Carl C H Petersen

List of Publications by Year
in descending order

112 papers	14,680 citations	43973 48 h-index	28224 105 g-index
123 all docs	123 docs citations	123 times ranked	10973 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.	4.9	1,314
2	The Excitatory Neuronal Network of the C2 Barrel Column in Mouse Primary Somatosensory Cortex. Neuron, 2009, 61, 301-316.	3.8	795
3	Internal brain state regulates membrane potential synchrony in barrel cortex of behaving mice. Nature, 2008, 454, 881-885.	13.7	738
4	Interaction of sensory responses with spontaneous depolarization in layer 2/3 barrel cortex. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 13638-13643.	3.3	647
5	Spatiotemporal Dynamics of Cortical Sensorimotor Integration in Behaving Mice. Neuron, 2007, 56, 907-923.	3.8	613
6	The Functional Organization of the Barrel Cortex. Neuron, 2007, 56, 339-355.	3.8	572
7	Correlating whisker behavior with membrane potential in barrel cortex of awake mice. Nature Neuroscience, 2006, 9, 608-610.	7.1	488
8	Unique functional properties of somatostatin-expressing GABAergic neurons in mouse barrel cortex. Nature Neuroscience, 2012, 15, 607-612.	7.1	416
9	Visualizing the Cortical Representation of Whisker Touch: Voltage-Sensitive Dye Imaging in Freely Moving Mice. Neuron, 2006, 50, 617-629.	3.8	414
10	Membrane Potential Dynamics of GABAergic Neurons in the Barrel Cortex of Behaving Mice. Neuron, 2010, 65, 422-435.	3.8	409
11	Spatiotemporal Dynamics of Sensory Responses in Layer 2/3 of Rat Barrel Cortex Measured<i>In Vivo</i>by Voltage-Sensitive Dye Imaging Combined with Whole-Cell Voltage Recordings and Neuron Reconstructions. Journal of Neuroscience, 2003, 23, 1298-1309.	1.7	387
12	Motor Control by Sensory Cortex. Science, 2010, 330, 1240-1243.	6.0	326
13	Membrane potential correlates of sensory perception in mouse barrel cortex. Nature Neuroscience, 2013, 16, 1671-1677.	7.1	323
14	Ultrastructural analysis of adult mouse neocortex comparing aldehyde perfusion with cryo fixation. ELife, 2015, 4, .	2.8	315
15	Barrel cortex function. Progress in Neurobiology, 2013, 103, 3-27.	2.8	304
16	Calcium and Hormone Action. Annual Review of Physiology, 1994, 56, 297-319.	5.6	303
17	All-or-none potentiation at CA3-CA1 synapses. Proceedings of the National Academy of Sciences of the United States of America, 1998, 95, 4732-4737.	3.3	295
18	Longâ€range connectivity of mouse primary somatosensory barrel cortex. European Journal of Neuroscience, 2010, 31, 2221-2233.	1.2	285

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19	Thalamic control of cortical states. Nature Neuroscience, 2012, 15, 370-372.	7.1	278
20	Synaptic Mechanisms Underlying Sparse Coding of Active Touch. Neuron, 2011, 69, 1160-1175.	3.8	234
21	Synaptic Computation and Sensory Processing in Neocortical Layer 2/3. Neuron, 2013, 78, 28-48.	3.8	222
22	Microcircuits of excitatory and inhibitory neurons in layer 2/3 of mouse barrel cortex. Journal of Neurophysiology, 2012, 107, 3116-3134.	0.9	207
23	Functionally Independent Columns of Rat Somatosensory Barrel Cortex Revealed with Voltage-Sensitive Dye Imaging. Journal of Neuroscience, 2001, 21, 8435-8446.	1.7	201
24	Differential Spatial Representation of Taste Modalities in the Rat Gustatory Cortex. Journal of Neuroscience, 2007, 27, 1396-1404.	1.7	199
25	Cholinergic Signals in Mouse Barrel Cortex during Active Whisker Sensing. Cell Reports, 2014, 9, 1654-1660.	2.9	194
26	Effects of reduced vesicular filling on synaptic transmission in rat hippocampal neurones. Journal of Physiology, 2000, 525, 195-206.	1.3	191
27	The role of the synthetic enzyme GAD65 in the control of neuronal gamma -aminobutyric acid release. Proceedings of the National Academy of Sciences of the United States of America, 1999, 96, 12911-12916.	3.3	183
28	Dynamic<i>I-V</i>Curves Are Reliable Predictors of Naturalistic Pyramidal-Neuron Voltage Traces. Journal of Neurophysiology, 2008, 99, 656-666.	0.9	183
29	Sensorimotor processing in the rodent barrel cortex. Nature Reviews Neuroscience, 2019, 20, 533-546.	4.9	179
30	Cell-Type-Specific Sensorimotor Processing in Striatal Projection Neurons during Goal-Directed Behavior. Neuron, 2015, 88, 298-305.	3.8	165
31	Combined Voltage and Calcium Epifluorescence Imaging In Vitro and In Vivo Reveals Subthreshold and Suprathreshold Dynamics of Mouse Barrel Cortex. Journal of Neurophysiology, 2007, 97, 3751-3762.	0.9	162
32	Membrane Potential Dynamics of Neocortical Projection Neurons Driving Target-Specific Signals. Neuron, 2013, 80, 1477-1490.	3.8	162
33	The Excitatory Neuronal Network of Rat Layer 4 Barrel Cortex. Journal of Neuroscience, 2000, 20, 7579-7586.	1.7	154
34	InÂVivo Measurement of Cell-Type-Specific Synaptic Connectivity and Synaptic Transmission in Layer 2/3 Mouse Barrel Cortex. Neuron, 2015, 85, 68-75.	3.8	146
35	Reward-Based Learning Drives Rapid Sensory Signals in Medial Prefrontal Cortex and Dorsal Hippocampus Necessary for Goal-Directed Behavior. Neuron, 2018, 97, 83-91.e5.	3.8	123
36	Whisking-Related Changes in Neuronal Firing and Membrane Potential Dynamics in the Somatosensory Thalamus of Awake Mice. Cell Reports, 2015, 13, 647-656.	2.9	121

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37	Mechanisms underlying kainate receptor-mediated disinhibition in the hippocampus. Proceedings of the National Academy of Sciences of the United States of America, 1999, 96, 12917-12922.	3.3	115
38	Optogenetic Dissection of the Basal Forebrain Neuromodulatory Control of Cortical Activation, Plasticity, and Cognition. Journal of Neuroscience, 2015, 35, 13896-13903.	1.7	103
39	Movement Initiation Signals in Mouse Whisker Motor Cortex. Neuron, 2016, 92, 1368-1382.	3.8	97
40	InÂVivo Optogenetic Stimulation of Neocortical Excitatory Neurons Drives Brain-State-Dependent Inhibition. Current Biology, 2011, 21, 1593-1602.	1.8	92
41	Parameter extraction and classification of three cortical neuron types reveals two distinct adaptation mechanisms. Journal of Neurophysiology, 2012, 107, 1756-1775.	0.9	91
42	Pathway-, layer- and cell-type-specific thalamic input to mouse barrel cortex. ELife, 2019, 8, .	2.8	80
43	Whole-Cell Recording of Neuronal Membrane Potential during Behavior. Neuron, 2017, 95, 1266-1281.	3.8	76
44	Anatomically and functionally distinct thalamocortical inputs to primary and secondary mouse whisker somatosensory cortices. Nature Communications, 2020, 11, 3342.	5.8	74
45	Parvalbumin-Expressing GABAergic Neurons in Mouse Barrel Cortex Contribute to Gating a Goal-Directed Sensorimotor Transformation. Cell Reports, 2016, 15, 700-706.	2.9	72
46	Target-specific membrane potential dynamics of neocortical projection neurons during goal-directed behavior. ELife, 2016, 5, .	2.8	72
47	Neuronal Circuits in Barrel Cortex for Whisker Sensory Perception. Physiological Reviews, 2021, 101, 353-415.	13.1	66
48	Extracting non-linear integrate-and-fire models from experimental data using dynamic Iâ€"V curves. Biological Cybernetics, 2008, 99, 361-370.	0.6	65
49	Diverse Long-Range Axonal Projections of Excitatory Layer 2/3 Neurons in Mouse Barrel Cortex. Frontiers in Neuroanatomy, 2018, 12, 33.	0.9	65
50	Distinct Contributions of Whisker Sensory Cortex and Tongue-Jaw Motor Cortex in a Goal-Directed Sensorimotor Transformation. Neuron, 2019, 103, 1034-1043.e5.	3.8	62
51	Neural Circuits for Goal-Directed Sensorimotor Transformations. Trends in Neurosciences, 2019, 42, 66-77.	4.2	60
52	Cortical Control of Whisker Movement. Annual Review of Neuroscience, 2014, 37, 183-203.	5.0	59
53	Parallel pathways from motor and somatosensory cortex for controlling whisker movements in mice. European Journal of Neuroscience, 2015, 41, 354-367.	1.2	58
54	Capacitative calcium entry is colocalised with calcium release in Xenopus oocytes: Evidence against a highly diffusible calcium influx factor. Pflugers Archiv European Journal of Physiology, 1996, 432, 286-292.	1.3	56

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55	Cell-type-specific nicotinic input disinhibits mouse barrel cortex during active sensing. Neuron, 2021, 109, 778-787.e3.	3.8	52
56	Facilitating Sensory Responses in Developing Mouse Somatosensory Barrel Cortex. Journal of Neurophysiology, 2007, 97, 2992-3003.	0.9	51
57	The barrel cortex?integrating molecular, cellular and systems physiology. Pflugers Archiv European Journal of Physiology, 2003, 447, 126-134.	1.3	49
58	Short-Term Dynamics of Synaptic Transmission Within the Excitatory Neuronal Network of Rat Layer 4 Barrel Cortex. Journal of Neurophysiology, 2002, 87, 2904-2914.	0.9	47
59	Regulation of Brain Proteolytic Activity Is Necessary for the In Vivo Function of NMDA Receptors. Journal of Neuroscience, 2004, 24, 9734-9743.	1.7	47
60	Rapid suppression and sustained activation of distinct cortical regions for a delayed sensory-triggered motor response. Neuron, 2021, 109, 2183-2201.e9.	3.8	46
61	Layer-Dependent Short-Term Synaptic Plasticity Between Excitatory Neurons in the C2 Barrel Column of Mouse Primary Somatosensory Cortex. Cerebral Cortex, 2017, 27, 3869-3878.	1.6	42
62	Receptor-activated cytoplasmic Ca2+ oscillations in pancreatic acinar cells: Generation and spreading of Ca2+ signals. Cell Calcium, 1991, 12, 135-144.	1.1	41
63	Osmotic Swelling Activates Intermediate-Conductance Cl- Channels in Human Intestinal Epithelial Cells.. The Japanese Journal of Physiology, 1994, 44, 403-409.	0.9	41
64	Inositol triphosphate produces different patterns of cytoplasmic Ca2+spiking depending on its concentration. FEBS Letters, 1991, 293, 179-182.	1.3	39
65	Calcium Signalling: Cracking ICRAC in the eye. Current Biology, 1995, 5, 1225-1228.	1.8	37
66	Voltage-sensitive dye imaging of mouse neocortex during a whisker detection task. Neurophotonics, 2016, 4, 031204.	1.7	36
67	State-dependent cell-type-specific membrane potential dynamics and unitary synaptic inputs in awake mice. ELife, 2018, 7, .	2.8	31
68	Layer, column and cell-type specific genetic manipulation in mouse barrel cortex. Frontiers in Neuroscience, 2008, 2, 64-71.	1.4	30
69	Somatostatin enhances visual processing and perception by suppressing excitatory inputs to parvalbumin-positive interneurons in V1. Science Advances, 2020, 6, eaaz0517.	4.7	29
70	Parallel pathways from whisker and visual sensory cortices to distinct frontal regions of mouse neocortex. Neurophotonics, 2016, 4, 1.	1.7	28
71	Optogenetic Stimulation of Cortex to Map Evoked Whisker Movements in Awake Head-Restrained Mice. Neuroscience, 2018, 368, 199-213.	1.1	27
72	Hormonal activation of single K+ channels via internal messenger in isolated pancreatic acinar cells. FEBS Letters, 1985, 192, 307-312.	1.3	26

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73	Layer- and column-specific knockout of NMDA receptors in pyramidal neurons of the mouse barrel cortex. Frontiers in Integrative Neuroscience, 2007, 1, 1.	1.0	25
74	Controlled and localized genetic manipulation in the brain. Journal of Cellular and Molecular Medicine, 2006, 10, 333-352.	1.6	22
75	Cortical Dynamics in Presence of Assemblies of Densely Connected Weight-Hub Neurons. Frontiers in Computational Neuroscience, 2017, 11, 52.	1.2	22
76	Ultrastructural comparison of dendritic spine morphology preserved with cryo and chemical fixation. ELife, 2020, 9, .	2.8	22
77	Receptor-activated cytoplasmic Ca2+ spikes in communicating clusters of pancreatic acinar cells. FEBS Letters, 1991, 284, 113-116.	1.3	21
78	BOLD responses to trigeminal nerve stimulation. Magnetic Resonance Imaging, 2010, 28, 1143-1151.	1.0	21
79	Molecular cloning and immunolocalization of a novel vertebrate trp homologue from Xenopus. Biochemical Journal, 1999, 340, 593.	1.7	19
80	Fast-fluorescence dynamics in nonratiometric calcium indicators. Optics Letters, 2009, 34, 362.	1.7	19
81	Cell-type specific function of GABAergic neurons in layers 2 and 3 of mouse barrel cortex. Current Opinion in Neurobiology, 2014, 26, 1-6.	2.0	17
82	Imaging the Dynamics of Neocortical Population Activity in Behaving and Freely Moving Mammals. Advances in Experimental Medicine and Biology, 2015, 859, 273-296.	0.8	16
83	Synaptic Changes in Layer 2/3 Underlying Map Plasticity of Developing Barrel Cortex. Science, 2004, 304, 739-742.	6.0	15
84	The initiation of a calcium signal in Xenopus oocytes. Cell Calcium, 1994, 16, 391-403.	1.1	13
85	Cortical Dynamics by Layers. Neuron, 2009, 64, 298-300.	3.8	13
86	Cortical circuits for transforming whisker sensation into goal-directed licking. Current Opinion in Neurobiology, 2020, 65, 38-48.	2.0	13
87	Connection-type-specific biases make uniform random network models consistent with cortical recordings. Journal of Neurophysiology, 2014, 112, 1801-1814.	0.9	12
88	Projection-specific Activity of Layer 2/3 Neurons Imaged in Mouse Primary Somatosensory Barrel Cortex During a Whisker Detection Task. Function, 2020, 1, zqaa008.	1.1	10
89	3D Ultrastructure of Synaptic Inputs to Distinct GABAergic Neurons in the Mouse Primary Visual Cortex. Cerebral Cortex, 2021, 31, 2610-2624.	1.6	7
90	Axonal and Dendritic Morphology of Excitatory Neurons in Layer 2/3 Mouse Barrel Cortex Imaged Through Whole-Brain Two-Photon Tomography and Registered to a Digital Brain Atlas. Frontiers in Neuroanatomy, 2021, 15, 791015.	0.9	7

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91	Emerging principles of spacetime in brains: Meeting report on spatial neurodynamics. Neuron, 2022, 110, 1894-1898.	3.8	7
92	Evoking Spontaneous Activity. Neuron, 2005, 48, 710-711.	3.8	6
93	Genetic manipulation, wholeâ€cell recordings and functional imaging of the sensorimotor cortex of behaving mice. Acta Physiologica, 2009, 195, 91-99.	1.8	6
94	Learning-related congruent and incongruent changes of excitation and inhibition in distinct cortical areas. PLoS Biology, 2022, 20, e3001667.	2.6	6
95	Store operated calcium entry. Seminars in Neuroscience, 1996, 8, 293-300.	2.3	5
96	From Perception to Action: A Spatiotemporal Cortical Map. Neuron, 2014, 81, 5-8.	3.8	4
97	Cortical Sensorimotor Reverberations. Neuron, 2015, 86, 1116-1118.	3.8	4
98	Cell type-specific membrane potential changes in dorsolateral striatum accompanying reward-based sensorimotor learning. Function, 2021, 2, zqab049.	1.1	4
99	New views into the brain of mice on the move. Nature Methods, 2008, 5, 925-926.	9.0	3
100	Synaptic Mechanisms Underlying Sparse Coding of Active Touch. Neuron, 2011, 70, 170.	3.8	2
101	In Memoriam Sir Michael Berridge 1938 â€" 2020. Cell Calcium, 2020, 88, 102209.	1.1	2
102	Advances in Understanding Cortical Function Through Combined Voltage-Sensitive Dye Imaging, Whole-Cell Recordings, and Analysis of Cellular Morphology. , 2006, , 436-451.		2
103	Toward Biophysical Mechanisms of Neocortical Computation after 50 Years of Barrel Cortex Research. Function, 2020, 2, zqaa046.	1.1	2
104	Whole-Cell Recording and Voltage-Sensitive Dye Imaging In Vivo. Cold Spring Harbor Protocols, 2009, 2009, pdb.prot5232-pdb.prot5232.	0.2	1
105	The influence of structure on the response properties of biologically plausible neural network models. BMC Neuroscience, 2011, 12, .	0.8	1
106	Inhibition Patterns the Whisking Rhythm. Neuron, 2016, 90, 211-213.	3.8	1
107	Imaging the Dynamics of Neocortical Population Activity in Behaving and Freely Moving Mammals. , 2010, , 113-124.		1
108	A computational model for the excitatory network of the C2 column of barrel cortex. BMC Neuroscience, 2009, 10, .	0.8	0

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109	Genetic determinants of barrel cortex map formation (Commentary on She <i>etÂal.</i>). European Journal of Neuroscience, 2009, 29, 1378-1378.	1.2	0
110	Voltage-Sensitive Dye Imaging of Cortical Dynamics. Neuromethods, 2014, , 117-132.	0.2	0
111	Barrel Cortex Circuits â˜†. , 2017, , .		0
112	Special Section Guest Editorial: Pioneers in Neurophotonics: Special Section Honoring Professor Amiram Grinvald. Neurophotonics, 2017, 4, 1.	1.7	0