David Attwell

List of Publications by Year
in descending order

131 papers	29,806 citations	10986 71 h-index	12946 131 g-index
170 all docs	170 docs citations	170 times ranked	26190 citing authors

#	Article	IF	Citations
1	An Energy Budget for Signaling in the Grey Matter of the Brain. Journal of Cerebral Blood Flow and Metabolism, 2001, 21, 1133-1145.	4.3	2,708
2	Glial and neuronal control of brain blood flow. Nature, 2010, 468, 232-243.	27.8	2,003
3	Capillary pericytes regulate cerebral blood flow in health and disease. Nature, 2014, 508, 55-60.	27.8	1,466
4	Synaptic Energy Use and Supply. Neuron, 2012, 75, 762-777.	8.1	1,209
5	Glutamate release in severe brain ischaemia is mainly by reversed uptake. Nature, 2000, 403, 316-321.	27.8	991
6	Bidirectional control of CNS capillary diameter by pericytes. Nature, 2006, 443, 700-704.	27.8	953
7	The emerging spectrum of COVID-19 neurology: clinical, radiological and laboratory findings. Brain, 2020, 143, 3104-3120.	7.6	880
8	Nonvesicular release of neurotransmitter. Neuron, 1993, 11, 401-407.	8.1	873
9	The neural basis of functional brain imaging signals. Trends in Neurosciences, 2002, 25, 621-625.	8.6	793
10	Oligodendrocyte Dynamics in the Healthy Adult CNS: Evidence for Myelin Remodeling. Neuron, 2013, 77, 873-885.	8.1	721
11	Astrocyte calcium signaling: the third wave. Nature Neuroscience, 2016, 19, 182-189.	14.8	718
12	Non-vesicular release of glutamate from glial cells by reversed electrogenic glutamate uptake. Nature, 1990, 348, 443-446.	27.8	695
13	NMDA receptors are expressed in oligodendrocytes and activated in ischaemia. Nature, 2005, 438, 1162-1166.	27.8	666
14	Triggering and execution of neuronal death in brain ischaemia: two phases of glutamate release by different mechanisms. Trends in Neurosciences, 1994, 17, 359-365.	8.6	590
15	Do astrocytes really exocytose neurotransmitters?. Nature Reviews Neuroscience, 2010, 11, 227-238.	10.2	577
16	Updated Energy Budgets for Neural Computation in the Neocortex and Cerebellum. Journal of Cerebral Blood Flow and Metabolism, 2012, 32, 1222-1232.	4.3	542
17	What is a pericyte?. Journal of Cerebral Blood Flow and Metabolism, 2016, 36, 451-455.	4.3	481
18	Amyloid Î² oligomers constrict human capillaries in Alzheimerâ€™s disease via signaling to pericytes. Science, 2019, 365, .	12.6	436

#	Article	IF	Citations
19	Potentiation of NMDA receptor currents by arachidonic acid. Nature, 1992, 355, 722-725.	27.8	435
20	Astrocytes mediate neurovascular signaling to capillary pericytes but not to arterioles. Nature Neuroscience, 2016, 19, 1619-1627.	14.8	435
21	Stoichiometry of the Glial Glutamate Transporter GLT-1 Expressed Inducibly in a Chinese Hamster Ovary Cell Line Selected for Low Endogenous Na⁺-Dependent Glutamate Uptake. Journal of Neuroscience, 1998, 18, 9620-9628.	3.6	427
22	Pericyte-mediated regulation of capillary diameter: a component of neurovascular coupling in health and disease. Frontiers in Neuroenergetics, 2010, 2, .	5.3	404
23	Electrogenic glutamate uptake is a major current carrier in the membrane of axolotl retinal glial cells. Nature, 1987, 327, 707-709.	27.8	398
24	The Energetics of CNS White Matter. Journal of Neuroscience, 2012, 32, 356-371.	3.6	387
25	Arachidonic acid induces a prolonged inhibition of glutamate uptake into glial cells. Nature, 1989, 342, 918-920.	27.8	383
26	The glial cell glutamate uptake carrier countertransports pH-changing anions. Nature, 1992, 360, 471-474.	27.8	372
27	Oxidative Phosphorylation, Not Glycolysis, Powers Presynaptic and Postsynaptic Mechanisms Underlying Brain Information Processing. Journal of Neuroscience, 2012, 32, 8940-8951.	3.6	353
28	Tonic and Spillover Inhibition of Granule Cells Control Information Flow through Cerebellar Cortex. Neuron, 2002, 33, 625-633.	8.1	333
29	Electrogenic glutamate uptake in glial cells is activated by intracellular potassium. Nature, 1988, 335, 433-435.	27.8	329
30	Microglial Ramification, Surveillance, and Interleukin-1Î² Release Are Regulated by the Two-Pore Domain K+ Channel THIK-1. Neuron, 2018, 97, 299-312.e6.	8.1	323
31	Spiking and nonspiking classes of oligodendrocyte precursor glia in CNS white matter. Nature Neuroscience, 2008, 11, 450-456.	14.8	303
32	Neuregulin and BDNF Induce a Switch to NMDA Receptor-Dependent Myelination by Oligodendrocytes. PLoS Biology, 2013, 11, e1001743.	5.6	264
33	Tuning of Ranvier node and internode properties in myelinated axons to adjust action potential timing. Nature Communications, 2015, 6, 8073.	12.8	228
34	Node of Ranvier length as a potential regulator of myelinated axon conduction speed. ELife, 2017, 6, .	6.0	226
35	Multiple modes of GABAergic inhibition of rat cerebellar granule cells. Journal of Physiology, 2003, 548, 97-110.	2.9	221
36	Endfeet of retinal glial cells have higher densities of ion channels that mediate K+ buffering. Nature, 1986, 324, 466-468.	27.8	190

#	Article	IF	Citations
37	Nonâ€signalling energy use in the brain. Journal of Physiology, 2015, 593, 3417-3429.	2.9	170
38	Glutamate uptake from the synaptic cleft does not shape the decay of the non-NMDA component of the synaptic current. Neuron, 1993, 11, 541-549.	8.1	167
39	Fast Removal of Synaptic Glutamate by Postsynaptic Transporters. Neuron, 2000, 28, 547-558.	8.1	165
40	Targeting pericytes for therapeutic approaches to neurological disorders. Acta Neuropathologica, 2018, 136, 507-523.	7.7	165
41	Neuroenergetics and the kinetic design of excitatory synapses. Nature Reviews Neuroscience, 2005, 6, 841-849.	10.2	156
42	Cerebral blood flow decrease as an early pathological mechanism in Alzheimer's disease. Acta Neuropathologica, 2020, 140, 793-810.	7.7	154
43	Dorsally and Ventrally Derived Oligodendrocytes Have Similar Electrical Properties but Myelinate Preferred Tracts. Journal of Neuroscience, 2011, 31, 6809-6819.	3.6	151
44	Modulation of non-vesicular glutamate release by pH. Nature, 1996, 379, 171-174.	27.8	147
45	Modulation of ASIC channels in rat cerebellar purkinje neurons by ischaemiaâ€related signals. Journal of Physiology, 2002, 543, 521-529.	2.9	147
46	Tonic release of glutamate by a DIDS-sensitive mechanism in rat hippocampal slices. Journal of Physiology, 2005, 564, 397-410.	2.9	143
47	Proton-gated Ca2+-permeable TRP channels damage myelin in conditions mimicking ischaemia. Nature, 2016, 529, 523-527.	27.8	142
48	Tonic excitation and inhibition of neurons: ambient transmitter sources and computational consequences. Progress in Biophysics and Molecular Biology, 2005, 87, 3-16.	2.9	141
49	GABA_CReceptor Sensitivity Is Modulated by Interaction with MAP1B. Journal of Neuroscience, 2000, 20, 8643-8650.	3.6	140
50	Regulation of developing myelin sheath elongation by oligodendrocyte calcium transients in vivo. Nature Neuroscience, 2018, 21, 24-28.	14.8	138
51	The node of Ranvier in CNS pathology. Acta Neuropathologica, 2014, 128, 161-175.	7.7	134
52	The physiology of developmental changes in BOLD functional imaging signals. Developmental Cognitive Neuroscience, 2011, 1, 199-216.	4.0	132
53	Signal clipping by the rod output synapse. Nature, 1987, 328, 522-524.	27.8	125
54	Modulation of extracellular glutamate concentration in rat brain slices by cystine-glutamate exchange. Journal of Physiology, 1999, 514, 783-793.	2.9	123

#	Article	IF	Citations
55	Role of glial amino acid transporters in synaptic transmission and brain energetics. Glia, 2004, 47, 217-225.	4.9	119
56	Anion Conductance Behavior of the Glutamate Uptake Carrier in Salamander Retinal Glial Cells. Journal of Neuroscience, 1996, 16, 6722-6731.	3.6	111
57	Signalling through AMPA receptors on oligodendrocyte precursors promotes myelination by enhancing oligodendrocyte survival. ELife, 2017, 6, .	6.0	111
58	Sequential Release of GABA by Exocytosis and Reversed Uptake Leads to Neuronal Swelling in Simulated Ischemia of Hippocampal Slices. Journal of Neuroscience, 2004, 24, 3837-3849.	3.6	109
59	The Energy Use Associated with Neural Computation in the Cerebellum. Journal of Cerebral Blood Flow and Metabolism, 2010, 30, 403-414.	4.3	107
60	The properties of single cones isolated from the tiger salamander retina. Journal of Physiology, 1982, 328, 259-283.	2.9	106
61	A presynaptic action of glutamate at the cone output synapse. Nature, 1988, 332, 451-453.	27.8	106
62	Capillary pericytes mediate coronary no-reflow after myocardial ischaemia. ELife, 2017, 6, .	6.0	106
63	Endocannabinoid signaling depends on the spatial pattern of synapse activation. Nature Neuroscience, 2005, 8, 776-781.	14.8	103
64	Imaging pericytes and capillary diameter in brain slices and isolated retinae. Nature Protocols, 2014, 9, 323-336.	12.0	98
65	Control of brain energy supply by astrocytes. Current Opinion in Neurobiology, 2017, 47, 80-85.	4.2	97
66	A Preferential Role for Glycolysis in Preventing the Anoxic Depolarization of Rat Hippocampal Area CA1 Pyramidal Cells. Journal of Neuroscience, 2005, 25, 848-859.	3.6	95
67	Modulation by zinc of the glutamate transporters in glial cells and cones isolated from the tiger salamander retina. Journal of Physiology, 1998, 506, 363-376.	2.9	83
68	The ionic stoichiometry of the GLAST glutamate transporter in salamander retinal glia. Journal of Physiology, 2006, 577, 591-599.	2.9	83
69	Endogenous GABA controls oligodendrocyte lineage cell number, myelination, and CNS internode length. Glia, 2017, 65, 309-321.	4.9	83
70	A role for pericytes in coronary no-reflow. Nature Reviews Cardiology, 2014, 11, 427-432.	13.7	81
71	Morphological and electrical properties of oligodendrocytes in the white matter of the corpus callosum and cerebellum. Journal of Physiology, 2011, 589, 559-573.	2.9	80
72	Receptors, Ion Channels, and Signaling Mechanisms Underlying Microglial Dynamics. Journal of Biological Chemistry, 2015, 290, 12443-12450.	3.4	77

#	Article	IF	Citations
73	Testing NMDA receptor block as a therapeutic strategy for reducing ischaemic damage to CNS white matter. Glia, 2008, 56, 233-240.	4.9	76
74	Reversal or reduction of glutamate and GABA transport in CNS pathology and therapy. Pflugers Archiv European Journal of Physiology, 2004, 449, 132-142.	2.8	75
75	The Role of Glial Glutamate Transporters in Maintaining the Independent Operation of Juvenile Mouse Cerebellar Parallel Fibre Synapses. Journal of Physiology, 2003, 552, 89-107.	2.9	72
76	Ion Channels and Receptors as Determinants of Microglial Function. Trends in Neurosciences, 2019, 42, 278-292.	8.6	69
77	Control of intracellular chloride concentration and GABA response polarity in rat retinal ON bipolar cells. Journal of Physiology, 2002, 545, 183-198.	2.9	64
78	Glia and neurons in dialogue. Nature, 1994, 369, 707-708.	27.8	60
79	The receptor subunits generating NMDA receptor mediated currents in oligodendrocytes. Journal of Physiology, 2010, 588, 3403-3414.	2.9	60
80	Energy-Efficient Information Transfer by Visual Pathway Synapses. Current Biology, 2015, 25, 3151-3160.	3.9	60
81	Non-synaptic Release of ATP by Electrical Stimulation in Slices of Rat Hippocampus, Cerebellum and Habenula. European Journal of Neuroscience, 1996, 8, 1510-1515.	2.6	52
82	Chapter 4 Physiological and pathological operation of glutamate transporters. Progress in Brain Research, 1998, 116, 45-57.	1.4	51
83	Brain Uptake of Glutamate: Food for Thought. Journal of Nutrition, 2000, 130, 1023S-1025S.	2.9	51
84	Knocking out the glial glutamate transporter GLTâ€1 reduces glutamate uptake but does not affect hippocampal glutamate dynamics in early simulated ischaemia. European Journal of Neuroscience, 2002, 15, 308-314.	2.6	50
85	Combining patch-clamping of cells in brain slices with immunocytochemical labeling to define cell type and developmental stage. Nature Protocols, 2006, 1, 1977-1986.	12.0	50
86	Astrocyte Ca ²⁺ -evoked ATP release regulates myelinated axon excitability and conduction speed. Science, 2021, 374, eabh2858.	12.6	50
87	The Amino Terminus of the Glial Glutamate Transporter GLT-1 Interacts with the LIM Protein Ajuba. Molecular and Cellular Neurosciences, 2002, 19, 152-164.	2.2	49
88	Feeding the brain. Nature, 2004, 431, 137-138.	27.8	47
89	THE SHARPEY-SCHAFER LECTURE ION CHANNELS AND SIGNAL PROCESSING IN THE OUTER RETINA. Quarterly Journal of Experimental Physiology (Cambridge, England), 1986, 71, 496-536.	1.0	46
90	Effects of the ecto-ATPase apyrase on microglial ramification and surveillance reflect cell depolarization, not ATP depletion. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E1608-E1617.	7.1	46

#	Article	IF	Citations
91	The Ca2+-gated channel TMEM16A amplifies capillary pericyte contraction and reduces cerebral blood flow after ischemia. Journal of Clinical Investigation, 2022, 132, .	8.2	46
92	The electrical response of cerebellar Purkinje neurons to simulated ischaemia. Brain, 2005, 128, 2408-2420.	7.6	44
93	P2Y₁₃ receptors regulate microglial morphology, surveillance, and resting levels of interleukin 1Î² release. Glia, 2020, 68, 328-344.	4.9	44
94	Short- and long-term depression of rat cerebellar parallel fibre synaptic transmission mediated by synaptic crosstalk. Journal of Physiology, 2007, 578, 545-550.	2.9	43
95	The effect of N-acetyl-aspartyl-glutamate and N-acetyl-aspartate on white matter oligodendrocytes. Brain, 2009, 132, 1496-1508.	7.6	43
96	Glutamate Does Not Play a Major Role in Controlling Bone Growth. Journal of Bone and Mineral Research, 2001, 16, 742-749.	2.8	42
97	G proteinâ€coupled receptor 37â€like 1 modulates astrocyte glutamate transporters and neuronal NMDA receptors and is neuroprotective in ischemia. Glia, 2018, 66, 47-61.	4.9	41
98	Assessing the physiological concentration and targets of nitric oxide in brain tissue. Journal of Physiology, 2008, 586, 3597-3615.	2.9	40
99	Non-signalling energy use in the developing rat brain. Journal of Cerebral Blood Flow and Metabolism, 2017, 37, 951-966.	4.3	37
100	C-terminal interactions modulate the affinity of GLAST glutamate transporters in salamander retinal glial cells. Journal of Physiology, 1999, 520, 393-397.	2.9	33
101	Release of l-aspartate by reversal of glutamate transporters. Neuropharmacology, 2005, 49, 843-849.	4.1	30
102	NMDA Receptors: Power Switches for Oligodendrocytes. Neuron, 2016, 91, 3-5.	8.1	30
103	A chemokineâ€“glutamate connection. Nature Neuroscience, 2001, 4, 676-678.	14.8	28
104	Amines, Astrocytes, and Arousal. Neuron, 2017, 94, 228-231.	8.1	28
105	Why do oligodendrocyte lineage cells express glutamate receptors?. F1000 Biology Reports, 2010, 2, 57.	4.0	28
106	The role of pericytes in brain disorders: from the periphery to the brain. Journal of Neurochemistry, 2019, 150, 648-665.	3.9	26
107	Charge compensation for NADPH oxidase activity in microglia in rat brain slices does not involve a proton current. European Journal of Neuroscience, 2008, 28, 1146-1156.	2.6	25
108	The cortical energy needed for conscious perception. NeuroImage, 2008, 40, 1460-1468.	4.2	24

#	Article	IF	Citations
109	Energy-efficient information transfer at thalamocortical synapses. PLoS Computational Biology, 2019, 15, e1007226.	3.2	22
110	Inducible expression of the GLT-1 glutamate transporter in a CHO cell line selected for low endogenous glutamate uptake. FEBS Letters, 1998, 422, 339-342.	2.8	21
111	Monitoring phagocytic uptake of amyloid Î² into glial cell lysosomes in real time. Chemical Science, 2021, 12, 10901-10918.	7.4	19
112	Effect of Acute Exposure to Ammonia on Glutamate Transport in Glial Cells Isolated From the Salamander Retina. Journal of Neurophysiology, 2001, 86, 836-844.	1.8	17
113	An astrocyte TRP switch for inhibition. Nature Neuroscience, 2012, 15, 3-4.	14.8	16
114	Synapse development is regulated by microglial THIK-1 K ⁺ channels. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	14
115	Diverse mechanisms regulating brain energy supply at the capillary level. Current Opinion in Neurobiology, 2021, 69, 41-50.	4.2	13
116	Brainâ€™s immune cells put the brakes on neurons. Nature, 2020, 586, 366-367.	27.8	13
117	Glutaric Acid Affects Pericyte Contractility and Migration: Possible Implications for GA-I Pathogenesis. Molecular Neurobiology, 2019, 56, 7694-7707.	4.0	12
118	OUP accepted manuscript. Brain, 2020, 143, e101.	7.6	12
119	Immuneâ€“vascular mural cell interactions: consequences for immune cell trafficking, cerebral blood flow, and the bloodâ€“brain barrier. Neurophotonics, 2022, 9, 031914.	3.3	12
120	The Effect of Hyperoxemia on Neurological Outcomes of Adult Patients: A Systematic Review and Meta-Analysis. Neurocritical Care, 2022, 36, 1027-1043.	2.4	10
121	Hyperoxia evokes pericyte-mediated capillary constriction. Journal of Cerebral Blood Flow and Metabolism, 2022, 42, 2032-2047.	4.3	10
122	Pericyte-mediated constriction of renal capillaries evokes no-reflow and kidney injury following ischaemia. ELife, 2022, 11, .	6.0	9
123	Vision: Phototransduction changes focus. Nature, 1985, 317, 14-15.	27.8	8
124	Neural Energy Consumption and the Representation of Mental Events. , 2005, , 111-124.		7
125	Optimising the energetic cost of the glutamatergic synapse. Neuropharmacology, 2021, 197, 108727.	4.1	7
126	Neuronal energy use and brain evolution. Current Biology, 2022, 32, R650-R655.	3.9	7

#	Article	IF	Citations
127	Analysis of Signaling Mechanisms Regulating Microglial Process Movement. Methods in Molecular Biology, 2019, 2034, 191-205.	0.9	5
128	Brain power. Nature, 2008, 456, 715-716.	27.8	4
129	The non-adrenergic imidazoline-1 receptor protein nischarin is a key regulator of astrocyte glutamate uptake. IScience, 2022, 25, 104127.	4.1	3
130	The Curious Incident of the [Silent] Dog in the Night-Time. Journal of Bone and Mineral Research, 2001, 16, 1731-1732.	2.8	2
131	Coupling cellular metabolism to neuronal signalling. Journal of Physiology, 2015, 593, 3413-3415.	2.9	2