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	Learning-related congruent and incongruent changes of excitation and inhibition in distinct cortical areas. PLoS Biology, 2022, 20, e3001667.	2.6	6
2	Emerging principles of spacetime in brains: Meeting report on spatial neurodynamics. Neuron, 2022, 110, 1894-1898.	3.8	7
3	Neuronal Circuits in Barrel Cortex for Whisker Sensory Perception. Physiological Reviews, 2021, 101, 353-415.	13.1	66
4	Cell-type-specific nicotinic input disinhibits mouse barrel cortex during active sensing. Neuron, 2021, 109, 778-787.e3.	3.8	52
5	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
6	Cell type-specific membrane potential changes in dorsolateral striatum accompanying reward-based sensorimotor learning. Function, 2021, 2, zqab049.	1.1	4
7	3D Ultrastructure of Synaptic Inputs to Distinct GABAergic Neurons in the Mouse Primary Visual Cortex. Cerebral Cortex, 2021, 31, 2610-2624.	1.6	7
8	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
9	Cortical circuits for transforming whisker sensation into goal-directed licking. Current Opinion in Neurobiology, 2020, 65, 38-48.	2.0	13
10	Somatostatin enhances visual processing and perception by suppressing excitatory inputs to parvalbumin-positive interneurons in V1. Science Advances, 2020, 6, eaaz0517.	4.7	29
11	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
12	Anatomically and functionally distinct thalamocortical inputs to primary and secondary mouse whisker somatosensory cortices. Nature Communications, 2020, 11, 3342.	5.8	74
13	In Memoriam Sir Michael Berridge 1938 â€“ 2020. Cell Calcium, 2020, 88, 102209.	1.1	2
14	Ultrastructural comparison of dendritic spine morphology preserved with cryo and chemical fixation. ELife, 2020, 9, .	2.8	22
15	Toward Biophysical Mechanisms of Neocortical Computation after 50 Years of Barrel Cortex Research. Function, 2020, 2, zqaa046.	1.1	2
16	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
17	Sensorimotor processing in the rodent barrel cortex. Nature Reviews Neuroscience, 2019, 20, 533-546.	4.9	179
18	Neural Circuits for Goal-Directed Sensorimotor Transformations. Trends in Neurosciences, 2019, 42, 66-77.	4.2	60

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19	Pathway-, layer- and cell-type-specific thalamic input to mouse barrel cortex. ELife, 2019, 8, .	2.8	80
20	Optogenetic Stimulation of Cortex to Map Evoked Whisker Movements in Awake Head-Restrained Mice. Neuroscience, 2018, 368, 199-213.	1.1	27
21	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
22	Diverse Long-Range Axonal Projections of Excitatory Layer 2/3 Neurons in Mouse Barrel Cortex. Frontiers in Neuroanatomy, 2018, 12, 33.	0.9	65
23	State-dependent cell-type-specific membrane potential dynamics and unitary synaptic inputs in awake mice. ELife, 2018, 7, .	2.8	31
24	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
25	Whole-Cell Recording of Neuronal Membrane Potential during Behavior. Neuron, 2017, 95, 1266-1281.	3.8	76
26	Cortical Dynamics in Presence of Assemblies of Densely Connected Weight-Hub Neurons. Frontiers in Computational Neuroscience, 2017, 11, 52.	1.2	22
27	Barrel Cortex Circuits â˜†. , 2017, , .		0
28	Special Section Guest Editorial: Pioneers in Neurophotonics: Special Section Honoring Professor Amiram Grinvald. Neurophotonics, 2017, 4, 1.	1.7	0
29	Movement Initiation Signals in Mouse Whisker Motor Cortex. Neuron, 2016, 92, 1368-1382.	3.8	97
30	Voltage-sensitive dye imaging of mouse neocortex during a whisker detection task. Neurophotonics, 2016, 4, 031204.	1.7	36
31	Parallel pathways from whisker and visual sensory cortices to distinct frontal regions of mouse neocortex. Neurophotonics, 2016, 4, 1.	1.7	28
32	Inhibition Patterns the Whisking Rhythm. Neuron, 2016, 90, 211-213.	3.8	1
33	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
34	Target-specific membrane potential dynamics of neocortical projection neurons during goal-directed behavior. ELife, 2016, 5, .	2.8	72
35	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
36	Ultrastructural analysis of adult mouse neocortex comparing aldehyde perfusion with cryo fixation. ELife, 2015, 4, .	2.8	315

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37	Cortical Sensorimotor Reverberations. Neuron, 2015, 86, 1116-1118.	3.8	4
38	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
39	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
40	Cell-Type-Specific Sensorimotor Processing in Striatal Projection Neurons during Goal-Directed Behavior. Neuron, 2015, 88, 298-305.	3.8	165
41	Optogenetic Dissection of the Basal Forebrain Neuromodulatory Control of Cortical Activation, Plasticity, and Cognition. Journal of Neuroscience, 2015, 35, 13896-13903.	1.7	103
42	Parallel pathways from motor and somatosensory cortex for controlling whisker movements in mice. European Journal of Neuroscience, 2015, 41, 354-367.	1.2	58
43	Cholinergic Signals in Mouse Barrel Cortex during Active Whisker Sensing. Cell Reports, 2014, 9, 1654-1660.	2.9	194
44	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
45	From Perception to Action: A Spatiotemporal Cortical Map. Neuron, 2014, 81, 5-8.	3.8	4
46	Connection-type-specific biases make uniform random network models consistent with cortical recordings. Journal of Neurophysiology, 2014, 112, 1801-1814.	0.9	12
47	Cortical Control of Whisker Movement. Annual Review of Neuroscience, 2014, 37, 183-203.	5.0	59
48	Voltage-Sensitive Dye Imaging of Cortical Dynamics. Neuromethods, 2014, , 117-132.	0.2	0
49	Membrane Potential Dynamics of Neocortical Projection Neurons Driving Target-Specific Signals. Neuron, 2013, 80, 1477-1490.	3.8	162
50	Membrane potential correlates of sensory perception in mouse barrel cortex. Nature Neuroscience, 2013, 16, 1671-1677.	7.1	323
51	Barrel cortex function. Progress in Neurobiology, 2013, 103, 3-27.	2.8	304
52	Synaptic Computation and Sensory Processing in Neocortical Layer 2/3. Neuron, 2013, 78, 28-48.	3.8	222
53	Microcircuits of excitatory and inhibitory neurons in layer 2/3 of mouse barrel cortex. Journal of Neurophysiology, 2012, 107, 3116-3134.	0.9	207
54	Parameter extraction and classification of three cortical neuron types reveals two distinct adaptation mechanisms. Journal of Neurophysiology, 2012, 107, 1756-1775.	0.9	91

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55	Unique functional properties of somatostatin-expressing GABAergic neurons in mouse barrel cortex. Nature Neuroscience, 2012, 15, 607-612.	7.1	416
56	Thalamic control of cortical states. Nature Neuroscience, 2012, 15, 370-372.	7.1	278
57	Synaptic Mechanisms Underlying Sparse Coding of Active Touch. Neuron, 2011, 69, 1160-1175.	3.8	234
58	Synaptic Mechanisms Underlying Sparse Coding of Active Touch. Neuron, 2011, 70, 170.	3.8	2
59	InÂVivo Optogenetic Stimulation of Neocortical Excitatory Neurons Drives Brain-State-Dependent Inhibition. Current Biology, 2011, 21, 1593-1602.	1.8	92
60	The influence of structure on the response properties of biologically plausible neural network models. BMC Neuroscience, 2011, 12, .	0.8	1
61	BOLD responses to trigeminal nerve stimulation. Magnetic Resonance Imaging, 2010, 28, 1143-1151.	1.0	21
62	Longâ€range connectivity of mouse primary somatosensory barrel cortex. European Journal of Neuroscience, 2010, 31, 2221-2233.	1.2	285
63	Membrane Potential Dynamics of GABAergic Neurons in the Barrel Cortex of Behaving Mice. Neuron, 2010, 65, 422-435.	3.8	409
64	Motor Control by Sensory Cortex. Science, 2010, 330, 1240-1243.	6.0	326
65	Imaging the Dynamics of Neocortical Population Activity in Behaving and Freely Moving Mammals. , 2010, , 113-124.		1
66	A computational model for the excitatory network of the C2 column of barrel cortex. BMC Neuroscience, 2009, 10, .	0.8	0
67	Genetic manipulation, wholeâ€cell recordings and functional imaging of the sensorimotor cortex of behaving mice. Acta Physiologica, 2009, 195, 91-99.	1.8	6
68	Genetic determinants of barrel cortex map formation (Commentary on She <i>etÂal.</i>). European Journal of Neuroscience, 2009, 29, 1378-1378.	1.2	0
69	Whole-Cell Recording and Voltage-Sensitive Dye Imaging In Vivo. Cold Spring Harbor Protocols, 2009, 2009, pdb.prot5232-pdb.prot5232.	0.2	1
70	The Excitatory Neuronal Network of the C2 Barrel Column in Mouse Primary Somatosensory Cortex. Neuron, 2009, 61, 301-316.	3.8	795
71	Cortical Dynamics by Layers. Neuron, 2009, 64, 298-300.	3.8	13
72	Fast-fluorescence dynamics in nonratiometric calcium indicators. Optics Letters, 2009, 34, 362.	1.7	19

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73	Extracting non-linear integrate-and-fire models from experimental data using dynamic Iâ€“V curves. Biological Cybernetics, 2008, 99, 361-370.	0.6	65
74	Internal brain state regulates membrane potential synchrony in barrel cortex of behaving mice. Nature, 2008, 454, 881-885.	13.7	738
75	Petilla terminology: nomenclature of features of GABAergic interneurons of the cerebral cortex. Nature Reviews Neuroscience, 2008, 9, 557-568.	4.9	1,314
76	New views into the brain of mice on the move. Nature Methods, 2008, 5, 925-926.	9.0	3
77	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
78	Layer, column and cell-type specific genetic manipulation in mouse barrel cortex. Frontiers in Neuroscience, 2008, 2, 64-71.	1.4	30
79	Differential Spatial Representation of Taste Modalities in the Rat Gustatory Cortex. Journal of Neuroscience, 2007, 27, 1396-1404.	1.7	199
80	The Functional Organization of the Barrel Cortex. Neuron, 2007, 56, 339-355.	3.8	572
81	Spatiotemporal Dynamics of Cortical Sensorimotor Integration in Behaving Mice. Neuron, 2007, 56, 907-923.	3.8	613
82	Facilitating Sensory Responses in Developing Mouse Somatosensory Barrel Cortex. Journal of Neurophysiology, 2007, 97, 2992-3003.	0.9	51
83	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
84	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
85	Visualizing the Cortical Representation of Whisker Touch: Voltage-Sensitive Dye Imaging in Freely Moving Mice. Neuron, 2006, 50, 617-629.	3.8	414
86	Correlating whisker behavior with membrane potential in barrel cortex of awake mice. Nature Neuroscience, 2006, 9, 608-610.	7.1	488
87	Controlled and localized genetic manipulation in the brain. Journal of Cellular and Molecular Medicine, 2006, 10, 333-352.	1.6	22
88	Advances in Understanding Cortical Function Through Combined Voltage-Sensitive Dye Imaging, Whole-Cell Recordings, and Analysis of Cellular Morphology. , 2006, , 436-451.		2
89	Evoking Spontaneous Activity. Neuron, 2005, 48, 710-711.	3.8	6
90	Synaptic Changes in Layer 2/3 Underlying Map Plasticity of Developing Barrel Cortex. Science, 2004, 304, 739-742.	6.0	15

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91	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
92	The barrel cortex?integrating molecular, cellular and systems physiology. Pflugers Archiv European Journal of Physiology, 2003, 447, 126-134.	1.3	49
93	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
94	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
95	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
96	Functionally Independent Columns of Rat Somatosensory Barrel Cortex Revealed with Voltage-Sensitive Dye Imaging. Journal of Neuroscience, 2001, 21, 8435-8446.	1.7	201
97	Effects of reduced vesicular filling on synaptic transmission in rat hippocampal neurones. Journal of Physiology, 2000, 525, 195-206.	1.3	191
98	The Excitatory Neuronal Network of Rat Layer 4 Barrel Cortex. Journal of Neuroscience, 2000, 20, 7579-7586.	1.7	154
99	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
100	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
101	Molecular cloning and immunolocalization of a novel vertebrate trp homologue from Xenopus. Biochemical Journal, 1999, 340, 593.	1.7	19
102	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
103	Store operated calcium entry. Seminars in Neuroscience, 1996, 8, 293-300.	2.3	5
104	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
105	Calcium Signalling: Cracking ICRAC in the eye. Current Biology, 1995, 5, 1225-1228.	1.8	37
106	Calcium and Hormone Action. Annual Review of Physiology, 1994, 56, 297-319.	5.6	303
107	The initiation of a calcium signal in Xenopus oocytes. Cell Calcium, 1994, 16, 391-403.	1.1	13
108	Osmotic Swelling Activates Intermediate-Conductance Cl- Channels in Human Intestinal Epithelial Cells.. The Japanese Journal of Physiology, 1994, 44, 403-409.	0.9	41

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109	Receptor-activated cytoplasmic Ca2+ spikes in communicating clusters of pancreatic acinar cells. FEBS Letters, 1991, 284, 113-116.	1.3	21
110	Inositol triphosphate produces different patterns of cytoplasmic Ca2+spiking depending on its concentration. FEBS Letters, 1991, 293, 179-182.	1.3	39
111	Receptor-activated cytoplasmic Ca2+ oscillations in pancreatic acinar cells: Generation and spreading of Ca2+ signals. Cell Calcium, 1991, 12, 135-144.	1.1	41
112	Hormonal activation of single K+ channels via internal messenger in isolated pancreatic acinar cells. FEBS Letters, 1985, 192, 307-312.	1.3	26