Rafael Yuste

List of Publications by Year
in descending order

149 papers	27,800 citations	6613 79 h-index	7518 151 g-index
177 all docs	177 docs citations	177 times ranked	22589 citing authors

#	Article	IF	Citations
1	Petilla terminology: nomenclature of features of GABAergic interneurons of the cerebral cortex. Nature Reviews Neuroscience, 2008, 9, 557-568.	10.2	1,314
2	Conserved cell types with divergent features in human versus mouse cortex. Nature, 2019, 573, 61-68.	27.8	1,198
3	Morphological Changes in Dendritic Spines Associated with Long-Term Synaptic Plasticity. Annual Review of Neuroscience, 2001, 24, 1071-1089.	10.7	1,095
4	Dendritic spines as basic functional units of neuronal integration. Nature, 1995, 375, 682-684.	27.8	873
5	Simultaneous Denoising, Deconvolution, and Demixing of Calcium Imaging Data. Neuron, 2016, 89, 285-299.	8.1	843
6	Synfire Chains and Cortical Songs: Temporal Modules of Cortical Activity. Science, 2004, 304, 559-564.	12.6	755
7	New insights into the classification and nomenclature of cortical GABAergic interneurons. Nature Reviews Neuroscience, 2013, 14, 202-216.	10.2	707
8	Attractor dynamics of network UP states in the neocortex. Nature, 2003, 423, 283-288.	27.8	581
9	Control of postsynaptic Ca2+ influx in developing neocortex by excitatory and inhibitory neurotransmitters. Neuron, 1991, 6, 333-344.	8.1	564
10	From the neuron doctrine to neural networks. Nature Reviews Neuroscience, 2015, 16, 487-497.	10.2	547
11	Genesis of dendritic spines: insights from ultrastructural and imaging studies. Nature Reviews Neuroscience, 2004, 5, 24-34.	10.2	545
12	The Brain Activity Map Project and the Challenge of Functional Connectomics. Neuron, 2012, 74, 970-974.	8.1	512
13	Dense Inhibitory Connectivity in Neocortex. Neuron, 2011, 69, 1188-1203.	8.1	491
14	Dense, Unspecific Connectivity of Neocortical Parvalbumin-Positive Interneurons: A Canonical Microcircuit for Inhibition?. Journal of Neuroscience, 2011, 31, 13260-13271.	3.6	445
15	Ultrastructure of dendritic spines: correlation between synaptic and spine morphologies. Frontiers in Neuroscience, 2007, 1, 131-143.	2.8	444
16	Regulation of Dendritic Spine Morphology by the Rho Family of Small GTPases: Antagonistic Roles of Rac and Rho. Cerebral Cortex, 2000, 10, 927-938.	2.9	383
17	Evidence of an inhibitory restraint of seizure activity in humans. Nature Communications, 2012, 3, 1060.	12.8	365
18	In vivo imaging of neural activity. Nature Methods, 2017, 14, 349-359.	19.0	364

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19	From form to function: calcium compartmentalization in dendritic spines. Nature Neuroscience, 2000, 3, 653-659.	14.8	351
20	Input Summation by Cultured Pyramidal Neurons Is Linear and Position-Independent. Journal of Neuroscience, 1998, 18, 10-15.	3.6	350
21	Internal Dynamics Determine the Cortical Response to Thalamic Stimulation. Neuron, 2005, 48, 811-823.	8.1	341
22	Nanotools for Neuroscience and Brain Activity Mapping. ACS Nano, 2013, 7, 1850-1866.	14.6	323
23	Spine Motility. Neuron, 2002, 35, 1019-1027.	8.1	317
24	Modular Propagation of Epileptiform Activity: Evidence for an Inhibitory Veto in Neocortex. Journal of Neuroscience, 2006, 26, 12447-12455.	3.6	309
25	The cortex as a central pattern generator. Nature Reviews Neuroscience, 2005, 6, 477-483.	10.2	306
26	Two-photon optogenetic toolbox for fast inhibition, excitation and bistable modulation. Nature Methods, 2012, 9, 1171-1179.	19.0	299
27	SLM microscopy: scanless two-photon imaging and photostimulation using spatial light modulators. Frontiers in Neural Circuits, 2008, 2, 5.	2.8	297
28	Dynamics of Spontaneous Activity in Neocortical Slices. Neuron, 2001, 32, 883-898.	8.1	287
29	Ca2+ accumulations in dendrites of neocortical pyramidal neurons: An apical band and evidence for two functional compartments. Neuron, 1994, 13, 23-43.	8.1	284
30	Linear Summation of Excitatory Inputs by CA1 Pyramidal Neurons. Neuron, 1999, 22, 383-394.	8.1	279
31	Mechanisms of Calcium Influx into Hippocampal Spines: Heterogeneity among Spines, Coincidence Detection by NMDA Receptors, and Optical Quantal Analysis. Journal of Neuroscience, 1999, 19, 1976-1987.	3.6	274
32	Detecting Action Potentials in Neuronal Populations with Calcium Imaging. Methods, 1999, 18, 215-221.	3.8	271
33	Four ethical priorities for neurotechnologies and AI. Nature, 2017, 551, 159-163.	27.8	267
34	Visual stimuli recruit intrinsically generated cortical ensembles. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, E4053-61.	7.1	263
35	Imprinting and recalling cortical ensembles. Science, 2016, 353, 691-694.	12.6	263
36	Fluorescence microscopy today. Nature Methods, 2005, 2, 902-904.	19.0	257

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37	Two-photon optogenetics of dendritic spines and neural circuits. Nature Methods, 2012, 9, 1202-1205.	19.0	255
38	Controlling Visually Guided Behavior by Holographic Recalling of Cortical Ensembles. Cell, 2019, 178, 447-457.e5.	28.9	254
39	Dendritic Spines and Distributed Circuits. Neuron, 2011, 71, 772-781.	8.1	251
40	Activity-Regulated Dynamic Behavior of Early Dendritic Protrusions: Evidence for Different Types of Dendritic Filopodia. Journal of Neuroscience, 2003, 23, 7129-7142.	3.6	246
41	Feedforward Inhibition Contributes to the Control of Epileptiform Propagation Speed. Journal of Neuroscience, 2007, 27, 3383-3387.	3.6	244
42	Two-photon photostimulation and imaging of neural circuits. Nature Methods, 2007, 4, 943-950.	19.0	240
43	The spine neck filters membrane potentials. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 17961-17966.	7.1	229
44	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, 429-440.	2.2	225
45	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, 1722-1734.	3.6	223
46	Simultaneous Multi-plane Imaging of Neural Circuits. Neuron, 2016, 89, 269-284.	8.1	209
47	Opening Holes in the Blanket of Inhibition: Localized Lateral Disinhibition by VIP Interneurons. Journal of Neuroscience, 2016, 36, 3471-3480.	3.6	199
48	Stereotyped Position of Local Synaptic Targets in Neocortex. Science, 2001, 293, 868-872.	12.6	195
49	Calcium Microdomains in Aspiny Dendrites. Neuron, 2003, 40, 807-821.	8.1	193
50	Regulation of Spine Calcium Dynamics by Rapid Spine Motility. Journal of Neuroscience, 2000, 20, 8262-8268.	3.6	183
51	A community-based transcriptomics classification and nomenclature of neocortical cell types. Nature Neuroscience, 2020, 23, 1456-1468.	14.8	183
52	The Brain Activity Map. Science, 2013, 339, 1284-1285.	12.6	181
53	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.	7.1	174
54	Cortical area and species differences in dendritic spine morphology. Journal of Neurocytology, 2002, 31, 337-346.	1.5	173

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55	RuBi-Glutamate: Two-photon and visible-light photoactivation of neurons and dendritic spines. Frontiers in Neural Circuits, 2009, 3, 2.	2.8	172
56	Imaging membrane potential in dendritic spines. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 786-790.	7.1	171
57	Simultaneous two-photon imaging and two-photon optogenetics of cortical circuits in three dimensions. ELife, 2018, 7, .	6.0	167
58	Non-overlapping Neural Networks in Hydra vulgaris. Current Biology, 2017, 27, 1085-1097.	3.9	162
59	Electrical Compartmentalization in Dendritic Spines. Annual Review of Neuroscience, 2013, 36, 429-449.	10.7	157
60	moco: Fast Motion Correction for Calcium Imaging. Frontiers in Neuroinformatics, 2016, 10, 6.	2.5	156
61	Multiphoton stimulation of neurons. Journal of Neurobiology, 2002, 51, 237-247.	3.6	154
62	Bidirectional Regulation of Hippocampal Mossy Fiber Filopodial Motility by Kainate Receptors. Neuron, 2003, 38, 773-784.	8.1	152
63	Altered Cortical Ensembles in Mouse Models of Schizophrenia. Neuron, 2017, 94, 153-167.e8.	8.1	152
64	Dendritic Spines. , 2010, , .		152
65	A blanket of inhibition: functional inferences from dense inhibitory connectivity. Current Opinion in Neurobiology, 2014, 26, 96-102.	4.2	148
66	Comparative Evaluation of Genetically Encoded Voltage Indicators. Cell Reports, 2019, 26, 802-813.e4.	6.4	137
67	Dendritic spines linearize the summation of excitatory potentials. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 18799-18804.	7.1	135
68	Quantitative classification of somatostatin-positive neocortical interneurons identifies three interneuron subtypes. Frontiers in Neural Circuits, 2010, 4, 12.	2.8	133
69	Somatostatin Interneurons Control a Key Component of Mismatch Negativity in Mouse Visual Cortex. Cell Reports, 2016, 16, 597-604.	6.4	124
70	Age-Based Comparison of Human Dendritic Spine Structure Using Complete Three-Dimensional Reconstructions. Cerebral Cortex, 2013, 23, 1798-1810.	2.9	123
71	Systematic regulation of spine sizes and densities in pyramidal neurons. Journal of Neurobiology, 2003, 56, 95-112.	3.6	121
72	Analysis of spine morphological plasticity in developing hippocampal pyramidal neurons. Hippocampus, 2000, 10, 561-568.	1.9	119

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73	State-Dependent Function of Neocortical Chandelier Cells. Journal of Neuroscience, 2011, 31, 17872-17886.	3.6	112
74	Endogenous Sequential Cortical Activity Evoked by Visual Stimuli. Journal of Neuroscience, 2015, 35, 8813-8828.	3.6	110
75	Targeted intracellular voltage recordings from dendritic spines using quantum-dot-coated nanopipettes. Nature Nanotechnology, 2017, 12, 335-342.	31.5	107
76	Persistently active, pacemaker-like neurons in neocortex. Frontiers in Neuroscience, 2007, 1, 123-129.	2.8	104
77	Dendritic Size of Pyramidal Neurons Differs among Mouse Cortical Regions. Cerebral Cortex, 2006, 16, 990-1001.	2.9	102
78	Back to the Basics: Cnidarians Start to Fire. Trends in Neurosciences, 2017, 40, 92-105.	8.6	102
79	Reliable and Elastic Propagation of Cortical Seizures InÂVivo. Cell Reports, 2017, 19, 2681-2693.	6.4	100
80	Correlation Between Axonal Morphologies and Synaptic Input Kinetics of Interneurons from Mouse Visual Cortex. Cerebral Cortex, 2007, 17, 81-91.	2.9	97
81	Calcium oscillations in neocortical astrocytes under epileptiform conditions. Journal of Neurobiology, 2002, 50, 45-55.	3.6	91
82	On the electrical function of dendritic spines. Trends in Neurosciences, 2004, 27, 77-83.	8.6	91
83	Imaging and Optically Manipulating Neuronal Ensembles. Annual Review of Biophysics, 2017, 46, 271-293.	10.0	90
84	Genetic voltage indicators. BMC Biology, 2019, 17, 71.	3.8	87
85	Light sheet theta microscopy for rapid high-resolution imaging of large biological samples. BMC Biology, 2018, 16, 57.	3.8	86
86	Quantitative morphologic classification of layer 5 neurons from mouse primary visual cortex. Journal of Comparative Neurology, 2003, 461, 415-428.	1.6	84
87	Single-shock LTD by local dendritic spikes in pyramidal neurons of mouse visual cortex. Journal of Physiology, 2004, 560, 27-36.	2.9	82
88	Simultaneous imaging of neural activity in three dimensions. Frontiers in Neural Circuits, 2014, 8, 29.	2.8	79
89	Comparison between supervised and unsupervised classifications of neuronal cell types: A case study. Developmental Neurobiology, 2011, 71, 71-82.	3.0	78
90	Dense and Overlapping Innervation of Pyramidal Neurons by Chandelier Cells. Journal of Neuroscience, 2013, 33, 1907-1914.	3.6	78

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91	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, 3938-3943.	7.1	77
92	Role of inhibitory control in modulating focal seizure spread. Brain, 2018, 141, 2083-2097.	7.6	75
93	Sodium channels amplify spine potentials. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 12347-12352.	7.1	71
94	Origin and Classification of Neocortical Interneurons. Neuron, 2005, 48, 524-527.	8.1	67
95	Recommendations for Responsible Development and Application of Neurotechnologies. Neuroethics, 2021, 14, 365-386.	2.8	67
96	Decorrelating Action of Inhibition in Neocortical Networks. Journal of Neuroscience, 2013, 33, 9813-9830.	3.6	66
97	Attenuation of Synaptic Potentials in Dendritic Spines. Cell Reports, 2017, 20, 1100-1110.	6.4	66
98	The new nanophysiology: regulation of ionic flow in neuronal subcompartments. Nature Reviews Neuroscience, 2015, 16, 685-692.	10.2	65
99	Parvalbumin-Positive Interneurons Regulate Neuronal Ensembles in Visual Cortex. Cerebral Cortex, 2018, 28, 1831-1845.	2.9	65
100	Acute Focal Seizures Start As Local Synchronizations of Neuronal Ensembles. Journal of Neuroscience, 2019, 39, 8562-8575.	3.6	63
101	Imaging the motility of dendritic protrusions and axon terminals: roles in axon sampling and synaptic competition. Molecular and Cellular Neurosciences, 2004, 27, 427-440.	2.2	61
102	On the Necessity of Ethical Guidelines for Novel Neurotechnologies. Cell, 2016, 167, 882-885.	28.9	61
103	Voltage compartmentalization in dendritic spines in vivo. Science, 2022, 375, 82-86.	12.6	61
104	Developmental regulation of spine and filopodial motility in primary visual cortex: Reduced effects of activity and sensory deprivation. Journal of Neurobiology, 2004, 59, 236-246.	3.6	58
105	Comprehensive machine learning analysis of Hydra behavior reveals a stable basal behavioral repertoire. ELife, 2018, 7, .	6.0	56
106	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.	4.2	56
107	Calcium imaging of epileptiform events with single-cell resolution. Journal of Neurobiology, 2001, 48, 215-227.	3.6	54
108	Second harmonic imaging of membrane potential of neurons with retinal. Journal of Biomedical Optics, 2004, 9, 873.	2.6	53

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109	Flexible Nanopipettes for Minimally Invasive Intracellular Electrophysiology InÂVivo. Cell Reports, 2019, 26, 266-278.e5.	6.4	52
110	Mapping the Whole-Body Muscle Activity of Hydra vulgaris. Current Biology, 2019, 29, 1807-1817.e3.	3.9	50
111	International Brain Initiative: An Innovative Framework for Coordinated Global Brain Research Efforts. Neuron, 2020, 105, 212-216.	8.1	50
112	Reduced Repertoire of Cortical Microstates and Neuronal Ensembles in Medically Induced Loss of Consciousness. Cell Systems, 2019, 8, 467-474.e4.	6.2	47
113	The discovery of dendritic spines by Cajal. Frontiers in Neuroanatomy, 2015, 9, 18.	1.7	46
114	Toward a Global BRAIN Initiative. Cell, 2017, 168, 956-959.	28.9	44
115	Role of Rho GTPases in the Morphogenesis and Motility of Dendritic Spines. Methods in Enzymology, 2008, 439, 285-302.	1.0	42
116	Long-term stability of cortical ensembles. ELife, 2021, 10, .	6.0	40
117	Holographic imaging and photostimulation of neural activity. Current Opinion in Neurobiology, 2018, 50, 211-221.	4.2	37
118	Ultrastructural analysis of dendritic spine necks reveals a continuum of spine morphologies. Developmental Neurobiology, 2021, 81, 746-757.	3.0	34
119	Two-photon imaging with diffractive optical elements. Frontiers in Neural Circuits, 2009, 3, 6.	2.8	30
120	The New Century of the Brain. Scientific American, 2014, 310, 38-45.	1.0	29
121	Cortical ensembles selective for context. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	29
122	Classification of neocortical interneurons using affinity propagation. Frontiers in Neural Circuits, 2013, 7, 185.	2.8	28
123	Overproduction of Neurons Is Correlated with Enhanced Cortical Ensembles and Increased Perceptual Discrimination. Cell Reports, 2017, 21, 381-392.	6.4	26
124	Dendritic spines and linear networks. Journal of Physiology (Paris), 2004, 98, 479-486.	2.1	23
125	Statistically Reconstructed Multiplexing for Very Dense, High-Channel-Count Acquisition Systems. IEEE Transactions on Biomedical Circuits and Systems, 2018, 12, 13-23.	4.0	23
126	Neuronal photoactivation through second-harmonic near-infrared absorption by gold nanoparticles. Light: Science and Applications, 2018, 7, 100.	16.6	22

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127	Towards a Governance Framework for Brain Data. Neuroethics, 2022, 15, .	2.8	21
128	Of Mice and Men, and Chandeliers. PLoS Biology, 2008, 6, e243.	5.6	20
129	Electrodiffusion models of synaptic potentials in dendritic spines. Journal of Computational Neuroscience, 2019, 47, 77-89.	1.0	20
130	Intrinsic excitability mechanisms of neuronal ensemble formation. ELife, 2022, 11, .	6.0	19
131	Whole-Body Imaging of Neural and Muscle Activity during Behavior inHydra vulgaris: Effect of Osmolarity on Contraction Bursts. ENeuro, 2020, 7, ENEURO.0539-19.2020.	1.9	18
132	A portable laser photostimulation and imaging microscope. Journal of Neural Engineering, 2010, 7, 045001.	3.5	17
133	Tracking calcium dynamics from individual neurons in behaving animals. PLoS Computational Biology, 2021, 17, e1009432.	3.2	17
134	Time for NanoNeuro. Nature Methods, 2021, 18, 1287-1293.	19.0	17
135	Two-Photon Optogenetic Mapping of Excitatory Synaptic Connectivity and Strength. IScience, 2018, 8, 15-28.	4.1	16
136	Random Positions of Dendritic Spines in Human Cerebral Cortex. Journal of Neuroscience, 2014, 34, 10078-10084.	3.6	15
137	A National Network of Neurotechnology Centers for the BRAIN Initiative. Neuron, 2015, 88, 445-448.	8.1	15
138	Simultaneous two-photon imaging of action potentials and subthreshold inputs in vivo. Nature Communications, 2021, 12, 7229.	12.8	15
139	Structural Analysis of Human and Mouse Dendritic Spines Reveals a Morphological Continuum and Differences across Ages and Species. ENeuro, 2022, 9, ENEURO.0039-22.2022.	1.9	12
140	Identification of Pattern Completion Neurons in Neuronal Ensembles Using Probabilistic Graphical Models. Journal of Neuroscience, 2021, 41, 8577-8588.	3.6	11
141	A miniaturized multi-clamp CMOS amplifier for intracellular neural recording. Nature Electronics, 2019, 2, 343-350.	26.0	10
142	Ensemble synchronization in the reassembly of Hydraâ€™s nervous system. Current Biology, 2021, 31, 3784-3796.e3.	3.9	10
143	An in vitro model of neuronal ensembles. Nature Communications, 2022, 13, .	12.8	10
144	Three-Dimensional Analysis of Spiny Dendrites Using Straightening and Unrolling Transforms. Neuroinformatics, 2012, 10, 391-407.	2.8	5

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145	An increase in spontaneous activity mediates visual habituation. Cell Reports, 2022, 39, 110751.	6.4	5
146	Holographic Imaging and Stimulation of Neural Circuits. Advances in Experimental Medicine and Biology, 2021, 1293, 613-639.	1.6	2
147	Addendum: A very large-scale microelectrode array for cellular-resolution electrophysiology. Nature Communications, 2018, 9, 4497.	12.8	1
148	Analysis of spine morphological plasticity in developing hippocampal pyramidal neurons. , 2000, 10, 561.		1
149	Regulation of dendritic spine motility and stability by Rac1 and Rho kinase: evidence for two forms of spine motility*1. Molecular and Cellular Neurosciences, 2004, 26, 429-429.	2.2	0