Apr. 2010.
- [298]M. T. Heneka, F. Nadrigny, T. Regen, A. Martinez-Hernandez, L. Dumitrescu-Ozimek, D. Terwel, D. Jardanhazi-Kurutz, J. Walter, F. Kirchhoff, U.-K. Hanisch, and M. P. Kummer, "Locus ceruleus controls Alzheimer's disease pathology by modulating microglial functions through norepinephrine.," *Proc. Natl. Acad. Sci. U.S.A.*, vol. 107, no. 13, pp. 6058–6063, Mar. 2010.
- [299]T. Yuan, S. S. Gao, P. Saggau, and J. S. Oghalai, "Calcium imaging of inner ear hair cells within the cochlear epithelium of mice using two-photon microscopy.," *J Biomed Opt*, vol. 15, no. 1, p. 016002, Feb. 2010.
- [300]B. A. Suter, T. O'Connor, V. Iyer, L. T. Petreanu, B. M. Hooks, T. Kiritani, K. Svoboda, and G. M. G. Shepherd, "Ephus: multipurpose data acquisition software for neuroscience experiments.," *Front Neural Circuits*, vol. 4, p. 100, 2010.
- [301]T. R. Sato and K. Svoboda, "The functional properties of barrel cortex neurons projecting to the primary motor cortex," *The Journal of Neuroscience*, vol. 30, no. 12, pp. 4256–4260, 2010.
- [302]M. A. Patterson, E. M. Szatmari, and R. Yasuda, "AMPA receptors are exocytosed in stimulated spines and adjacent dendrites in a Ras-ERK-dependent manner during long-term potentiation," *Proceedings of the National Academy of Sciences*, vol. 107, no. 36, pp. 15951–15956, 2010.
- [303]S. G. Parra, T. H. Chia, J. P. Zinter, and M. J. Levene, "Multiphoton microscopy of cleared mouse organs," *Journal of biomedical optics*, vol. 15, no. 3, pp. 036017–036017, 2010.
- [304]D. H. O'Connor, S. P. Peron, D. Huber, and K. Svoboda, "Neural activity in barrel cortex underlying vibrissa-based object localization in mice," *Neuron*, vol. 67, no. 6, pp. 1048–1061, 2010.
- [305]J. Niessing and R. W. Friedrich, "Olfactory pattern classification by discrete neuronal network states," *Nature*, vol. 465, no. 7294, pp. 47–52, 2010.
- [306]L. B. Mostaco-Guidolin, "Multimodal characterization of atherosclerotic cardiovascular disease with label-free non-linear optical imaging techniques," 2010.
- [307]L. B. Mostaco-Guidolin, M. G. Sowa, A. Ridsdale, A. F. Pegoraro, M. S. D. Smith, M. D. Hewko, E. K. Kohlenberg, B. Schattka, M. Shiomi, A. Stolow, and A. C.-T. Ko, "Differentiating atherosclerotic plaque burden in arterial tissues using femtosecond CARS-based multimodal nonlinear optical imaging.," *Biomed Opt Express*, vol. 1, no. 1, pp. 59–73, 2010.
- [308]J. H. Marshel, T. Mori, K. J. Nielsen, and E. M. Callaway, "Targeting single neuronal networks for gene expression and cell labeling in vivo," *Neuron*, vol. 67, no. 4, pp. 562–574, 2010.
- [309]A. C. Ko, A. Ridsdale, M. S. Smith, L. B. Mostaco-Guidolin, M. D. Hewko, A. F. Pegoraro, E. K. Kohlenberg, B. Schattka, M. Shiomi, A. Stolow, and others, "Multimodal nonlinear optical imaging of atherosclerotic plaque development in myocardial infarction-prone rabbits," *Journal of biomedical optics*, vol. 15, no. 2, pp. 020501–020501, 2010.
- [310]N. Holbro, "Structure-function analysis on the level of individual synapses," *University_of_Basel*, 2010.
- [311]B. Heider, J. L. Nathanson, E. Y. Isacoff, E. M. Callaway, and R. M. Siegel, "Two-photon imaging of calcium in virally transfected striate cortical neurons of behaving monkey.," *PLoS One*, vol. 5, no. 11, p. e13829, 2010.
- [312]J. Dubuis, A. H. Morrison, M. Scheeler, and T. Gregor, "Quantifying the Bicoid morphogen gradient in living fly embryos," *arXiv preprint arXiv:1003.5572*, 2010.
- [313]T. G. Chowdhury, J. C. Jimenez, J. M. Bomar, A. Cruz-Martin, J. P. Cattle, and C. Portera-Cailliau, "Fate of cajal-retzius neurons in the postnatal mouse neocortex.," *Front Neuroanat*, vol. 4, p. 10, 2010.
- [314]S. Chen, X. Feng, Y. Li, C. Zhou, P. Xi, and Q. Ren, "Software controlling algorithms for the system performance optimization of confocal laser scanning microscope," *Biomedical Signal Processing and Control*, vol. 5, no. 3, pp. 223–228, 2010.
- [315]B. A. Ashcroft and T. Oosterkamp, "AutoMicromanage: A microscopy scripting toolkit for LABVIEW and other programming environments," *Review of Scientific Instruments*, vol. 81, no. 11, p. 113708, 2010.
- [316]M. L. Andermann, A. M. Kerlin, and R. C. Reid, "Chronic cellular imaging of mouse visual cortex during operant behavior and passive viewing," *Front Cell Neurosci*, vol. 4, p. 3, 2010.
- [317]G. S. O'Brien, S. M. Martin, C. Söllner, G. J. Wright, C. G. Becker, C. Portera-Cailliau, and A. Sagasti, "Supplemental Data Developmentally Regulated Impediments to Skin Reinnervation by Injured Peripheral Sensory Axon Terminals," Dec. 2009.
- [318]C. Matter, M. Pribadi, X. Liu, and J. T. Trachtenberg, "Delta-catenin is required for the maintenance of neural structure and function in mature cortex in vivo," *Neuron*, vol. 64, no. 3, pp. 320–327, Nov. 2009.
- [319]J. M. Christie and C. E. Jahr, "Selective expression of ligand-gated ion channels in L5 pyramidal cell axons.," *J Neurosci*, vol. 29, no. 37, pp. 11441–11450, Sep. 2009.
- [320]P. Golshani, J. T. Goncalves, S. Khoshkhou, R. Mostany, S. Smirnakis, and C. Portera-Cailliau, "Internally mediated developmental desynchronization of neocortical network activity.," *J Neurosci*, vol. 29, no. 35, pp. 10890–10899, Sep. 2009.
- [321]N. Holbro, A. Grunditz, and T. G. Oertner, "Differential distribution of endoplasmic reticulum controls metabotropic signaling and plasticity at hippocampal synapses.," *Proc Natl Acad Sci U S A*, vol. 106, no. 35, pp. 15055–15060, Sep. 2009.
- [322]M. J. Higley, G. J. Soler-Llavina, and B. L. Sabatini, "Cholinergic modulation of multivesicular release regulates striatal synaptic potency and integration.," *Nat Neurosci*, vol. 12, no. 9, pp. 1121–1128, Sep. 2009.
- [323]S. B. Simons, Y. Escobedo, R. Yasuda, and S. M. Dudek, "Regional differences in hippocampal calcium handling provide a cellular mechanism for limiting plasticity.," *Proc Natl Acad Sci U S A*, vol. 106, no. 33, pp. 14080–14084, Aug. 2009.
- [324]M. S. Virk, S. Arttamangkul, W. T. Birdsong, and J. T. Williams, "Buprenorphine is a weak partial agonist that inhibits opioid receptor desensitization.," *J Neurosci*, vol. 29, no. 22, pp. 7341–7348, Jun. 2009.
- [325]H. Zhong, G.-M. Sia, T. R. Sato, N. W. Gray, T. Mao, Z. Khuchua, R. L. Huganir, and K. Svoboda, "Subcellular dynamics of type II PKA in neurons.," *Neuron*, vol. 62, no. 3, pp. 363–374, May 2009.
- [326]T. M. Hoogland, B. Kuhn, W. Gobel, W. Huang, J. Nakai, F. Helmchen, J. Flint, and S. S.-H. Wang, "Radially expanding transglial calcium waves in the intact cerebellum.," *Proc Natl Acad Sci U S A*, vol. 106, no. 9, pp. 3496–3501, Mar. 2009.
- [327]P. S. Tsai and D. Kleinfeld, "3 In Vivo Two-Photon Laser Scanning Microscopy with Concurrent Plasma-Mediated Ablation," *Methods for In Vivo Optical Imaging*, vol. 3, pp. 59–115, Mar. 2009.

- [328]T.-P. L. Scanning and P.-M. Ablation, "4 MPscope 2.0," Mar. 2009.
- [329]K. Zito, V. Scheuss, G. Knott, T. Hill, and K. Svoboda, "Rapid functional maturation of nascent dendritic spines.," *Neuron*, vol. 61, no. 2, pp. 247–258, Jan. 2009.
- [330]T. Yuan, S. S. Gao, P. Saggau, and J. S. Oghalai, "Imaging living hair cells within the cochlear epithelium of mice using two-photon microscopy," in *SPIE BiOS: Biomedical Optics*, 2009, pp. 718209–718209.
- [331]Y. J. Yu, S. Arttamangkul, C. J. Evans, J. T. Williams, and M. von Zastrow, "Neurokinin 1 receptors regulate morphine-induced endocytosis and desensitization of μ -opioid receptors in CNS neurons," *The Journal of Neuroscience*, vol. 29, no. 1, pp. 222–233, 2009.
- [332]M. S. Smith, A. C. Ko, A. Ridsdale, B. Schattka, A. Pegoraro, M. D. Hewko, M. Shiomi, A. Stolow, and M. G. Sowa, "A single-photon fluorescence and multi-photon spectroscopic study of atherosclerotic lesions," in *Photonics North 2009*, 2009, p. 738601–738601.
- [333]S. R. Schultz, K. Kitamura, A. Post-Uiterweer, J. Krupic, and M. Häusser, "Spatial pattern coding of sensory information by climbing fiber-evoked calcium signals in networks of neighboring cerebellar Purkinje cells," *The Journal of Neuroscience*, vol. 29, no. 25, pp. 8005–8015, 2009.
- [334]P. Schoenenberger, D. Gerosa, and T. G. Oertner, "Temporal control of immediate early gene induction by light.," *PLoS One*, vol. 4, no. 12, p. e8185, 2009.
- [335]G. S. O'Brien, S. Rieger, S. M. Martin, A. M. Cavanaugh, C. Portera-Cailliau, and A. Sagasti, "Two-photon axotomy and time-lapse confocal imaging in live zebrafish embryos," *J Vis Exp*, vol. 24, no. 1129.001, pp. 10–3791, 2009.
- [336]C. Matter, M. Pribadi, X. Liu, and J. T. Trachtenberg, " β -catenin is required for the maintenance of neural structure and function in mature cortex in vivo," *Neuron*, vol. 64, no. 3, pp. 320–327, 2009.
- [337]B. Judkewitz, M. Rizzi, K. Kitamura, and M. Häusser, "Targeted single-cell electroporation of mammalian neurons in vivo," *Nature protocols*, vol. 4, no. 6, pp. 862–869, 2009.
- [338]A. Holtmaat, T. Bonhoeffer, D. K. Chow, J. Chuckowree, V. De Paola, S. B. Hofer, M. Hubener, T. Keck, G. Knott, W.-C. A. Lee, R. Mostany, T. D. Mrsic-Flogel, E. Nedivi, C. Portera-Cailliau, K. Svoboda, J. T. Trachtenberg, and L. Wilbrecht, "Long-term, high-resolution imaging in the mouse neocortex through a chronic cranial window.," *Nat Protoc*, vol. 4, no. 8, pp. 1128–1144, 2009.
- [339]M. A. Herman, "Control of extracellular glutamate by transporters in the CNS," 2009.
- [340]R. D. Frostig, P. S. Tsai, and D. Kleinfeld, "In vivo two-photon laser scanning microscopy with concurrent plasma-mediated ablation principles and hardware realization," 2009.
- [341]R. D. Frostig, Q.-T. Nguyen, J. Driscoll, E. M. Dolnick, and D. Kleinfeld, "MPscope 2.0: A computer system for two-photon laser scanning microscopy with concurrent plasma-mediated ablation and electrophysiology," 2009.
- [342]J. Flinta and S. S.-H. Wang, "Radially expanding transglial calcium waves in the intact cerebellum," *PNAS*, vol. 106, no. 9, p. 3497, 2009.
- [343]J. B. Ding, K. T. Takasaki, and B. L. Sabatini, "Supraresolution imaging in brain slices using stimulated-emission depletion two-photon laser scanning microscopy," *Neuron*, vol. 63, no. 4, pp. 429–437, 2009.
- [344]T. H. Chia and M. J. Levene, "Microprisms for in vivo multilayer cortical imaging," *Journal of neurophysiology*, vol. 102, no. 2, pp. 1310–1314, 2009.
- [345]E. Casanova, N. Guetg, R. Vigot, R. Seddik, M. Julio-Pieper, N. P. Hyland, J. F. Cryan, M. Gassmann, and B. Bettler, "A mouse model for visualization of GABA_B receptors," *genesis*, vol. 47, no. 9, pp. 595–602, 2009.
- [346]A. Bullen, R. S. Friedman, and M. F. Krummel, "Two-photon imaging of the immune system: a custom technology platform for high-speed, multicolor tissue imaging of immune responses," in *Visualizing Immunity*, Springer, 2009, pp. 1–29.
- [347]C. D. Harvey, A. G. Ehrhardt, C. Cellurale, H. Zhong, R. Yasuda, R. J. Davis, and K. Svoboda, "A genetically encoded fluorescent sensor of ERK activity.," *Proc Natl Acad Sci U S A*, vol. 105, no. 49, pp. 19264–19269, Dec. 2008.
- [348]A. W. Bigelow, C. R. Geard, G. Randers-Pehrson, and D. J. Brenner, "Microbeam-integrated multiphoton imaging system.," *Rev Sci Instrum*, vol. 79, no. 12, p. 123707, Dec. 2008.
- [349]S. P. Gandhi, Y. Yanagawa, and M. P. Stryker, "Delayed plasticity of inhibitory neurons in developing visual cortex.," *Proc Natl Acad Sci U S A*, vol. 105, no. 43, pp. 16797–16802, Oct. 2008.
- [350]J. M. Christie and C. E. Jahr, "Dendritic NMDA receptors activate axonal calcium channels.," *Neuron*, vol. 60, no. 2, pp. 298–307, Oct. 2008.
- [351]S. Arttamangkul, N. Quillinan, M. J. Low, M. von Zastrow, J. Pintar, and J. T. Williams, "Differential activation and trafficking of micro-opioid receptors in brain slices.," *Mol Pharmacol*, vol. 74, no. 4, pp. 972–979, Oct. 2008.
- [352]A. C. Riegel and J. T. Williams, "CRF facilitates calcium release from intracellular stores in midbrain dopamine neurons.," *Neuron*, vol. 57, no. 4, pp. 559–570, Feb. 2008.
- [353]D. Huber, L. Petreanu, N. Ghitani, S. Ranade, T. Hromadka, Z. Mainen, and K. Svoboda, "Sparse optical microstimulation in barrel cortex drives learned behaviour in freely moving mice.," *Nature*, vol. 451, no. 7174, pp. 61–64, Jan. 2008.
- [354]AAasa Müller-Grunditz, "Dendritic spines as chemical and electrical compartments: a two-photon imaging study in the hippocampus of the rat," *University_of_Basel*, 2008.
- [355]R. Mostany and C. Portera-Cailliau, "A method for 2-photon imaging of blood flow in the neocortex through a cranial window," *J Vis Exp*, vol. 12, 2008.
- [356]T. Mao, D. H. O'Connor, V. Scheuss, J. Nakai, and K. Svoboda, "Characterization and subcellular targeting of GCaMP-type genetically-encoded calcium indicators.," *PLoS One*, vol. 3, no. 3, p. e1796, 2008.
- [357]G. Major, A. Polsky, W. Denk, J. Schiller, and D. W. Tank, "Spatiotemporally graded NMDA spike/plateau potentials in basal dendrites of neocortical pyramidal neurons," *Journal of neurophysiology*, vol. 99, no. 5, pp. 2584–2601, 2008.
- [358]S. J. Kuhlman and Z. J. Huang, "High-resolution labeling and functional manipulation of specific neuron types in mouse brain by Cre-activated viral gene expression.," *PLoS One*, vol. 3, no. 4, p. e2005, 2008.
- [359]M. Krumin and S. Shoham, "Characterization of input-output relations in single neurons using spatiotemporal photo-stimulation," in *14th Nordic-Baltic Conference on Biomedical Engineering and Medical Physics*, 2008, pp. 378–379.
- [360]AAasa Grunditz, N. Holbro, L. Tian, Y. Zuo, and T. G. Oertner, "Spine neck plasticity controls postsynaptic calcium signals through electrical compartmentalization," *The Journal of neuroscience*, vol. 28, no. 50, pp. 13457–13466, 2008.
- [361]P. Golshani and C. Portera-Cailliau, "In vivo 2-photon calcium imaging in layer 2/3 of mice," *Journal of visualized experiments: JoVE*, no. 13, 2008.
- [362]S. Arttamangkul, N. Quillinan, M. J. Low, M. Von Zastrow, J. Pintar, and J. T. Williams, "Differential activation and trafficking of μ -opioid receptors in brain slices," *Molecular pharmacology*, vol. 74, no. 4, pp. 972–979, 2008.
- [363]C. D. Harvey and K. Svoboda, "Locally dynamic synaptic learning rules in pyramidal neuron dendrites.," *Nature*, vol. 450, no. 7173, pp. 1195–1200, Dec. 2007.
- [364]D. A. Dombeck, A. N. Khabbaz, F. Collman, T. L. Adelman, and D. W. Tank, "Imaging large-scale neural activity with cellular resolution in awake, mobile mice," *Neuron*, vol. 56, no. 1, pp. 43–57, Oct. 2007.

[365]E. M. C. Hillman, "Optical brain imaging in vivo: techniques and applications from animal to man.," *J Biomed Opt*, vol. 12, no. 5, p. 051402, Oct. 2007.

[366]T. Gregor, D. W. Tank, E. F. Wieschaus, and W. Bialek, "Probing the limits to positional information.," *Cell*, vol. 130, no. 1, pp. 153–164, Jul. 2007.

[367]A. Sobczyk and K. Svoboda, "Activity-dependent plasticity of the NMDA-receptor fractional Ca²⁺ current," *Neuron*, vol. 53, no. 1, pp. 17–24, 2007.

[368]T. R. Sato, N. W. Gray, Z. F. Mainen, and K. Svoboda, "The functional microarchitecture of the mouse barrel cortex," *PLoS Biol*, vol. 5, no. 7, p. e189, 2007.

[369]M. Z. Nazir, A High Speed Multi-channel Time-correlated System for Fluorescence Lifetime Imaging. ProQuest, 2007.

[370]T. H. Chia, A. Williamson, D. D. Spencer, and M. J. Levene, "Multiphoton Fluorescence Imaging of NADH to Investigate Metabolic Changes in Human Epileptic Tissue; in vitro," in *Conference on Lasers and Electro-Optics, 2007*, p. CTuP1.

[371]A. G. Carter, G. J. Soler-Llavina, and B. L. Sabatini, "Timing and location of synaptic inputs determine modes of subthreshold integration in striatal medium spiny neurons," *The Journal of Neuroscience*, vol. 27, no. 33, pp. 8967–8977, 2007.

[372]T. Ye, G. Yurtsever, M. Fischer, J. D. Simon, and W. S. Warren, "Imaging melanin by two-photon absorption microscopy," in *Biomedical Optics 2006, 2006*, p. 60891X–60891X.

[373]R. Yasuda, C. D. Harvey, H. Zhong, A. Sobczyk, L. Van Aelst, and K. Svoboda, "Supersensitive Ras activation in dendrites and spines revealed by two-photon fluorescence lifetime imaging," *Nature neuroscience*, vol. 9, no. 2, pp. 283–291, 2006.

[374]R. Vigot, S. Barbieri, H. Bräuner-Osborne, R. Turecek, R. Shigemoto, Y.-P. Zhang, R. Luján, L. H. Jacobson, B. Biermann, J.-M. Fritschy, and others, "Differential compartmentalization and distinct functions of GABA B receptor variants," *Neuron*, vol. 50, no. 4, pp. 589–601, 2006.

[375]K. Svoboda and R. Yasuda, "Principles of two-photon excitation microscopy and its applications to neuroscience," *Neuron*, vol. 50, no. 6, pp. 823–839, 2006.

[376]G. J. Soler-Llavina and B. L. Sabatini, "Synapse-specific plasticity and compartmentalized signaling in cerebellar stellate cells," *Nature neuroscience*, vol. 9, no. 6, pp. 798–806, 2006.

[377]P. J. Sjöström and M. Häusser, "A cooperative switch determines the sign of synaptic plasticity in distal dendrites of neocortical pyramidal neurons," *Neuron*, vol. 51, no. 2, pp. 227–238, 2006.

[378]V. Scheuss, R. Yasuda, A. Sobczyk, and K. Svoboda, "Nonlinear [Ca²⁺] signaling in dendrites and spines caused by activity-dependent depression of Ca²⁺ extrusion," *The Journal of neuroscience*, vol. 26, no. 31, pp. 8183–8194, 2006.

[379]D. V. Sarkisov, "Multiphoton Approaches to Learning Rules in the Cerebellum: Using Light to Manipulate Biochemistry," Princeton University, 2006.

[380]P. G. Papageorgas, D. Maroulis, G. Anagnostopoulos, H. Albrecht, B. Wagner, D. K. Iakovidis, and N. G. Theofanous, "A high-performance imaging and control system for a micromirror-based laser-scanning endoscope device," *Instrumentation and Measurement, IEEE Transactions on*, vol. 55, no. 5, pp. 1725–1733, 2006.

[381]M. Oheim, D. J. Michael, M. Geisbauer, D. Madsen, and R. H. Chow, "Principles of two-photon excitation fluorescence microscopy and other nonlinear imaging approaches," *Advanced drug delivery reviews*, vol. 58, no. 7, pp. 788–808, 2006.

[382]Q.-T. Nguyen, P. S. Tsai, and D. Kleinfeld, "MPScope: a versatile software suite for multiphoton microscopy," *Journal of neuroscience methods*, vol. 156, no. 1, pp. 351–359, 2006.

[383]A. Holtmaat, L. Wilbrecht, G. W. Knott, E. Welker, and K. Svoboda, "Experience-dependent and cell-type-specific spine growth in the neocortex," *Nature*, vol. 441, no. 7096, pp. 979–983, 2006.

[384]N. W. Gray, R. M. Weimer, I. Bureau, and K. Svoboda, "Rapid redistribution of synaptic PSD-95 in the neocortex in vivo," *PLoS Biol*, vol. 4, no. 11, p. e370, 2006.

[385]V. De Paola, A. Holtmaat, G. Knott, S. Song, L. Wilbrecht, P. Caroni, and K. Svoboda, "Cell type-specific structural plasticity of axonal branches and boutons in the adult neocortex," *Neuron*, vol. 49, no. 6, pp. 861–875, 2006.

[386]A. Birbach, J. M. Verkuy, and A. Matus, "Reversible, activity-dependent targeting of profilin to neuronal nuclei," *Experimental cell research*, vol. 312, no. 12, pp. 2279–2287, 2006.

[387]S. Arttamangkul, M. Torrecilla, K. Kobayashi, H. Okano, and J. T. Williams, "Separation of -opioid receptor desensitization and internalization: endogenous receptors in primary neuronal cultures," *The Journal of neuroscience*, vol. 26, no. 15, pp. 4118–4125, 2006.

[388]F. Helmchen and W. Denk, "Deep tissue two-photon microscopy," *Nat. Methods*, vol. 2, no. 12, pp. 932–940, Dec. 2005.

[389]A. Sobczyk, V. Scheuss, and K. Svoboda, "NMDA receptor subunit-dependent [Ca²⁺] signaling in individual hippocampal dendritic spines," *The Journal of neuroscience*, vol. 25, no. 26, pp. 6037–6046, 2005.

[390]B. L. Sabatini, "The Role of TSC1 in the Formation and Maintenance of Excitatory Synapses," DTIC Document, 2005.

[391]C. Portera-Cailliau, R. M. Weimer, V. De Paola, P. Caroni, and K. Svoboda, "Diverse modes of axon elaboration in the developing neocortex," *PLoS Biol*, vol. 3, no. 8, p. e272, 2005.

[392]K. Ohki, S. Chung, Y. H. Ch'ng, P. Kara, and R. C. Reid, "Functional imaging with cellular resolution reveals precise micro-architecture in visual cortex," *Nature*, vol. 433, no. 7026, pp. 597–603, 2005.

[393]T. J. Ngo-Anh, B. L. Bloodgood, M. Lin, B. L. Sabatini, J. Maylie, and J. P. Adelman, "SK channels and NMDA receptors form a Ca²⁺-mediated feedback loop in dendritic spines," *Nature neuroscience*, vol. 8, no. 5, pp. 642–649, 2005.

[394]A. J. Holtmaat, J. T. Trachtenberg, L. Wilbrecht, G. M. Shepherd, X. Zhang, G. W. Knott, and K. Svoboda, "Transient and persistent dendritic spines in the neocortex in vivo," *Neuron*, vol. 45, no. 2, pp. 279–291, 2005.

[395]V. Egger, K. Svoboda, and Z. F. Mainen, "Dendrodendritic synaptic signals in olfactory bulb granule cells: local spine boost and global low-threshold spike," *The journal of neuroscience*, vol. 25, no. 14, pp. 3521–3530, 2005.

[396]K. Zito, G. Knott, G. M. Shepherd, S. Shenolikar, and K. Svoboda, "Induction of spine growth and synapse formation by regulation of the spine actin cytoskeleton," *Neuron*, vol. 44, no. 2, pp. 321–334, 2004.

[397]R. Yasuda, E. A. Nimchinsky, V. Scheuss, T. A. Pologruto, T. G. Oertner, B. L. Sabatini, and K. Svoboda, "Imaging calcium concentration dynamics in small neuronal compartments," *Sci STKE*, vol. 2004, no. 219, p. pl5, 2004.

[398]Y. Wang, H.-F. Guo, T. A. Pologruto, F. Hannan, I. Hakker, K. Svoboda, and Y. Zhong, "Stereotyped odor-evoked activity in the mushroom body of *Drosophila* revealed by green fluorescent protein-based Ca²⁺ imaging," *The Journal of neuroscience*, vol. 24, no. 29, pp. 6507–6514, 2004.

[399]T. A. Pologruto, R. Yasuda, and K. Svoboda, "Monitoring neural activity and [Ca²⁺] with genetically encoded Ca²⁺ indicators," *The Journal of neuroscience*, vol. 24, no. 43, pp. 9572–9579, 2004.

[400]E. A. Nimchinsky, R. Yasuda, T. G. Oertner, and K. Svoboda, "The number of glutamate receptors opened by synaptic stimulation in single hippocampal spines," *The Journal of neuroscience*, vol. 24, no. 8, pp. 2054–2064, 2004.

[401]A. G. Carter and B. L. Sabatini, "State-dependent calcium signaling in dendritic spines of striatal medium spiny neurons," *Neuron*, vol. 44, no.

3, pp. 483–493, 2004.

[402]I. Brünig, S. Kaech, H. Brinkhaus, T. G. Oertner, and A. Matus, “Influx of extracellular calcium regulates actin-dependent morphological plasticity in dendritic spines,” *Neuropharmacology*, vol. 47, no. 5, pp. 669–676, 2004.

[403]R. Yasuda, B. L. Sabatini, and K. Svoboda, “Plasticity of calcium channels in dendritic spines,” *Nature neuroscience*, vol. 6, no. 9, pp. 948–955, 2003.

[404]V. Egger, K. Svoboda, and Z. F. Mainen, “Mechanisms of lateral inhibition in the olfactory bulb: efficiency and modulation of spike-evoked calcium influx into granule cells,” *The Journal of neuroscience*, vol. 23, no. 20, pp. 7551–7558, 2003.