

David A McCormick

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147
papers

33,019
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88
h-index

157
g-index

157
ext. papers

37,067
ext. citations

11.5
avg, IF

7.39
L-index

#	Paper	IF	Citations
147	Thalamocortical oscillations in the sleeping and aroused brain. <i>Science</i> , 1993 , 262, 679-85	33.3	2862
146	Comparative electrophysiology of pyramidal and sparsely spiny stellate neurons of the neocortex. <i>Journal of Neurophysiology</i> , 1985 , 54, 782-806	3.2	1555
145	Cellular and network mechanisms of rhythmic recurrent activity in neocortex. <i>Nature Neuroscience</i> , 2000 , 3, 1027-34	25.5	1117
144	Sleep and arousal: thalamocortical mechanisms. <i>Annual Review of Neuroscience</i> , 1997 , 20, 185-215	17	1043
143	Neurotransmitter actions in the thalamus and cerebral cortex and their role in neuromodulation of thalamocortical activity. <i>Progress in Neurobiology</i> , 1992 , 39, 337-88	10.9	970
142	Cerebellum: essential involvement in the classically conditioned eyelid response. <i>Science</i> , 1984 , 223, 296-9	33.3	857
141	Properties of a hyperpolarization-activated cation current and its role in rhythmic oscillation in thalamic relay neurones. <i>Journal of Physiology</i> , 1990 , 431, 291-318	3.9	844
140	Turning on and off recurrent balanced cortical activity. <i>Nature</i> , 2003 , 423, 288-93	50.4	811
139	On the cellular and network bases of epileptic seizures. <i>Annual Review of Physiology</i> , 2001 , 63, 815-46	23.1	800
138	Chattering cells: superficial pyramidal neurons contributing to the generation of synchronous oscillations in the visual cortex. <i>Science</i> , 1996 , 274, 109-13	33.3	735
137	Neocortical network activity in vivo is generated through a dynamic balance of excitation and inhibition. <i>Journal of Neuroscience</i> , 2006 , 26, 4535-45	6.6	704
136	Essential role of phosphoinositide metabolism in synaptic vesicle recycling. <i>Cell</i> , 1999 , 99, 179-88	56.2	664
135	Cellular mechanisms of a synchronized oscillation in the thalamus. <i>Science</i> , 1993 , 261, 361-4	33.3	662
134	Endogenous electric fields may guide neocortical network activity. <i>Neuron</i> , 2010 , 67, 129-43	13.9	568
133	Alpha2A-adrenoceptors strengthen working memory networks by inhibiting cAMP-HCN channel signaling in prefrontal cortex. <i>Cell</i> , 2007 , 129, 397-410	56.2	496
132	A model of the electrophysiological properties of thalamocortical relay neurons. <i>Journal of Neurophysiology</i> , 1992 , 68, 1384-400	3.2	495
131	Inhibitory postsynaptic potentials carry synchronized frequency information in active cortical networks. <i>Neuron</i> , 2005 , 47, 423-35	13.9	486

130	Mechanisms of action of acetylcholine in the guinea-pig cerebral cortex in vitro. <i>Journal of Physiology</i> , 1986 , 375, 169-94	3.9	414
129	Corticothalamic activation modulates thalamic firing through glutamate "metabotropic" receptors. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1992 , 89, 2774-8	11.5	407
128	Cellular and network mechanisms of slow oscillatory activity (. <i>Journal of Neurophysiology</i> , 2003 , 89, 2703-25	3.9	399
127	Waking State: Rapid Variations Modulate Neural and Behavioral Responses. <i>Neuron</i> , 2015 , 87, 1143-1161	13.9	391
126	Cortical Membrane Potential Signature of Optimal States for Sensory Signal Detection. <i>Neuron</i> , 2015 , 87, 179-92	13.9	375
125	Simulation of the currents involved in rhythmic oscillations in thalamic relay neurons. <i>Journal of Neurophysiology</i> , 1992 , 68, 1373-83	3.2	367
124	Cholinergic and noradrenergic modulation of thalamocortical processing. <i>Trends in Neurosciences</i> , 1989 , 12, 215-21	13.3	361
123	Pupil fluctuations track rapid changes in adrenergic and cholinergic activity in cortex. <i>Nature Communications</i> , 2016 , 7, 13289	17.4	355
122	H-current: properties of a neuronal and network pacemaker. <i>Neuron</i> , 1998 , 21, 9-12	13.9	346
121	Noradrenaline and serotonin selectively modulate thalamic burst firing by enhancing a hyperpolarization-activated cation current. <i>Nature</i> , 1989 , 340, 715-8	50.4	341
120	Effects of lesions of cerebellar nuclei on conditioned behavioral and hippocampal neuronal responses. <i>Brain Research</i> , 1984 , 291, 125-36	3.7	339
119	Rapid neocortical dynamics: cellular and network mechanisms. <i>Neuron</i> , 2009 , 62, 171-89	13.9	332
118	Lesions of the inferior olivary complex cause extinction of the classically conditioned eyeblink response. <i>Brain Research</i> , 1985 , 359, 120-30	3.7	330
117	Modulation of intracortical synaptic potentials by presynaptic somatic membrane potential. <i>Nature</i> , 2006 , 441, 761-5	50.4	315
116	Noradrenergic and serotonergic modulation of a hyperpolarization-activated cation current in thalamic relay neurones. <i>Journal of Physiology</i> , 1990 , 431, 319-42	3.9	312
115	Acetylcholine induces burst firing in thalamic reticular neurones by activating a potassium conductance. <i>Nature</i> , 1986 , 319, 402-5	50.4	303
114	Electrophysiological classes of cat primary visual cortical neurons in vivo as revealed by quantitative analyses. <i>Journal of Neurophysiology</i> , 2003 , 89, 1541-66	3.2	301
113	Ionic mechanisms underlying synchronized oscillations and propagating waves in a model of ferret thalamic slices. <i>Journal of Neurophysiology</i> , 1996 , 76, 2049-70	3.2	296

112	Thalamic synchrony and dynamic regulation of global forebrain oscillations. <i>Trends in Neurosciences</i> , 2007 , 30, 350-6	13.3	294
111	Functional implications of burst firing and single spike activity in lateral geniculate relay neurons. <i>Neuroscience</i> , 1990 , 39, 103-13	3.9	292
110	Initial localization of the memory trace for a basic form of learning. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1982 , 79, 2731-5	11.5	281
109	Functional dynamics of GABAergic inhibition in the thalamus. <i>Science</i> , 1997 , 278, 130-4	33.3	274
108	Cellular mechanisms of long-lasting adaptation in visual cortical neurons in vitro. <i>Journal of Neuroscience</i> , 2000 , 20, 4286-99	6.6	258
107	Mechanisms of oscillatory activity in guinea-pig nucleus reticularis thalami in vitro: a mammalian pacemaker. <i>Journal of Physiology</i> , 1993 , 468, 669-91	3.9	255
106	Convergence and divergence of neurotransmitter action in human cerebral cortex. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1989 , 86, 8098-102	11.5	253
105	Membrane mechanisms underlying contrast adaptation in cat area 17 in vivo. <i>Journal of Neuroscience</i> , 2000 , 20, 4267-85	6.6	252
104	Two types of muscarinic response to acetylcholine in mammalian cortical neurons. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1985 , 82, 6344-8	11.5	251
103	Corticothalamic inputs control the pattern of activity generated in thalamocortical networks. <i>Journal of Neuroscience</i> , 2000 , 20, 5153-62	6.6	245
102	Neurotransmitter control of neocortical neuronal activity and excitability. <i>Cerebral Cortex</i> , 1993 , 3, 387-98	9.8	242
101	Actions of acetylcholine in the guinea-pig and cat medial and lateral geniculate nuclei, in vitro. <i>Journal of Physiology</i> , 1987 , 392, 147-65	3.9	241
100	Barrages of synaptic activity control the gain and sensitivity of cortical neurons. <i>Journal of Neuroscience</i> , 2003 , 23, 10388-401	6.6	240
99	Acetylcholine inhibits identified interneurons in the cat lateral geniculate nucleus. <i>Nature</i> , 1988 , 334, 246-8	50.4	235
98	Sensory gating mechanisms of the thalamus. <i>Current Opinion in Neurobiology</i> , 1994 , 4, 550-6	7.6	233
97	Post-natal development of electrophysiological properties of rat cerebral cortical pyramidal neurones. <i>Journal of Physiology</i> , 1987 , 393, 743-62	3.9	221
96	The engram found? Role of the cerebellum in classical conditioning of nictitating membrane and eyelid responses. <i>Bulletin of the Psychonomic Society</i> , 1981 , 18, 103-105		210
95	Synaptic and network mechanisms of sparse and reliable visual cortical activity during nonclassical receptive field stimulation. <i>Neuron</i> , 2010 , 65, 107-21	13.9	202

94	Influence of low and high frequency inputs on spike timing in visual cortical neurons. <i>Cerebral Cortex</i> , 1997 , 7, 487-501	5.1	199
93	What stops synchronized thalamocortical oscillations?. <i>Neuron</i> , 1996 , 17, 297-308	13.9	189
92	Serotonin and noradrenaline excite GABAergic neurones of the guinea-pig and cat nucleus reticularis thalami. <i>Journal of Physiology</i> , 1991 , 442, 235-55	3.9	184
91	Motor cortex feedback influences sensory processing by modulating network state. <i>Neuron</i> , 2013 , 79, 567-78	13.9	178
90	Synchronized oscillations in the inferior olive are controlled by the hyperpolarization-activated cation current I(h). <i>Journal of Neurophysiology</i> , 1997 , 77, 3145-56	3.2	166
89	Ionic mechanisms underlying repetitive high-frequency burst firing in supragranular cortical neurons. <i>Journal of Neuroscience</i> , 2000 , 20, 4829-43	6.6	165
88	State changes rapidly modulate cortical neuronal responsiveness. <i>Journal of Neuroscience</i> , 2007 , 27, 9607-22	6.2	161
87	Periodicity of thalamic synchronized oscillations: the role of Ca ²⁺ -mediated upregulation of I _h . <i>Neuron</i> , 1998 , 20, 553-63	13.9	160
86	Persistent cortical activity: mechanisms of generation and effects on neuronal excitability. <i>Cerebral Cortex</i> , 2003 , 13, 1219-31	5.1	157
85	Properties of action-potential initiation in neocortical pyramidal cells: evidence from whole cell axon recordings. <i>Journal of Neurophysiology</i> , 2007 , 97, 746-60	3.2	149
84	Cortical action potential backpropagation explains spike threshold variability and rapid-onset kinetics. <i>Journal of Neuroscience</i> , 2008 , 28, 7260-72	6.6	143
83	Selective control of cortical axonal spikes by a slowly inactivating K ⁺ current. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007 , 104, 11453-8	11.5	141
82	Chronic cellular imaging of entire cortical columns in awake mice using microprisms. <i>Neuron</i> , 2013 , 80, 900-13	13.9	137
81	Ipsilateral cerebellar lesions prevent learning of the classically conditioned nictitating membrane/eyelid response. <i>Brain Research</i> , 1982 , 242, 190-3	3.7	136
80	Electrophysiological and pharmacological properties of interneurons in the cat dorsal lateral geniculate nucleus. <i>Neuroscience</i> , 1995 , 68, 1105-25	3.9	133
79	Neurotransmitter actions in the thalamus and cerebral cortex. <i>Journal of Clinical Neurophysiology</i> , 1992 , 9, 212-23	2.2	133
78	Superior cerebellar peduncle lesions selectively abolish the ipsilateral classically conditioned nictitating membrane/eyelid response of the rabbit. <i>Brain Research</i> , 1982 , 244, 347-50	3.7	124
77	Physiological properties of inhibitory interneurons in cat striate cortex. <i>Cerebral Cortex</i> , 1997 , 7, 534-45	5.1	120

76	Effect of bilateral lesions of the dentate and interpositus cerebellar nuclei on conditioning of heart-rate and nictitating membrane/eyelid responses in the rabbit. <i>Brain Research</i> , 1984 , 305, 323-30	3.7	119
75	Brain state dependent activity in the cortex and thalamus. <i>Current Opinion in Neurobiology</i> , 2015 , 31, 133-40	7.6	118
74	The functional influence of burst and tonic firing mode on synaptic interactions in the thalamus. <i>Journal of Neuroscience</i> , 1998 , 18, 9500-16	6.6	118
73	Modulation of a pacemaker current through Ca(2+)-induced stimulation of cAMP production. <i>Nature Neuroscience</i> , 1999 , 2, 634-41	25.5	108
72	Enhancement of visual responsiveness by spontaneous local network activity in vivo. <i>Journal of Neurophysiology</i> , 2007 , 97, 4186-202	3.2	106
71	Action potentials initiate in the axon initial segment and propagate through axon collaterals reliably in cerebellar Purkinje neurons. <i>Journal of Neuroscience</i> , 2010 , 30, 6891-902	6.6	104
70	Neural control of brain state. <i>Current Opinion in Neurobiology</i> , 2014 , 29, 178-86	7.6	103
69	A model for 8-10 Hz spindling in interconnected thalamic relay and reticularis neurons. <i>Biophysical Journal</i> , 1993 , 65, 2473-7	2.9	102
68	Dynamic properties of corticothalamic excitatory postsynaptic potentials and thalamic reticular inhibitory postsynaptic potentials in thalamocortical neurons of the guinea-pig dorsal lateral geniculate nucleus. <i>Neuroscience</i> , 1999 , 91, 7-20	3.9	97
67	Concomitant classical conditioning of the rabbit nictitating membrane and eyelid responses: correlations and implications. <i>Physiology and Behavior</i> , 1982 , 28, 769-75	3.5	97
66	Neuromodulatory role of serotonin in the ferret thalamus. <i>Journal of Neurophysiology</i> , 2002 , 87, 2124-36	3.2	95
65	Neurophysiology: Hodgkin and Huxley model--still standing?. <i>Nature</i> , 2007 , 445, E1-2; discussion E2-3	50.4	93
64	Enhanced activation of NMDA receptor responses at the immature retinogeniculate synapse. <i>Journal of Neuroscience</i> , 1994 , 14, 2098-105	6.6	93
63	Inhibitory interactions between perigeniculate GABAergic neurons. <i>Journal of Neuroscience</i> , 1997 , 17, 8894-908	6.6	91
62	Neocortical networks entrain neuronal circuits in cerebellar cortex. <i>Journal of Neuroscience</i> , 2009 , 29, 10309-20	6.6	90
61	Adaptation and temporal decorrelation by single neurons in the primary visual cortex. <i>Journal of Neurophysiology</i> , 2003 , 89, 3279-93	3.2	90
60	Mucin depletion in inflammatory bowel disease. <i>Journal of Clinical Pathology</i> , 1990 , 43, 143-6	3.9	88
59	Brain calculus: neural integration and persistent activity. <i>Nature Neuroscience</i> , 2001 , 4, 113-4	25.5	85

58	The spatio-temporal characteristics of action potential initiation in layer 5 pyramidal neurons: a voltage imaging study. <i>Journal of Physiology</i> , 2011 , 589, 4167-87	3.9	84
57	Periodicity of thalamic spindle waves is abolished by ZD7288, a blocker of Ih. <i>Journal of Neurophysiology</i> , 1998 , 79, 3284-9	3.2	82
56	Abolition of spindle oscillations by serotonin and norepinephrine in the ferret lateral geniculate and perigeniculate nuclei in vitro. <i>Neuron</i> , 1996 , 17, 309-21	13.9	72
55	Functional properties of perigeniculate inhibition of dorsal lateral geniculate nucleus thalamocortical neurons in vitro. <i>Journal of Neuroscience</i> , 1997 , 17, 8880-93	6.6	71
54	Synaptic Mechanisms of Tight Spike Synchrony at Gamma Frequency in Cerebral Cortex. <i>Journal of Neuroscience</i> , 2015 , 35, 10236-51	6.6	69
53	Functional and ionic properties of a slow afterhyperpolarization in ferret perigeniculate neurons in vitro. <i>Journal of Neurophysiology</i> , 1998 , 80, 1222-35	3.2	67
52	Actions of acetylcholine in the cerebral cortex and thalamus and implications for function. <i>Progress in Brain Research</i> , 1993 , 98, 303-8	2.9	66
51	Neuronal responses of the rabbit brainstem during performance of the classically conditioned nictitating membrane (NM)/eyelid response. <i>Brain Research</i> , 1983 , 271, 73-88	3.7	66
50	P/Q and N channels control baseline and spike-triggered calcium levels in neocortical axons and synaptic boutons. <i>Journal of Neuroscience</i> , 2010 , 30, 11858-69	6.6	64
49	Effects of ipsilateral rostral pontine reticular lesions on retention of classically conditioned nictitating membrane and eyelid responses. <i>Physiological Psychology</i> , 1981 , 9, 335-339		64
48	Selective functional interactions between excitatory and inhibitory cortical neurons and differential contribution to persistent activity of the slow oscillation. <i>Journal of Neuroscience</i> , 2012 , 32, 12165-79	6.6	63
47	Somatic membrane potential and Kv1 channels control spike repolarization in cortical axon collaterals and presynaptic boutons. <i>Journal of Neuroscience</i> , 2011 , 31, 15490-8	6.6	63
46	Warm body temperature facilitates energy efficient cortical action potentials. <i>PLoS Computational Biology</i> , 2012 , 8, e1002456	5	58
45	Cortical and subcortical generators of normal and abnormal rhythmicity. <i>International Review of Neurobiology</i> , 2002 , 49, 99-114	4.4	54
44	Locus coeruleus lesions and resistance to extinction of a classically conditioned response: involvement of the neocortex and hippocampus. <i>Brain Research</i> , 1982 , 245, 239-49	3.7	52
43	Competing Neural Ensembles in Motor Cortex Gate Goal-Directed Motor Output. <i>Neuron</i> , 2015 , 88, 565-73	7.9	49
42	Spontaneous activity: signal or noise?. <i>Science</i> , 1999 , 285, 541-3	33.3	49
41	Movement and Performance Explain Widespread Cortical Activity in a Visual Detection Task. <i>Cerebral Cortex</i> , 2020 , 30, 421-437	5.1	48

40	Inhibitory interactions between ferret thalamic reticular neurons. <i>Journal of Neurophysiology</i> , 2002 , 87, 2571-6	3.2	47
39	Excitatory effects of thyrotropin-releasing hormone in the thalamus. <i>Journal of Neuroscience</i> , 2005 , 25, 1664-73	6.6	46
38	Knockout of Foxp2 disrupts vocal development in mice. <i>Scientific Reports</i> , 2016 , 6, 23305	4.9	44
37	Synaptojanin 1 contributes to maintaining the stability of GABAergic transmission in primary cultures of cortical neurons. <i>Journal of Neuroscience</i> , 2001 , 21, 9101-11	6.6	44
36	Selective degeneration of a physiological subtype of spinal motor neuron in mice with SOD1-linked ALS. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014 , 111, 16883-8	11.5	41
35	Slow adaptation in fast-spiking neurons of visual cortex. <i>Journal of Neurophysiology</i> , 2005 , 93, 1111-8	3.2	41
34	Neuromodulation of Brain State and Behavior. <i>Annual Review of Neuroscience</i> , 2020 , 43, 391-415	17	41
33	Modulation of spindle oscillations by acetylcholine, cholecystokinin and 1S,3R-ACPD in the ferret lateral geniculate and perigeniculate nuclei in vitro. <i>Neuroscience</i> , 1997 , 77, 335-50	3.9	40
32	A nonrecoverable learning deficit. <i>Physiological Psychology</i> , 1984 , 12, 103-110		40
31	Thalamic and thalamocortical mechanisms underlying 3 Hz spike-and-wave discharges. <i>Progress in Brain Research</i> , 1999 , 121, 289-307	2.9	39
30	Are the interlaminar zones of the ferret dorsal lateral geniculate nucleus actually part of the perigeniculate nucleus?. <i>Journal of Neuroscience</i> , 1996 , 16, 5923-41	6.6	34
29	Neuronal networks: flip-flops in the brain. <i>Current Biology</i> , 2005 , 15, R294-6	6.3	32
28	Active action potential propagation but not initiation in thalamic interneuron dendrites. <i>Journal of Neuroscience</i> , 2011 , 31, 18289-302	6.6	30
27	Cortical Interneuron Subtypes Vary in Their Axonal Action Potential Properties. <i>Journal of Neuroscience</i> , 2015 , 35, 15555-67	6.6	28
26	Histamine modulates thalamocortical activity by activating a chloride conductance in ferret perigeniculate neurons. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2004 , 101, 6716-21	11.5	28
25	The temporal organization of mouse ultrasonic vocalizations. <i>PLoS ONE</i> , 2018 , 13, e0199929	3.7	27
24	Circuit-based localization of ferret prefrontal cortex. <i>Cerebral Cortex</i> , 2010 , 20, 1020-36	5.1	21
23	Distinct Functional Groups Emerge from the Intrinsic Properties of Molecularly Identified Entorhinal Interneurons and Principal Cells. <i>Cerebral Cortex</i> , 2017 , 27, 3186-3207	5.1	20

22	Distinct Waking States for Strong Evoked Responses in Primary Visual Cortex and Optimal Visual Detection Performance. <i>Journal of Neuroscience</i> , 2019 , 39, 10044-10059	6.6	18
21	Ca(2+)-mediated up-regulation of Ih in the thalamus. How cell-intrinsic ionic currents may shape network activity. <i>Annals of the New York Academy of Sciences</i> , 1999 , 868, 765-9	6.5	18
20	Pupil-linked phasic arousal predicts a reduction of choice bias across species and decision domains. <i>ELife</i> , 2020 , 9,	8.9	18
19	Reduced high-frequency motor neuron firing, EMG fractionation, and gait variability in awake walking ALS mice. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, E7600-E7609	11.5	17
18	Vagus nerve stimulation induces widespread cortical and behavioral activation. <i>Current Biology</i> , 2021 , 31, 2088-2098.e3	6.3	14
17	Mechanisms of decreased cholinergic arousal in focal seizures: In vivo whole-cell recordings from the pedunculopontine tegmental nucleus. <i>Experimental Neurology</i> , 2019 , 314, 74-81	5.7	13
16	Sarcoidosis and the pancreas. <i>Irish Journal of Medical Science</i> , 1988 , 157, 181-3	1.9	10
15	Refinements in the in-vitro slice technique and human neuropharmacology. <i>Trends in Pharmacological Sciences</i> , 1990 , 11, 53-6	13.2	8
14	Membrane Potential and Action Potential 2014 , 351-376		6
13	Simulating Cortical Feedback Modulation as Changes in Excitation and Inhibition in a Cortical Circuit Model. <i>ENeuro</i> , 2016 , 3,	3.9	6
12	Determination of State-Dependent Processing in Thalamus by Single Neuron Properties and Neuromodulators 1992 , 259-290		6
11	Comparative physiological and serotonergic properties of pulvina neurons in the monkey, cat and ferret. <i>Thalamus & Related Systems</i> , 2003 , 2, 239		5
10	Visual thalamocortical mechanisms of waking state-dependent activity and alpha oscillations. <i>Neuron</i> , 2021 ,	13.9	5
9	Balanced Recurrent Excitation and Inhibition in Local Cortical Networks 2003 , 113-124		3
8	Membrane Potential and Action Potential 2013 , 93-116		2
7	Membrane Potential and Action Potential 2004 , 115-140		2
6	Distinct waking states for strong evoked responses in primary visual cortex and optimal visual detection performance		2
5	Visual Thalamocortical Mechanisms of Waking State Dependent Activity and Alpha Oscillations		2

- 4 Postsynaptic Actions of Acetylcholine in the Mammalian Brain in Vitro **1988**, 287-302 2
- 3 Movement and performance predict widespread cortical activity in a visual detection task 1
- 2 Comparative physiological and serotonergic properties of pulvinar neurons in the monkey, cat and ferret. *Thalamus & Related Systems*, **2003**, 2, 239-252
- 1 Low cost oscilloscope histogram generator with memory. *Physiology and Behavior*, **1981**, 27, 1121-5 3.5