Rafael Yuste

List of Publications by Citations

160 papers	21,098 citations	77 h-index	145 g-index
177 ext. papers	25,227 ext. citations	12.4 avg, IF	7.29 L-index

#	Paper	IF	Citations
160	Petilla terminology: nomenclature of features of GABAergic interneurons of the cerebral cortex. *Nature Reviews Neuroscience*, **2008**, 9, 557-68	13.5	1092
159	Morphological changes in dendritic spines associated with long-term synaptic plasticity. *Annual Review of Neuroscience*, **2001**, 24, 1071-89	17	964
158	Dendritic spines as basic functional units of neuronal integration. *Nature*, **1995**, 375, 682-4	50.4	776
157	Synfire chains and cortical songs: temporal modules of cortical activity. *Science*, **2004**, 304, 559-64	33.3	652
156	Conserved cell types with divergent features in human versus mouse cortex. *Nature*, **2019**, 573, 61-68	50.4	569
155	New insights into the classification and nomenclature of cortical GABAergic interneurons. *Nature Reviews Neuroscience*, **2013**, 14, 202-16	13.5	532
154	Simultaneous Denoising, Deconvolution, and Demixing of Calcium Imaging Data. *Neuron*, **2016**, 89, 285-99	13.9	518
153	Attractor dynamics of network UP states in the neocortex. *Nature*, **2003**, 423, 283-8	50.4	511
152	Control of postsynaptic Ca2+ influx in developing neocortex by excitatory and inhibitory neurotransmitters. *Neuron*, **1991**, 6, 333-44	13.9	508
151	Genesis of dendritic spines: insights from ultrastructural and imaging studies. *Nature Reviews Neuroscience*, **2004**, 5, 24-34	13.5	486
150	Dense inhibitory connectivity in neocortex. *Neuron*, **2011**, 69, 1188-203	13.9	385
149	The brain activity map project and the challenge of functional connectomics. *Neuron*, **2012**, 74, 970-4	13.9	383
148	Regulation of dendritic spine morphology by the rho family of small GTPases: antagonistic roles of Rac and Rho. *Cerebral Cortex*, **2000**, 10, 927-38	5.1	341
147	Ultrastructure of dendritic spines: correlation between synaptic and spine morphologies. *Frontiers in Neuroscience*, **2007**, 1, 131-43	5.1	337
146	From the neuron doctrine to neural networks. *Nature Reviews Neuroscience*, **2015**, 16, 487-97	13.5	332
145	Dense, unspecific connectivity of neocortical parvalbumin-positive interneurons: a canonical microcircuit for inhibition?. *Journal of Neuroscience*, **2011**, 31, 13260-71	6.6	326
144	From form to function: calcium compartmentalization in dendritic spines. *Nature Neuroscience*, **2000**, 3, 653-9	25.5	309

143	Input summation by cultured pyramidal neurons is linear and position-independent. *Journal of Neuroscience*, **1998**, 18, 10-5	6.6	309
142	Internal dynamics determine the cortical response to thalamic stimulation. *Neuron*, **2005**, 48, 811-23	13.9	298
141	Spine motility. Phenomenology, mechanisms, and function. *Neuron*, **2002**, 35, 1019-27	13.9	284
140	Evidence of an inhibitory restraint of seizure activity in humans. *Nature Communications*, **2012**, 3, 1060	17.4	263
139	The cortex as a central pattern generator. *Nature Reviews Neuroscience*, **2005**, 6, 477-83	13.5	254
138	Mechanisms of calcium influx into hippocampal spines: heterogeneity among spines, coincidence detection by NMDA receptors, and optical quantal analysis. *Journal of Neuroscience*, **1999**, 19, 1976-87	6.6	251
137	Nanotools for neuroscience and brain activity mapping. *ACS Nano*, **2013**, 7, 1850-66	16.7	248
136	Linear summation of excitatory inputs by CA1 pyramidal neurons. *Neuron*, **1999**, 22, 383-94	13.9	248
135	Two-photon optogenetic toolbox for fast inhibition, excitation and bistable modulation. *Nature Methods*, **2012**, 9, 1171-9	21.6	246
134	SLM Microscopy: Scanless Two-Photon Imaging and Photostimulation with Spatial Light Modulators. *Frontiers in Neural Circuits*, **2008**, 2, 5	3.5	245
133	Modular propagation of epileptiform activity: evidence for an inhibitory veto in neocortex. *Journal of Neuroscience*, **2006**, 26, 12447-55	6.6	245
132	Ca2+ accumulations in dendrites of neocortical pyramidal neurons: an apical band and evidence for two functional compartments. *Neuron*, **1994**, 13, 23-43	13.9	244
131	Dynamics of spontaneous activity in neocortical slices. *Neuron*, **2001**, 32, 883-98	13.9	234
130	In vivo imaging of neural activity. *Nature Methods*, **2017**, 14, 349-359	21.6	230
129	Detecting action potentials in neuronal populations with calcium imaging. *Methods*, **1999**, 18, 215-21	4.6	228
128	Activity-regulated dynamic behavior of early dendritic protrusions: evidence for different types of dendritic filopodia. *Journal of Neuroscience*, **2003**, 23, 7129-42	6.6	219
127	Fluorescence microscopy today. *Nature Methods*, **2005**, 2, 902-4	21.6	214
126	Dendritic spines and distributed circuits. *Neuron*, **2011**, 71, 772-81	13.9	207

125	Two-photon photostimulation and imaging of neural circuits. *Nature Methods*, **2007**, 4, 943-50	21.6	205
124	Mechanisms of calcium decay kinetics in hippocampal spines: role of spine calcium pumps and calcium diffusion through the spine neck in biochemical compartmentalization. *Journal of Neuroscience*, **2000**, 20, 1722-34	6.6	205
123	Regulation of dendritic spine motility and stability by Rac1 and Rho kinase: evidence for two forms of spine motility. *Molecular and Cellular Neurosciences*, **2004**, 26, 429-40	4.8	204
122	Two-photon optogenetics of dendritic spines and neural circuits. *Nature Methods*, **2012**, 9, 1202-5	21.6	201
121	Feedforward inhibition contributes to the control of epileptiform propagation speed. *Journal of Neuroscience*, **2007**, 27, 3383-7	6.6	194
120	The spine neck filters membrane potentials. *Proceedings of the National Academy of Sciences of the United States of America*, **2006**, 103, 17961-6	11.5	191
119	Stereotyped position of local synaptic targets in neocortex. *Science*, **2001**, 293, 868-72	33.3	179
118	Calcium microdomains in aspiny dendrites. *Neuron*, **2003**, 40, 807-21	13.9	173
117	Regulation of spine calcium dynamics by rapid spine motility. *Journal of Neuroscience*, **2000**, 20, 8262-8	6.6	172
116	Visual stimuli recruit intrinsically generated cortical ensembles. *Proceedings of the National Academy of Sciences of the United States of America*, **2014**, 111, E4053-61	11.5	162
115	Simultaneous Multi-plane Imaging of Neural Circuits. *Neuron*, **2016**, 89, 269-84	13.9	158
114	Four ethical priorities for neurotechnologies and AI. *Nature*, **2017**, 551, 159-163	50.4	158
113	Imprinting and recalling cortical ensembles. *Science*, **2016**, 353, 691-4	33.3	152
112	RuBi-Glutamate: Two-Photon and Visible-Light Photoactivation of Neurons and Dendritic spines. *Frontiers in Neural Circuits*, **2009**, 3, 2	3.5	149
111	Neuroscience. The brain activity map. *Science*, **2013**, 339, 1284-5	33.3	147
110	Imaging membrane potential in dendritic spines. *Proceedings of the National Academy of Sciences of the United States of America*, **2006**, 103, 786-90	11.5	141
109	Bidirectional regulation of hippocampal mossy fiber filopodial motility by kainate receptors: a two-step model of synaptogenesis. *Neuron*, **2003**, 38, 773-84	13.9	141
108	Multiphoton stimulation of neurons. *Journal of Neurobiology*, **2002**, 51, 237-47		129

107	Cortical area and species differences in dendritic spine morphology. *Journal of Neurocytology*, **2002**, 31, 337-46		128
106	Electrical compartmentalization in dendritic spines. *Annual Review of Neuroscience*, **2013**, 36, 429-49	17	118
105	Opening Holes in the Blanket of Inhibition: Localized Lateral Disinhibition by VIP Interneurons. *Journal of Neuroscience*, **2016**, 36, 3471-80	6.6	114
104	Activity-dependent dendritic spine neck changes are correlated with synaptic strength. *Proceedings of the National Academy of Sciences of the United States of America*, **2014**, 111, E2895-904	11.5	113
103	Quantitative classification of somatostatin-positive neocortical interneurons identifies three interneuron subtypes. *Frontiers in Neural Circuits*, **2010**, 4, 12	3.5	113
102	Dendritic Spines **2010**,		112
101	A blanket of inhibition: functional inferences from dense inhibitory connectivity. *Current Opinion in Neurobiology*, **2014**, 26, 96-102	7.6	109
100	Dendritic spines linearize the summation of excitatory potentials. *Proceedings of the National Academy of Sciences of the United States of America*, **2006**, 103, 18799-804	11.5	109
99	Analysis of spine morphological plasticity in developing hippocampal pyramidal neurons. *Hippocampus*, **2000**, 10, 561-8	3.5	109
98	Controlling Visually Guided Behavior by Holographic Recalling of Cortical Ensembles. *Cell*, **2019**, 178, 447-457.e5	56.2	106
97	Simultaneous two-photon imaging and two-photon optogenetics of cortical circuits in three dimensions. *ELife*, **2018**, 7,	8.9	104
96	Non-overlapping Neural Networks in Hydra vulgaris. *Current Biology*, **2017**, 27, 1085-1097	6.3	99
95	Altered Cortical Ensembles in Mouse Models of Schizophrenia. *Neuron*, **2017**, 94, 153-167.e8	13.9	98
94	State-dependent function of neocortical chandelier cells. *Journal of Neuroscience*, **2011**, 31, 17872-86	6.6	98
93	Systematic regulation of spine sizes and densities in pyramidal neurons. *Journal of Neurobiology*, **2003**, 56, 95-112		98
92	Comparative Evaluation of Genetically Encoded Voltage Indicators. *Cell Reports*, **2019**, 26, 802-813.e4	10.6	90
91	Correlation between axonal morphologies and synaptic input kinetics of interneurons from mouse visual cortex. *Cerebral Cortex*, **2007**, 17, 81-91	5.1	89
90	moco: Fast Motion Correction for Calcium Imaging. *Frontiers in Neuroinformatics*, **2016**, 10, 6	3.9	88

89	Dendritic size of pyramidal neurons differs among mouse cortical regions. *Cerebral Cortex*, **2006**, 16, 990-1001	5.1	85
88	Persistently active, pacemaker-like neurons in neocortex. *Frontiers in Neuroscience*, **2007**, 1, 123-9	5.1	83
87	On the electrical function of dendritic spines. *Trends in Neurosciences*, **2004**, 27, 77-83	13.3	83
86	Calcium oscillations in neocortical astrocytes under epileptiform conditions. *Journal of Neurobiology*, **2002**, 50, 45-55		81
85	Somatostatin Interneurons Control a Key Component of Mismatch Negativity in Mouse Visual Cortex. *Cell Reports*, **2016**, 16, 597-604	10.6	79
84	Age-based comparison of human dendritic spine structure using complete three-dimensional reconstructions. *Cerebral Cortex*, **2013**, 23, 1798-810	5.1	77
83	Quantitative morphologic classification of layer 5 neurons from mouse primary visual cortex. *Journal of Comparative Neurology*, **2003**, 461, 415-28	3.4	77
82	A community-based transcriptomics classification and nomenclature of neocortical cell types. *Nature Neuroscience*, **2020**, 23, 1456-1468	25.5	76
81	Targeted intracellular voltage recordings from dendritic spines using quantum-dot-coated nanopipettes. *Nature Nanotechnology*, **2017**, 12, 335-342	28.7	75
80	Simultaneous imaging of neural activity in three dimensions. *Frontiers in Neural Circuits*, **2014**, 8, 29	3.5	69
79	Single-shock LTD by local dendritic spikes in pyramidal neurons of mouse visual cortex. *Journal of Physiology*, **2004**, 560, 27-36	3.9	68
78	Back to the Basics: Cnidarians Start to Fire. *Trends in Neurosciences*, **2017**, 40, 92-105	13.3	65
77	Endogenous sequential cortical activity evoked by visual stimuli. *Journal of Neuroscience*, **2015**, 35, 8813-28	6.8	65
76	Reliable and Elastic Propagation of Cortical Seizures In Vivo. *Cell Reports*, **2017**, 19, 2681-2693	10.6	63
75	Comparison between supervised and unsupervised classifications of neuronal cell types: a case study. *Developmental Neurobiology*, **2011**, 71, 71-82	3.2	63
74	Dense and overlapping innervation of pyramidal neurons by chandelier cells. *Journal of Neuroscience*, **2013**, 33, 1907-14	6.6	62
73	Sodium channels amplify spine potentials. *Proceedings of the National Academy of Sciences of the United States of America*, **2007**, 104, 12347-52	11.5	62
72	Origin and classification of neocortical interneurons. *Neuron*, **2005**, 48, 524-7	13.9	62

71	Imaging the motility of dendritic protrusions and axon terminals: roles in axon sampling and synaptic competition. *Molecular and Cellular Neurosciences*, **2004**, 27, 427-40	4.8	59
70	Genetic voltage indicators. *BMC Biology*, **2019**, 17, 71	7.3	57
69	Light sheet theta microscopy for rapid high-resolution imaging of large biological samples. *BMC Biology*, **2018**, 16, 57	7.3	54
68	Developmental regulation of spine and filopodial motility in primary visual cortex: reduced effects of activity and sensory deprivation. *Journal of Neurobiology*, **2004**, 59, 236-46		54
67	Calcium imaging of epileptiform events with single-cell resolution. *Journal of Neurobiology*, **2001**, 48, 215-27		51
66	The new nanophysiology: regulation of ionic flow in neuronal subcompartments. *Nature Reviews Neuroscience*, **2015**, 16, 685-92	13.5	50
65	Modulation of nitrogen vacancy charge state and fluorescence in nanodiamonds using electrochemical potential. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 3938-43	11.5	50
64	On the function of dendritic spines. *Neuroscientist*, **2001**, 7, 387-95	7.6	49
63	Imaging and Optically Manipulating Neuronal Ensembles. *Annual Review of Biophysics*, **2017**, 46, 271-293	21.1	48
62	Decorrelating action of inhibition in neocortical networks. *Journal of Neuroscience*, **2013**, 33, 9813-30	6.6	45
61	Second harmonic imaging of membrane potential of neurons with retinal. *Journal of Biomedical Optics*, **2004**, 9, 873-81	3.5	44
60	Role of inhibitory control in modulating focal seizure spread. *Brain*, **2018**, 141, 2083-2097	11.2	43
59	On the Necessity of Ethical Guidelines for Novel Neurotechnologies. *Cell*, **2016**, 167, 882-885	56.2	40
58	Role of Rho GTPases in the morphogenesis and motility of dendritic spines. *Methods in Enzymology*, **2008**, 439, 285-302	1.7	40
57	Attenuation of Synaptic Potentials in Dendritic Spines. *Cell Reports*, **2017**, 20, 1100-1110	10.6	38
56	Flexible Nanopipettes for Minimally Invasive Intracellular Electrophysiology In Vivo. *Cell Reports*, **2019**, 26, 266-278.e5	10.6	37
55	Comprehensive machine learning analysis of behavior reveals a stable basal behavioral repertoire. *ELife*, **2018**, 7,	8.9	36
54	Parvalbumin-Positive Interneurons Regulate Neuronal Ensembles in Visual Cortex. *Cerebral Cortex*, **2018**, 28, 1831-1845	5.1	30

53	The discovery of dendritic spines by Cajal. *Frontiers in Neuroanatomy*, **2015**, 9, 18	3.6	29
52	Toward a Global BRAIN Initiative. *Cell*, **2017**, 168, 956-959	56.2	27
51	Holographic imaging and photostimulation of neural activity. *Current Opinion in Neurobiology*, **2018**, 50, 211-221	7.6	27
50	Mapping the Whole-Body Muscle Activity of Hydra vulgaris. *Current Biology*, **2019**, 29, 1807-1817.e3	6.3	25
49	Reduced Repertoire of Cortical Microstates and Neuronal Ensembles in Medically Induced Loss of Consciousness. *Cell Systems*, **2019**, 8, 467-474.e4	10.6	25
48	Two-photon imaging with diffractive optical elements. *Frontiers in Neural Circuits*, **2009**, 3, 6	3.5	25
47	Acute Focal Seizures Start As Local Synchronizations of Neuronal Ensembles. *Journal of Neuroscience*, **2019**, 39, 8562-8575	6.6	23
46	International Brain Initiative: An Innovative Framework for Coordinated Global Brain Research Efforts. *Neuron*, **2020**, 105, 212-216	13.9	23
45	The new century of the brain. *Scientific American*, **2014**, 310, 38-45	0.5	23
44	Playing the piano with the cortex: role of neuronal ensembles and pattern completion in perception and behavior. *Current Opinion in Neurobiology*, **2020**, 64, 89-95	7.6	22
43	Classification of neocortical interneurons using affinity propagation. *Frontiers in Neural Circuits*, **2013**, 7, 185	3.5	22
42	Dendritic spines and linear networks. *Journal of Physiology (Paris)*, **2004**, 98, 479-86		20
41	Human cortical expansion involves diversification and specialization of supragranular intratelencephalic-projecting neurons		19
40	Overproduction of Neurons Is Correlated with Enhanced Cortical Ensembles and Increased Perceptual Discrimination. *Cell Reports*, **2017**, 21, 381-392	10.6	18
39	Of mice and men, and chandeliers. *PLoS Biology*, **2008**, 6, e243	9.7	18
38	Neuronal photoactivation through second-harmonic near-infrared absorption by gold nanoparticles. *Light: Science and Applications*, **2018**, 7, 100	16.7	17
37	Statistically Reconstructed Multiplexing for Very Dense, High-Channel-Count Acquisition Systems. *IEEE Transactions on Biomedical Circuits and Systems*, **2018**, 12, 13-23	5.1	16
36	Recommendations for Responsible Development and Application of Neurotechnologies. *Neuroethics*, **2021**, 1-22	1.2	16

35	A portable laser photostimulation and imaging microscope. *Journal of Neural Engineering*, **2010**, 7, 045001	3.1	13
34	A National Network of Neurotechnology Centers for the BRAIN Initiative. *Neuron*, **2015**, 88, 445-8	13.9	12
33	Random positions of dendritic spines in human cerebral cortex. *Journal of Neuroscience*, **2014**, 34, 10078-84	6.6	10
32	Electrodiffusion models of synaptic potentials in dendritic spines. *Journal of Computational Neuroscience*, **2019**, 47, 77-89	1.4	7
31	Ultrastructural analysis of dendritic spine necks reveals a continuum of spine morphologies. *Developmental Neurobiology*, **2021**, 81, 746-757	3.2	7
30	Long-term stability of cortical ensembles. *ELife*, **2021**, 10,	8.9	7
29	A miniaturized multi-clamp CMOS amplifier for intracellular neural recording. *Nature Electronics*, **2019**, 2, 343-350	28.4	6
28	What Is a Neuronal Ensemble?		6
27	Two-Photon Optogenetic Mapping of Excitatory Synaptic Connectivity and Strength. *IScience*, **2018**, 8, 15-28	6.1	6
26	Voltage compartmentalization in dendritic spines in vivo. *Science*, **2021**, 375, eabg0501	33.3	5
25	Three-dimensional analysis of spiny dendrites using straightening and unrolling transforms. *Neuroinformatics*, **2012**, 10, 391-407	3.2	4
24	Whole-Body Imaging of Neural and Muscle Activity during Behavior in : Effect of Osmolarity on Contraction Bursts. *ENeuro*, **2020**, 7,	3.9	4
23	Time for NanoNeuro. *Nature Methods*, **2021**, 18, 1287-1293	21.6	4
22	PackIO and EphysViewer: software tools for acquisition and analysis of neuroscience data		4
21	Simultaneous two-photon imaging of action potentials and subthreshold inputs in vivo. *Nature Communications*, **2021**, 12, 7229	17.4	3
20	EMC2: A versatile algorithm for robust tracking of calcium dynamics from individual neurons in behaving animals		3
19	Intrinsic excitability mechanisms of neuronal ensemble formation		3
18	From neuron to muscle to movement: a complete biomechanical model of Hydra contractile behaviors		3

17	Triggering visually-guided behavior by holographic activation of pattern completion neurons in cortical ensembles		3
16	Cortical ensembles selective for context. *Proceedings of the National Academy of Sciences of the United States of America*, **2021**, 118,	11.5	3
15	Author response: Simultaneous two-photon imaging and two-photon optogenetics of cortical circuits in three dimensions **2018**,		2
14	Whole-body imaging of neural and muscle activity during behavior in Hydra: bidirectional effects of osmolarity on contraction bursts		2
13	Tracking Activity In a Deformable Nervous System With Motion Correction and Point-Set Registration		2
12	Identification of Pattern Completion Neurons in Neuronal Ensembles Using Probabilistic Graphical Models. *Journal of Neuroscience*, **2021**, 41, 8577-8588	6.6	2
11	Ensemble synchronization in the reassembly of Hydra's nervous system. *Current Biology*, **2021**, 31, 3784-3796.e3	7.5	2
10	Holographic Imaging and Stimulation of Neural Circuits. *Advances in Experimental Medicine and Biology*, **2021**, 1293, 613-639	3.6	2
9	Long-term stability of neuronal ensembles in mouse visual cortex		1
8	Tracking calcium dynamics from individual neurons in behaving animals. *PLoS Computational Biology*, **2021**, 17, e1009432	5	1
7	Three-dimensional Two-Photon Optogenetics and Imaging of Neural Circuits in vivo		1
6	Electrodiffusion model of synaptic potentials in dendritic spines		1
5	Analysis of spine morphological plasticity in developing hippocampal pyramidal neurons **2000**, 10, 561		1
4	Addendum: A very large-scale microelectrode array for cellular-resolution electrophysiology. *Nature Communications*, **2018**, 9, 4497	17.4	0
3	An increase in spontaneous activity mediates visual habituation.. *Cell Reports*, **2022**, 39, 110751	10.6	0
2	Regulation of dendritic spine motility and stability by Rac1 and Rho kinase: evidence for two forms of spine motility. *Molecular and Cellular Neurosciences*, **2004**, 26, 429-429	4.8	
1	A Technocratic Oath. *Wissenschaftsethik Und Technikfolgenbeurteilung*, **2022**, 163-174	0.2	