

Slow and Fast Inhibition and an H-Current Interact to Control CA1 Interneuron Network

Journal of Neurophysiology

94, 1509-1518

DOI: [10.1152/jn.00957.2004](https://doi.org/10.1152/jn.00957.2004)

Citation Report

#	ARTICLE	IF	CITATIONS
1	Hippocampal theta rhythms from a computational perspective: Code generation, mood regulation and navigation. <i>Neural Networks</i> , 2005, 18, 1202-1211.	3.3	11
2	Functional role of entorhinal cortex in working memory processing. <i>Neural Networks</i> , 2005, 18, 1141-1149.	3.3	22
3	Genetic dissection of theta rhythm heterogeneity in mice. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005, 102, 18165-18170.	3.3	71
4	Orthogonal arrangement of rhythm-generating microcircuits in the hippocampus. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005, 102, 13295-13300.	3.3	215
5	Intrinsic and Synaptic Mechanisms Determining the Timing of Neuron Population Activity During Hippocampal Theta Oscillation. <i>Journal of Neurophysiology</i> , 2006, 96, 2889-2904.	0.9	45
6	Hyperpolarization-activated cation channels in fast-spiking interneurons of rat hippocampus. <i>Journal of Physiology</i> , 2006, 574, 229-243.	1.3	160
7	The dynamic structure underlying subthreshold oscillatory activity and the onset of spikes in a model of medial entorhinal cortex stellate cells. <i>Journal of Computational Neuroscience</i> , 2006, 21, 271-292.	0.6	96
8	Memory formation by neuronal synchronization. <i>Brain Research Reviews</i> , 2006, 52, 170-182.	9.1	402
9	Low-Dimensional Maps Encoding Dynamics in Entorhinal Cortex and Hippocampus. <i>Neural Computation</i> , 2006, 18, 2617-2650.	1.3	43
10	Hippocampal place cell assemblies are speed-controlled oscillators. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007, 104, 8149-8154.	3.3	229
11	On the formation of gamma-coherent cell assemblies by oriens lacunosum-moleculare interneurons in the hippocampus. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007, 104, 13490-13495.	3.3	178
12	Impaired hippocampal rhythmogenesis in a mouse model of mesial temporal lobe epilepsy. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007, 104, 17530-17535.	3.3	111
13	Local Generation of Theta-Frequency EEG Activity in the Parasubiculum. <i>Journal of Neurophysiology</i> , 2007, 97, 3868-3879.	0.9	43
14	Beta Rhythms (15–20 Hz) Generated by Nonreciprocal Communication in Hippocampus. <i>Journal of Neurophysiology</i> , 2007, 97, 2812-2823.	0.9	51
15	Switching between gamma and theta: Dynamic network control using subthreshold electric fields. <i>Neurocomputing</i> , 2007, 70, 2091-2095.	3.5	15
16	GABA Neurons and the Mechanisms of Network Oscillations: Implications for Understanding Cortical Dysfunction in Schizophrenia. <i>Schizophrenia Bulletin</i> , 2008, 34, 944-961.	2.3	500
17	Independent delta/theta rhythms in the human hippocampus and entorhinal cortex. <i>Frontiers in Human Neuroscience</i> , 2008, 2, 3.	1.0	64
18	An unexpected role for TASK-3 potassium channels in network oscillations with implications for sleep mechanisms and anesthetic action. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 17546-17551.	3.3	80

#	ARTICLE	IF	CITATIONS
19	Behavior-Dependent Coordination of Multiple Theta Dipoles in the Hippocampus. <i>Journal of Neuroscience</i> , 2009, 29, 1381-1394.	1.7	169
20	h channel-dependent deficit of theta oscillation resonance and phase shift in temporal lobe epilepsy. <i>Neurobiology of Disease</i> , 2009, 33, 436-447.	2.1	129
21	Effects of XE991, retigabine, losigamone and ZD7288 on kainate-induced theta-like and gamma network oscillations in the rat hippocampus in vitro. <i>Brain Research</i> , 2009, 1295, 44-58.	1.1	9
22	Understanding effects on excitability of simulated I h modulation in simple neuronal models. <i>Biological Cybernetics</i> , 2009, 101, 297-306.	0.6	8
23	HCN channels: Structure, cellular regulation and physiological function. <i>Cellular and Molecular Life Sciences</i> , 2009, 66, 470-494.	2.4	359
24	A phase code for memory could arise from circuit mechanisms in entorhinal cortex. <i>Neural Networks</i> , 2009, 22, 1129-1138.	3.3	21
25	Two forms of feedback inhibition determine the dynamical state of a small hippocampal network. <i>Neural Networks</i> , 2009, 22, 1139-1158.	3.3	7
26	Theta Oscillations Provide Temporal Windows for Local Circuit Computation in the Entorhinal-Hippocampal Loop. <i>Neuron</i> , 2009, 64, 267-280.	3.8	611
28	Using Hard Real-Time Dynamic Clamp to Study Cellular and Network Mechanisms of Synchronization in the Hippocampal Formation. , 2009, , 199-215.		1
29	Hyperpolarization-Activated Cation Channels: From Genes to Function. <i>Physiological Reviews</i> , 2009, 89, 847-885.	13.1	868
30	Theta and Gamma Coherence Along the Septotemporal Axis of the Hippocampus. <i>Journal of Neurophysiology</i> , 2009, 101, 1192-1200.	0.9	34
31	Hippocampal theta rhythm and its coupling with gamma oscillations require fast inhibition onto parvalbumin-positive interneurons. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 3561-3566.	3.3	368
32	Functional role of gamma and theta oscillations in episodic memory. <i>Neuroscience and Biobehavioral Reviews</i> , 2010, 34, 1023-1035.	2.9	418
33	Computational Modeling of Distinct Neocortical Oscillations Driven by Cell-Type Selective Optogenetic Drive: Separable Resonant Circuits Controlled by Low-Threshold Spiking and Fast-Spiking Interneurons. <i>Frontiers in Human Neuroscience</i> , 2010, 4, 198.	1.0	76
34	Irregular Dynamics in Up and Down Cortical States. <i>PLoS ONE</i> , 2010, 5, e13651.	1.1	44
35	Temporal delays among place cells determine the frequency of population theta oscillations in the hippocampus. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010, 107, 7957-7962.	3.3	114
36	Cellular dynamical mechanisms for encoding the time and place of events along spatiotemporal trajectories in episodic memory. <i>Behavioural Brain Research</i> , 2010, 215, 261-274.	1.2	38
37	NMDA Receptor Ablation on Parvalbumin-Positive Interneurons Impairs Hippocampal Synchrony, Spatial Representations, and Working Memory. <i>Neuron</i> , 2010, 68, 557-569.	3.8	455

#	ARTICLE	IF	CITATIONS
38	Neurophysiological and Computational Principles of Cortical Rhythms in Cognition. <i>Physiological Reviews</i> , 2010, 90, 1195-1268.	13.1	1,634
39	GenNet: A Platform for Hybrid Network Experiments. <i>Frontiers in Neuroinformatics</i> , 2011, 5, 11.	1.3	14
40	Computational Study of Hippocampal-Septal Theta Rhythm Changes Due to Beta-Amyloid-Altered Ionic Channels. <i>PLoS ONE</i> , 2011, 6, e21579.	1.1	30
41	The role of hyperpolarization-activated cationic current in spike-time precision and intrinsic resonance in cortical neurons <i>in vitro</i> . <i>Journal of Physiology</i> , 2011, 589, 3753-3773.	1.3	63
42	Stability of two cluster solutions in pulse coupled networks of neural oscillators. <i>Journal of Computational Neuroscience</i> , 2011, 30, 427-445.	0.6	17
43	Spatial Memory Sequence Encoding and Replay During Modeled Theta and Ripple Oscillations. <i>Cognitive Computation</i> , 2011, 3, 554-574.	3.6	27
44	Gap Junctions between Interneurons Are Required for Normal Spatial Coding in the Hippocampus and Short-Term Spatial Memory. <i>Journal of Neuroscience</i> , 2011, 31, 6542-6552.	1.7	79
45	Theta and Gamma Power Increases and Alpha/Beta Power Decreases with Memory Load in an Attractor Network Model. <i>Journal of Cognitive Neuroscience</i> , 2011, 23, 3008-3020.	1.1	194
46	Spike Resonance Properties in Hippocampal O-LM Cells Are Dependent on Refractory Dynamics. <i>Journal of Neuroscience</i> , 2012, 32, 3637-3651.	1.7	59
47	Brain State Dependent Postinhibitory Rebound in Entorhinal Cortex Interneurons. <i>Journal of Neuroscience</i> , 2012, 32, 6501-6510.	1.7	14
48	Cross-Frequency Phase-Phase Coupling between Theta and Gamma Oscillations in the Hippocampus. <i>Journal of Neuroscience</i> , 2012, 32, 423-435.	1.7	700
49	Canard-Like Explosion of Limit Cycles in Two-Dimensional Piecewise-Linear Models of FitzHugh-Nagumo Type. <i>SIAM Journal on Applied Dynamical Systems</i> , 2012, 11, 135-180.	0.7	53
50	Cellular-based modeling of oscillatory dynamics in brain networks. <i>Current Opinion in Neurobiology</i> , 2012, 22, 660-669.	2.0	26
51	OLM interneurons differentially modulate CA3 and entorhinal inputs to hippocampal CA1 neurons. <i>Nature Neuroscience</i> , 2012, 15, 1524-1530.	7.1	306
52	Beta-amyloid induced changes in A-type K ⁺ current can alter hippocampo-septal network dynamics. <i>Journal of Computational Neuroscience</i> , 2012, 32, 465-477.	0.6	27
53	Activity dynamics and behavioral correlates of CA3 and CA1 hippocampal pyramidal neurons. <i>Hippocampus</i> , 2012, 22, 1659-1680.	0.9	185
54	Stimulus detection rate and latency, firing rates and 1-40Hz oscillatory power are modulated by infra-slow fluctuations in a bistable attractor network model. <i>NeuroImage</i> , 2013, 83, 458-471.	2.1	13
55	Modulation of hippocampal rhythms by subthreshold electric fields and network topology. <i>Journal of Computational Neuroscience</i> , 2013, 34, 369-389.	0.6	50

#	ARTICLE	IF	CITATIONS
56	Inhibition-Induced Theta Resonance in Cortical Circuits. <i>Neuron</i> , 2013, 80, 1263-1276.	3.8	292
57	Phase resetting reduces theta-gamma rhythmic interaction to a one-dimensional map. <i>Journal of Mathematical Biology</i> , 2013, 66, 1361-1386.	0.8	15
58	Nested theta to gamma oscillations and precise spatiotemporal firing during memory retrieval in a simulated attractor network. <i>Brain Research</i> , 2013, 1536, 68-87.	1.1	39
59	Spiking Neurons in a Hierarchical Self-Organizing Map Model Can Learn to Develop Spatial and Temporal Properties of Entorhinal Grid Cells and Hippocampal Place Cells. <i>PLoS ONE</i> , 2013, 8, e60599.	1.1	33
60	Using Multi-Compartment Ensemble Modeling As an Investigative Tool of Spatially Distributed Biophysical Balances: Application to Hippocampal Oriens-Lacunosum/Moleculare (O-LM) Cells. <i>PLoS ONE</i> , 2014, 9, e106567.	1.1	25
61	The contribution of electrical synapses to field potential oscillations in the hippocampal formation. <i>Frontiers in Neural Circuits</i> , 2014, 8, 32.	1.4	25
62	Co-activation of nAChR and mGluR induces δ oscillation in rat medial septum diagonal band of Broca slices. <i>Acta Pharmacologica Sinica</i> , 2014, 35, 175-184.	2.8	1
63	Midazolam and atropine alter theta oscillations in the hippocampal CA1 region by modulating both the somatic and distal dendritic dipoles. <i>Hippocampus</i> , 2014, 24, 1212-1231.	0.9	6
64	Subthreshold Resonance and Membrane Potential Oscillations in a Neuron with Nonuniform Active Dendritic Properties. <i>Springer Series in Computational Neuroscience</i> , 2014, , 331-346.	0.3	5
65	Beyond the Connectome: The Dynome. <i>Neuron</i> , 2014, 83, 1319-1328.	3.8	315
66	Broadband changes in the cortical surface potential track activation of functionally diverse neuronal populations. <i>NeuroImage</i> , 2014, 85, 711-720.	2.1	225
67	Theta rhythm and the encoding and retrieval of space and time. <i>NeuroImage</i> , 2014, 85, 656-666.	2.1	207
68	Spatiotemporal characteristics and pharmacological modulation of multiple gamma oscillations in the CA1 region of the hippocampus. <i>Frontiers in Neural Circuits</i> , 2014, 8, 150.	1.4	7
69	Atypical coordination of cortical oscillations in response to speech in autism. <i>Frontiers in Human Neuroscience</i> , 2015, 9, 171.	1.0	57
70	Harnessing the power of theta: natural manipulations of cognitive performance during hippocampal theta-contingent eyeblink conditioning. <i>Frontiers in Systems Neuroscience</i> , 2015, 9, 50.	1.2	12
71	Network models provide insights into how oriens-lacunosum-moleculare and bistratified cell interactions influence the power of local hippocampal CA1 theta oscillations. <i>Frontiers in Systems Neuroscience</i> , 2015, 9, 110.	1.2	30
72	Modeling the Generation of Phase-Amplitude Coupling in Cortical Circuits: From Detailed Networks to Neural Mass Models. <i>BioMed Research International</i> , 2015, 2015, 1-12.	0.9	23
73	Brain Rhythms Connect Impaired Inhibition to Altered Cognition in Schizophrenia. <i>Biological Psychiatry</i> , 2015, 77, 1020-1030.	0.7	74

#	ARTICLE	IF	CITATIONS
74	Interneuronal mechanisms of hippocampal theta oscillations in a full-scale model of the rodent CA1 circuit. <i>ELife</i> , 2016, 5, .	2.8	171
75	Interaction of Intrinsic and Synaptic Currents Mediate Network Resonance Driven by Layer V Pyramidal Cells. <i>Cerebral Cortex</i> , 2017, 27, 4396-4410.	1.6	20
76	Feedforward and feedback frequency-dependent interactions in a large-scale laminar network of the primate cortex. <i>Science Advances</i> , 2016, 2, e1601335.	4.7	158
77	Post-Inhibitory Rebound Spikes in Rat Medial Entorhinal Layer II/III Principal Cells: In Vivo, In Vitro, and Computational Modeling Characterization. <i>Cerebral Cortex</i> , 2017, 27, bhw058.	1.6	25
78	Functional Reduction in Cannabinoid-Sensitive Heterotypic Inhibition of Dentate Basket Cells in Epilepsy: Impact on Network Rhythms. <i>Cerebral Cortex</i> , 2016, 26, 4299-4314.	1.6	24
79	Aberrant Network Activity in Schizophrenia. <i>Trends in Neurosciences</i> , 2017, 40, 371-382.	4.2	90
80	An integrative model of the intrinsic hippocampal theta rhythm. <i>PLoS ONE</i> , 2017, 12, e0182648.	1.1	17
81	The Sync/deSync Model: How a Synchronized Hippocampus and a Desynchronized Neocortex Code Memories. <i>Journal of Neuroscience</i> , 2018, 38, 3428-3440.	1.7	51
82	h interacts with somato-dendritic structure to determine frequency response to weak alternating electric field stimulation. <i>Journal of Neurophysiology</i> , 2018, 119, 1029-1036.	0.9	26
83	Abnormal cortical neural synchrony during working memory in schizophrenia. <i>Clinical Neurophysiology</i> , 2018, 129, 210-221.	0.7	28
84	Experiment-Modelling Cycling with Populations of Multi-compartment Models: Application to Hippocampal Interneurons. <i>Springer Series in Computational Neuroscience</i> , 2018, , 831-861.	0.3	5
85	Cell Type-Specific Activity During Hippocampal Network Oscillations In Vitro. <i>Springer Series in Computational Neuroscience</i> , 2018, , 327-364.	0.3	0
86	M-Current Expands the Range of Gamma Frequency Inputs to Which a Neuronal Target Entrain. <i>Journal of Mathematical Neuroscience</i> , 2018, 8, 13.	2.4	10
87	A Simplified Model of Communication Between Time Cells: Accounting for the Linearly Increasing Timing Imprecision. <i>Frontiers in Computational Neuroscience</i> , 2018, 12, 111.	1.2	5
88	Human Brain Oscillations: From Physiological Mechanisms to Analysis and Cognition. , 2019, , 1-46.		4
89	Membrane potential resonance in non-oscillatory neurons interacts with synaptic connectivity to produce network oscillations. <i>Journal of Computational Neuroscience</i> , 2019, 46, 169-195.	0.6	10
90	Phase relations of theta oscillations in a computer model of the hippocampal CA1 field: Key role of Schaffer collaterals. <i>Neural Networks</i> , 2019, 116, 119-138.	3.3	14
91	Chaotic dynamics as a mechanism of rapid transition of hippocampal local field activity between theta and non-theta states. <i>Chaos</i> , 2019, 29, 113115.	1.0	5

#	ARTICLE	IF	CITATIONS
92	Cortical Responses to Input From Distant Areas are Modulated by Local Spontaneous Alpha/Beta Oscillations. <i>Cerebral Cortex</i> , 2019, 29, 777-787.	1.6	14
93	Integration of Within-Cell Experimental Data With Multi-Compartmental Modeling Predicts H-Channel Densities and Distributions in Hippocampal OLM Cells. <i>Frontiers in Cellular Neuroscience</i> , 2020, 14, 277.	1.8	10
94	The Unexplored Territory of Neural Models: Potential Guides for Exploring the Function of Metabotropic Neuromodulation. <i>Neuroscience</i> , 2021, 456, 143-158.	1.1	7
95	Differential contributions of synaptic and intrinsic inhibitory currents to speech segmentation via flexible phase-locking in neural oscillators. <i>PLoS Computational Biology</i> , 2021, 17, e1008783.	1.5	10
96	Interneuron-specific gamma synchronization indexes cue uncertainty and prediction errors in lateral prefrontal and anterior cingulate cortex. <i>ELife</i> , 2021, 10, .	2.8	13
97	Linking minimal and detailed models of <scp>CA1</scp> microcircuits reveals how theta rhythms emerge and their frequencies controlled. <i>Hippocampus</i> , 2021, 31, 982-1002.	0.9	5
98	Gamma and Theta Rhythms in Biophysical Models of Hippocampal Circuits. , 2010, , 423-457.		61
99	Neuronal Activity Patterns During Hippocampal Network Oscillations In Vitro. , 2010, , 247-276.		5
100	Hippocampal Theta, Gamma, and Theta/Gamma Network Models. , 2013, , 1-16.		2
101	Hippocampal Theta, Gamma, and Theta/Gamma Network Models. , 2018, , 1-14.		2
102	Hippocampus, Model Inhibitory Cells. , 2018, , 1-11.		5
103	Computational Models of Modulation of Oscillatory Dynamics. , 2014, , 1-8.		1
104	Human Brain Oscillations: From Physiological Mechanisms to Analysis and Cognition. , 2019, , 471-517.		9
111	Hippocampal CA1 Ripples as Inhibitory Transients. <i>PLoS Computational Biology</i> , 2016, 12, e1004880.	1.5	47
112	Cannabinoids disrupt memory encoding by functionally isolating hippocampal CA1 from CA3. <i>PLoS Computational Biology</i> , 2017, 13, e1005624.	1.5	8
113	Neural mass modeling of slow-fast dynamics of seizure initiation and abortion. <i>PLoS Computational Biology</i> , 2020, 16, e1008430.	1.5	15
114	The Mechanism of Abrupt Transition between Theta and Hyper-Excitable Spiking Activity in Medial Entorhinal Cortex Layer II Stellate Cells. <i>PLoS ONE</i> , 2010, 5, e13697.	1.1	24
115	Somatic versus Dendritic Resonance: Differential Filtering of Inputs through Non-Uniform Distributions of Active Conductances. <i>PLoS ONE</i> , 2013, 8, e78908.	1.1	18

#	ARTICLE	IF	CITATIONS
116	Combining Theory, Model, and Experiment to Explain How Intrinsic Theta Rhythms Are Generated in an <i>In Vitro</i> Whole Hippocampus Preparation without Oscillatory Inputs. <i>ENeuro</i> , 2017, 4, ENEURO.0131-17.2017.	0.9	25
117	Are Different Rhythms Good for Different Functions?. <i>Frontiers in Human Neuroscience</i> , 2010, 4, 187.	1.0	119
118	Computational models of O-LM cells are recruited by low or high theta frequency inputs depending on h-channel distributions. <i>ELife</i> , 2017, 6, .	2.8	34
119	Different theta frameworks coexist in the rat hippocampus and are coordinated during memory-guided and novelty tasks. <i>ELife</i> , 2020, 9, .	2.8	47
120	Comprehensive characterization of oscillatory signatures in a model circuit with PV- and SOM-expressing interneurons. <i>Biological Cybernetics</i> , 2021, 115, 487-517.	0.6	8
121	Synchronization in Hybrid Neuronal Networks. , 2008, , 281-287.		1
122	Hippocampus, Model Inhibitory Cells. , 2013, , 1-12.		0
123	Human Brain Oscillations: From Physiological Mechanisms to Analysis and Cognition. , 2014, , 359-403.		14
124	Hippocampal Theta, Gamma, and Theta/Gamma Network Models. , 2015, , 1340-1352.		3
125	Hippocampus, Model Inhibitory Cells. , 2015, , 1365-1374.		0
126	Computational Models of Modulation of Oscillatory Dynamics. , 2015, , 751-757.		0
127	Chemical Synapses. <i>Texts in Applied Mathematics</i> , 2017, , 153-164.	0.4	0
130	Theta Rhythm in Hippocampus and Cognition. , 2020, , 45-70.		0
132	Frequency-Domain Analysis of Membrane Polarization in Two- Compartment Model Neurons with Weak Alternating Electric Fields. <i>SSRN Electronic Journal</i> , 0, , .	0.4	0
133	Post inhibitory rebound spike related to nearly vertical nullcline for small homoclinic and saddle-node bifurcations. <i>Electronic Research Archive</i> , 2022, 30, 459-480.	0.4	4
134	Synaptic Role in Facilitating Synchronous Theta Oscillations in a Hybrid Hippocampal Neuronal Network. <i>Frontiers in Computational Neuroscience</i> , 2022, 16, 791189.	1.2	2
135	Instantaneous Communication Between Cerebellum, Hypothalamus, and Hippocampus (Câ€™Hâ€™H) During Decision-Making Process in Human Brain-III. <i>Lecture Notes in Networks and Systems</i> , 2022, , 93-110.	0.5	2
136	A review of computational models for gamma oscillation dynamics: from spiking neurons to neural masses. <i>Nonlinear Dynamics</i> , 2022, 108, 1849-1866.	2.7	12

#	ARTICLE	IF	CITATIONS
140	Hippocampal Theta, Gamma, and Theta/Gamma Network Models. , 2022, , 1575-1588.		0
141	Computational Models of Modulation of Oscillatory Dynamics. , 2022, , 905-911.		0
142	Hippocampus, Model Inhibitory Cells. , 2022, , 1602-1612.		0
144	Recurring Cholinergic Inputs Induce Local Hippocampal Plasticity through Feedforward Disinhibition. ENeuro, 0, , ENEURO.0389-21.2022.	0.9	1
145	Nonlinear mechanism for enhanced and reduced bursting activity respectively induced by fast and slow excitatory autapse. Chaos, Solitons and Fractals, 2023, 166, 112904.	2.5	5
146	Theta-gamma phase amplitude coupling in a hippocampal CA1 microcircuit. PLoS Computational Biology, 2023, 19, e1010942.	1.5	4