

Fred Rieke

List of Publications by Year in descending order

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97
papers

7,358
citations

50273

46
h-index

64791

79
g-index

148
all docs

148
docs citations

148
times ranked

4646
citing authors

#	ARTICLE	IF	CITATIONS
1	Stimulation of functional neuronal regeneration from Müller glia in adult mice. <i>Nature</i> , 2017, 548, 103-107.	27.8	423
2	Essential role of Ca ²⁺ -binding protein 4, a Cav1.4 channel regulator, in photoreceptor synaptic function. <i>Nature Neuroscience</i> , 2004, 7, 1079-1087.	14.8	272
3	Nonlinear Signal Transfer from Mouse Rods to Bipolar Cells and Implications for Visual Sensitivity. <i>Neuron</i> , 2002, 34, 773-785.	8.1	269
4	Temporal Contrast Adaptation in the Input and Output Signals of Salamander Retinal Ganglion Cells. <i>Journal of Neuroscience</i> , 2001, 21, 287-299.	3.6	236
5	Visual Space Is Represented by Nonmatching Topographies of Distinct Mouse Retinal Ganglion Cell Types. <i>Current Biology</i> , 2014, 24, 310-315.	3.9	216
6	Reliability and information transmission in spiking neurons. <i>Trends in Neurosciences</i> , 1992, 15, 428-434.	8.6	211
7	The Challenges Natural Images Pose for Visual Adaptation. <i>Neuron</i> , 2009, 64, 605-616.	8.1	207
8	The spatial structure of a nonlinear receptive field. <i>Nature Neuroscience</i> , 2012, 15, 1572-1580.	14.8	198
9	Timescales of Inference in Visual Adaptation. <i>Neuron</i> , 2009, 61, 750-761.	8.1	176
10	RETINAL PROCESSING NEAR ABSOLUTE THRESHOLD: From Behavior to Mechanism. <i>Annual Review of Physiology</i> , 2005, 67, 491-514.	13.1	171
11	Network Variability Limits Stimulus-Evoked Spike Timing Precision in Retinal Ganglion Cells. <i>Neuron</i> , 2006, 52, 511-524.	8.1	167
12	Controlling the Gain of Rod-Mediated Signals in the Mammalian Retina. <i>Journal of Neuroscience</i> , 2006, 26, 3959-3970.	3.6	165
13	Light adaptation in cone vision involves switching between receptor and post-receptor sites. <i>Nature</i> , 2007, 449, 603-606.	27.8	156
14	Temporal Contrast Adaptation in Salamander Bipolar Cells. <i>Journal of Neuroscience</i> , 2001, 21, 9445-9454.	3.6	148
15	Selective Transmission of Single Photon Responses by Saturation at the Rod-to-Rod Bipolar Synapse. <i>Neuron</i> , 2004, 41, 431-443.	8.1	144
16	Role of Photoreceptor-specific Retinol Dehydrogenase in the Retinoid Cycle in Vivo. <i>Journal of Biological Chemistry</i> , 2005, 280, 18822-18832.	3.4	139
17	Recovery of Visual Functions in a Mouse Model of Leber Congenital Amaurosis. <i>Journal of Biological Chemistry</i> , 2002, 277, 19173-19182.	3.4	138
18	Cellular and Circuit Mechanisms Shaping the Perceptual Properties of the Primate Fovea. <i>Cell</i> , 2017, 168, 413-426.e12.	28.9	138

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19	Origin and Functional Impact of Dark Noise in Retinal Cones. <i>Neuron</i> , 2000, 26, 181-186.	8.1	127
20	Pharmacological and rAAV Gene Therapy Rescue of Visual Functions in a Blind Mouse Model of Leber Congenital Amaurosis. <i>PLoS Medicine</i> , 2005, 2, e333.	8.4	120
21	Mechanisms Regulating Variability of the Single Photon Responses of Mammalian Rod Photoreceptors. <i>Neuron</i> , 2002, 35, 733-747.	8.1	119
22	Slow Na ⁺ Inactivation and Variance Adaptation in Salamander Retinal Ganglion Cells. <i>Journal of Neuroscience</i> , 2003, 23, 1506-1516.	3.6	117
23	Multiple Phosphorylation Sites Confer Reproducibility of the Rod's Single-Photon Responses. <i>Science</i> , 2006, 313, 530-533.	12.6	117
24	Noise correlations improve response fidelity and stimulus encoding. <i>Nature</i> , 2010, 468, 964-967.	27.8	117
25	Direction-Selective Circuits Shape Noise to Ensure a Precise Population Code. <i>Neuron</i> , 2016, 89, 369-383.	8.1	116
26	The Synaptic and Circuit Mechanisms Underlying a Change in Spatial Encoding in the Retina. <i>Neuron</i> , 2014, 82, 460-473.	8.1	112
27	Origin of correlated activity between parasol retinal ganglion cells. <i>Nature Neuroscience</i> , 2008, 11, 1343-1351.	14.8	109
28	Light Stimulates a Transducin-Independent Increase of Cytoplasmic Ca ²⁺ and Suppression of Current in Cones from the Zebrafish Mutant <i>noct</i> . <i>Journal of Neuroscience</i> , 2003, 23, 470-480.	3.6	101
29	Recoverin Improves Rod-Mediated Vision by Enhancing Signal Transmission in the Mouse Retina. <i>Neuron</i> , 2005, 46, 413-420.	8.1	101
30	GCAP1 rescues rod photoreceptor response in GCAP1/GCAP2 knockout mice. <i>EMBO Journal</i> , 2002, 21, 1545-1554.	7.8	97
31	Cone photoreceptor contributions to noise and correlations in the retinal output. <i>Nature Neuroscience</i> , 2011, 14, 1309-1316.	14.8	86
32	Nonlinear Spatiotemporal Integration by Electrical and Chemical Synapses in the Retina. <i>Neuron</i> , 2016, 90, 320-332.	8.1	86
33	Synaptic Rectification Controls Nonlinear Spatial Integration of Natural Visual Inputs. <i>Neuron</i> , 2016, 90, 1257-1271.	8.1	85
34	Signals and noise in an inhibitory interneuron diverge to control activity in nearby retinal ganglion cells. <i>Nature Neuroscience</i> , 2008, 11, 318-326.	14.8	82
35	Efficient stimulation of retinal regeneration from Müller glia in adult mice using combinations of proneural bHLH transcription factors. <i>Cell Reports</i> , 2021, 37, 109857.	6.4	79
36	Origin and effect of phototransduction noise in primate cone photoreceptors. <i>Nature Neuroscience</i> , 2013, 16, 1692-1700.	14.8	77

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37	Nonlinear dendritic integration of electrical and chemical synaptic inputs drives fine-scale correlations. <i>Nature Neuroscience</i> , 2014, 17, 1759-1766.	14.8	75
38	STAT Signaling Modifies Ascl1 Chromatin Binding and Limits Neural Regeneration from Muller Glia in Adult Mouse Retina. <i>Cell Reports</i> , 2020, 30, 2195-2208.e5.	6.4	73
39	Bandpass Filtering at the Rod to Second-Order Cell Synapse in Salamander (<i>Ambystoma tigrinum</i>) Retina. <i>Journal of Neuroscience</i> , 2003, 23, 3796-3806.	3.6	69
40	The impact of photoreceptor noise on retinal gain controls. <i>Current Opinion in Neurobiology</i> , 2006, 16, 363-370.	4.2	68
41	Synchronized firing in the retina. <i>Current Opinion in Neurobiology</i> , 2008, 18, 396-402.	4.2	68
42	Single-Photon Absorptions Evoke Synaptic Depression in the Retina to Extend the Operational Range of Rod Vision. <i>Neuron</i> , 2008, 57, 894-904.	8.1	68
43	Remote switching of cellular activity and cell signaling using light in conjunction with quantum dots. <i>Biomedical Optics Express</i> , 2012, 3, 447.	2.9	68
44	Glutamatergic Monopolar Interneurons Provide a Novel Pathway of Excitation in the Mouse Retina. <i>Current Biology</i> , 2016, 26, 2070-2077.	3.9	66
45	Nonlinear spatial encoding by retinal ganglion cells: when $1 + 1 \neq 2$. <i>Journal of General Physiology</i> , 2011, 138, 283-290.	1.9	59
46	Bits and brains: Information flow in the nervous system. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1993, 200, 581-593.	2.6	54
47	Receptive field center-surround interactions mediate context-dependent spatial contrast encoding in the retina. <i>ELife</i> , 2018, 7, .	6.0	52
48	Interplay of Cell-Autonomous and Nonautonomous Mechanisms Tailors Synaptic Connectivity of Converging Axons In Vivo. <i>Neuron</i> , 2014, 82, 125-137.	8.1	48
49	Stimulus- and goal-oriented frameworks for understanding natural vision. <i>Nature Neuroscience</i> , 2019, 22, 15-24.	14.8	46
50	Coincidence Detection of Single-Photon Responses in the Inner Retina at the Sensitivity Limit of Vision. <i>Current Biology</i> , 2014, 24, 2888-2898.	3.9	45
51	Broad Thorny Ganglion Cells: A Candidate for Visual Pursuit Error Signaling in the Primate Retina. <i>Journal of Neuroscience</i> , 2015, 35, 5397-5408.	3.6	44
52	Parallel Processing of Rod and Cone Signals: Retinal Function and Human Perception. <i>Annual Review of Vision Science</i> , 2018, 4, 123-141.	4.4	44
53	How Do Efficient Coding Strategies Depend on Origins of Noise in Neural Circuits?. <i>PLoS Computational Biology</i> , 2016, 12, e1005150.	3.2	43
54	Scotopic Visual Signaling in the Mouse Retina Is Modulated by High-Affinity Plasma Membrane Calcium Extrusion. <i>Journal of Neuroscience</i> , 2006, 26, 7201-7211.	3.6	41

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55	Voltage-Gated Na Channels in All Amacrine Cells Accelerate Scotopic Light Responses Mediated by the Rod Bipolar Cell Pathway. <i>Journal of Neuroscience</i> , 2010, 30, 4650-4659.	3.6	40
56	Regulation of Spatial Selectivity by Crossover Inhibition. <i>Journal of Neuroscience</i> , 2013, 33, 6310-6320.	3.6	39
57	Range, routing and kinetics of rod signaling in primate retina. <i>ELife</i> , 2018, 7, .	6.0	37
58	S-cone photoreceptors in the primate retina are functionally distinct from L and M cones. <i>ELife</i> , 2019, 8, .	6.0	37
59	Electrical Synaptic Input to Ganglion Cells Underlies Differences in the Output and Absolute Sensitivity of Parallel Retinal Circuits. <i>Journal of Neuroscience</i> , 2011, 31, 12218-12228.	3.6	36
60	Characterization of Ca ²⁺ -Binding Protein 5 Knockout Mouse Retina. , 2008, 49, 5126.		35
61	C-terminal threonines and serines play distinct roles in the desensitization of rhodopsin, a G protein-coupled receptor. <i>ELife</i> , 2015, 4, .	6.0	35
62	Complex inhibitory microcircuitry regulates retinal signaling near visual threshold. <i>Journal of Neurophysiology</i> , 2015, 114, 341-353.	1.8	34
63	Neurotransmission plays contrasting roles in the maturation of inhibitory synapses on axons and dendrites of retinal bipolar cells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, 12840-12845.	7.1	34
64	Experimental Protocols Alter Phototransduction: The Implications for Retinal Processing at Visual Threshold. <i>Journal of Neuroscience</i> , 2011, 31, 3670-3682.	3.6	32
65	Arrestin Competition Influences the Kinetics and Variability of the Single-Photon Responses of Mammalian Rod Photoreceptors. <i>Journal of Neuroscience</i> , 2009, 29, 11867-11879.	3.6	31
66	Cross-synaptic synchrony and transmission of signal and noise across the mouse retina. <i>ELife</i> , 2014, 3, e03892.	6.0	29
67	Flexible Neural Hardware Supports Dynamic Computations in Retina. <i>Trends in Neurosciences</i> , 2018, 41, 224-237.	8.6	28
68	Coordinated control of sensitivity by two splice variants of G β o in retinal ON bipolar cells. <i>Journal of General Physiology</i> , 2010, 136, 443-454.	1.9	27
69	Distinctive receptive field and physiological properties of a wide-field amacrine cell in the macaque monkey retina. <i>Journal of Neurophysiology</i> , 2015, 114, 1606-1616.	1.8	25
70	LRRTM4: A Novel Regulator of Presynaptic Inhibition and Ribbon Synapse Arrangements of Retinal Bipolar Cells. <i>Neuron</i> , 2020, 105, 1007-1017.e5.	8.1	25
71	Dynamic assembly of ribbon synapses and circuit maintenance in a vertebrate sensory system. <i>Nature Communications</i> , 2019, 10, 2167.	12.8	24
72	Inferring synaptic inputs from spikes with a conductance-based neural encoding model. <i>ELife</i> , 2019, 8, .	6.0	23

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73	When do microcircuits produce beyond-pairwise correlations?. <i>Frontiers in Computational Neuroscience</i> , 2014, 8, 10.	2.1	22
74	Predicting how and when hidden neurons skew measured synaptic interactions. <i>PLoS Computational Biology</i> , 2018, 14, e1006490.	3.2	22
75	Simulation of visual perception and learning with a retinal prosthesis. <i>Journal of Neural Engineering</i> , 2019, 16, 025003.	3.5	22
76	Predictive encoding of motion begins in the primate retina. <i>Nature Neuroscience</i> , 2021, 24, 1280-1291.	14.8	22
77	Light Adaptation in Salamander L-Cone Photoreceptors. <i>Journal of Neuroscience</i> , 2008, 28, 1331-1342.	3.6	21
78	A simple retinal mechanism contributes to perceptual interactions between rod- and cone-mediated responses in primates. <i>ELife</i> , 2015, 4, .	6.0	20
79	GABA release selectively regulates synapse development at distinct inputs on direction-selective retinal ganglion cells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, E12083-E12090.	7.1	19
80	Development of ON and OFF cholinergic amacrine cells in the human fetal retina. <i>Journal of Comparative Neurology</i> , 2019, 527, 174-186.	1.6	19
81	Temporal resolution of single-photon responses in primate rod photoreceptors and limits imposed by cellular noise. <i>Journal of Neurophysiology</i> , 2019, 121, 255-268.	1.8	18
82	[12] Mechanisms of single-photon detection in Rod photoreceptors. <i>Methods in Enzymology</i> , 2000, 316, 186-202.	1.0	15
83	Controlling gain one photon at a time. <i>ELife</i> , 2013, 2, e00467.	6.0	15
84	Conserved circuits for direction selectivity in the primate retina. <i>Current Biology</i> , 2022, 32, 2529-2538.e4.	3.9	14
85	Lack of CaBP1/Caldendrin or CaBP2 Leads to Altered Ganglion Cell Responses. <i>ENeuro</i> , 2016, 3, ENEURO.0099-16.2016.	1.9	13
86	A High-Density Narrow-Field Inhibitory Retinal Interneuron with Direct Coupling to Müller Glia. <i>Journal of Neuroscience</i> , 2021, 41, 6018-6037.	3.6	11
87	Predicting and Manipulating Cone Responses to Naturalistic Inputs. <i>Journal of Neuroscience</i> , 2022, 42, 1254-1274.	3.6	10
88	A computational observer model of spatial contrast sensitivity: Effects of photocurrent encoding, fixational eye movements, and inference engine. <i>Journal of Vision</i> , 2020, 20, 17.	0.3	9
89	Dendro-somatic synaptic inputs to ganglion cells contradict receptive field and connectivity conventions in the mammalian retina. <i>Current Biology</i> , 2022, 32, 315-328.e4.	3.9	8
90	Adaptation in cone photoreceptors contributes to an unexpected insensitivity of primate On parasol retinal ganglion cells to spatial structure in natural images. <i>ELife</i> , 2022, 11, .	6.0	8

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91	Transient expression of a GABA receptor subunit during early development is critical for inhibitory synapse maturation and function. <i>Current Biology</i> , 2021, 31, 4314-4326.e5.	3.9	5
92	Seeing With a Few Photons: Bridging Cellular and Circuit Mechanisms With Perception. , 2020, , 293-308.		3
93	Nonlinear convergence boosts information coding in circuits with parallel outputs. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	7.1	2
94	Computational observer modeling of the limits of human pattern resolution. <i>Journal of Vision</i> , 2019, 19, 46.	0.3	2
95	Remote switching of cellular activity using light through quantum dots. , 2010, , .		0
96	Identification of Multiple Noise Sources Improves Estimation of Neural Responses across Stimulus Conditions. <i>ENeuro</i> , 2021, 8, ENEURO.0191-21.2021.	1.9	0
97	Invited Session IV: Top-down vs. bottom-up approaches to computational modeling of vision: Retinal encoding of natural images. <i>Journal of Vision</i> , 2022, 22, 54.	0.3	0