

Gerald A Diemel

List of Publications by Year in descending order

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91
papers

6,749
citations

81900

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64796

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96
all docs

96
docs citations

96
times ranked

6237
citing authors

#	ARTICLE	IF	CITATIONS
1	Sugar for the brain: the role of glucose in physiological and pathological brain function. Trends in Neurosciences, 2013, 36, 587-597.	8.6	1,082
2	Energy Metabolism in Astrocytes: High Rate of Oxidative Metabolism and Spatiotemporal Dependence on Glycolysis/Glycogenolysis. Journal of Cerebral Blood Flow and Metabolism, 2007, 27, 219-249.	4.3	516
3	Brain Glucose Metabolism: Integration of Energetics with Function. Physiological Reviews, 2019, 99, 949-1045.	28.8	442
4	Brain Lactate Metabolism: The Discoveries and the Controversies. Journal of Cerebral Blood Flow and Metabolism, 2012, 32, 1107-1138.	4.3	396
5	Glucose and lactate metabolism during brain activation. Journal of Neuroscience Research, 2001, 66, 824-838.	2.9	282
6	Cerebral Oxygen/Glucose Ratio is Low during Sensory Stimulation and Rises above Normal during Recovery: Excess Glucose Consumption during Stimulation is Not Accounted for by Lactate Efflux from or Accumulation in Brain Tissue. Journal of Cerebral Blood Flow and Metabolism, 1999, 19, 393-400.	4.3	163
7	High Glycogen Levels in Brains of Rats with Minimal Environmental Stimuli: Implications for Metabolic Contributions of Working Astrocytes. Journal of Cerebral Blood Flow and Metabolism, 2002, 22, 1476-1489.	4.3	158
8	Nutrition during brain activation: does cell-to-cell lactate shuttling contribute significantly to sweet and sour food for thought?. Neurochemistry International, 2004, 45, 321-351.	3.8	153
9	Lactate transport and transporters: General principles and functional roles in brain cells. Journal of Neuroscience Research, 2005, 79, 11-18.	2.9	138
10	Astrocytes are poised for lactate trafficking and release from activated brain and for supply of glucose to neurons. Journal of Neurochemistry, 2009, 111, 522-536.	3.9	138
11	Astrocytic contributions to bioenergetics of cerebral ischemia. Glia, 2005, 50, 362-388.	4.9	134
12	Fueling and Imaging Brain Activation. ASN Neuro, 2012, 4, AN20120021.	2.7	134
13	Lack of appropriate stoichiometry: Strong evidence against an energetically important astrocyte-neuron lactate shuttle in brain. Journal of Neuroscience Research, 2017, 95, 2103-2125.	2.9	131
14	Energy metabolism in the brain. International Review of Neurobiology, 2002, 51, 1-IN4.	2.0	122
15	Aerobic glycolysis during brain activation: adrenergic regulation and influence of norepinephrine on astrocytic metabolism. Journal of Neurochemistry, 2016, 138, 14-52.	3.9	118
16	A glycogen phosphorylase inhibitor selectively enhances local rates of glucose utilization in brain during sensory stimulation of conscious rats: implications for glycogen turnover. Journal of Neurochemistry, 2007, 102, 466-478.	3.9	111
17	Generalized Sensory Stimulation of Conscious Rats Increases Labeling of Oxidative Pathways of Glucose Metabolism When the Brain Glucose-Oxygen Uptake Ratio Rises. Journal of Cerebral Blood Flow and Metabolism, 2002, 22, 1490-1502.	4.3	106
18	Astrocytic energetics during excitatory neurotransmission: What are contributions of glutamate oxidation and glycolysis?. Neurochemistry International, 2013, 63, 244-258.	3.8	96

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19	Contributions of glycogen to astrocytic energetics during brain activation. <i>Metabolic Brain Disease</i> , 2015, 30, 281-298.	2.9	90
20	Hyperglycaemia and Diabetes Impair Gap Junctional Communication among Astrocytes. <i>ASN Neuro</i> , 2010, 2, AN20090048.	2.7	88
21	Neighborly interactions of metabolically-activated astrocytes in vivo. <i>Neurochemistry International</i> , 2003, 43, 339-354.	3.8	84
22	Activation of astrocytes in brain of conscious rats during acoustic stimulation: acetate utilization in working brain. <i>Journal of Neurochemistry</i> , 2005, 92, 934-947.	3.9	84
23	Rapid Efflux of Lactate from Cerebral Cortex during K ⁺ -Induced Spreading Cortical Depression. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 1999, 19, 380-392.	4.3	83
24	Energy Metabolism of the Brain. , 2012, , 200-231.		79
25	Trafficking of Glucose, Lactate, and Amyloid- β^2 from the Inferior Colliculus through Perivascular Routes. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2010, 30, 162-176.	4.3	78
26	Astrocyte activation in working brain: Energy supplied by minor substrates. <i>Neurochemistry International</i> , 2006, 48, 586-595.	3.8	77
27	The metabolic trinity, glucose- \leftrightarrow glycogen- \leftrightarrow lactate, links astrocytes and neurons in brain energetics, signaling, memory, and gene expression. <i>Neuroscience Letters</i> , 2017, 637, 18-25.	2.1	74
28	Direct Measurement of the λ of the Lumped Constant of the Deoxyglucose Method in Rat Brain: Determination of λ and Lumped Constant from Tissue Glucose Concentration or Equilibrium Brain/Plasma Distribution Ratio for Methylglucose. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 1991, 11, 25-34.	4.3	72
29	Rapid manifestation of reactive astrogliosis in acute hippocampal brain slices. <i>Glia</i> , 2014, 62, 78-95.	4.9	71
30	Lactate Shuttling and Lactate use as Fuel after Traumatic Brain Injury: Metabolic Considerations. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2014, 34, 1736-1748.	4.3	66
31	Functional imaging of focal brain activation in conscious rats: Impact of [14C]glucose metabolite spreading and release. <i>Journal of Neuroscience Research</i> , 2007, 85, 3254-3266.	2.9	64
32	High Glycogen Levels in Brains of Rats With Minimal Environmental Stimuli: Implications for Metabolic Contributions of Working Astrocytes. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2002, , 1476-1489.	4.3	60
33	Labeling of Metabolic Pools by [¹⁴ C]Glucose during K ⁺ -Induced Stimulation of Glucose Utilization in Rat Brain. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 1995, 15, 97-110.	4.3	57
34	Modeling the Dependence of Hexose Distribution Volumes in Brain on Plasma Glucose Concentration: Implications for Estimation of the Local 2-Deoxyglucose Lumped Constant. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 1991, 11, 171-182.	4.3	49
35	Fluxes of lactate into, from, and among gap junction-coupled astrocytes and their interaction with noradrenaline. <i>Frontiers in Neuroscience</i> , 2014, 8, 261.	2.8	49
36	Local uptake of 14C-labeled acetate and butyrate in rat brain in vivo during spreading cortical depression. <i>Journal of Neuroscience Research</i> , 2001, 66, 812-820.	2.9	47

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37	Distribution of mitochondrial enzymes between the perikaryal and synaptic fractions of immature and adult rat brain. <i>Biochimica Et Biophysica Acta - General Subjects</i> , 1977, 496, 484-494.	2.4	46
38	Astrocytic connexin distributions and rapid, extensive dye transfer via gap junctions in the inferior colliculus: Implications for [14C]glucose metabolite trafficking. <i>Journal of Neuroscience Research</i> , 2007, 85, 3267-3283.	2.9	45
39	A dogma-breaking concept: glutamate oxidation in astrocytes is the source of lactate during aerobic glycolysis in resting subjects. <i>Journal of Neurochemistry</i> , 2014, 131, 395-398.	3.9	45
40	Selective astrocytic gap junctional trafficking of molecules involved in the glycolytic pathway: impact on cellular brain imaging. <i>Journal of Neurochemistry</i> , 2009, 110, 857-869.	3.9	44
41	Does shuttling of glycogen-derived lactate from astrocytes to neurons take place during neurotransmission and memory consolidation?. <i>Journal of Neuroscience Research</i> , 2019, 97, 863-882.	2.9	42
42	Imaging Brain Activation. <i>Annals of the New York Academy of Sciences</i> , 2008, 1147, 139-170.	3.8	40
43	Direct Chemical Measurement of the k_1 of the Lumped Constant of the [14C]Deoxyglucose Method in Rat Brain: Effects of Arterial Plasma Glucose Level on the Distribution Spaces of [14C]Deoxyglucose and Glucose and on k_1 . <i>Journal of Cerebral Blood Flow and Metabolism</i> , 1989, 9, 304-314.	4.3	36
44	Deoxyglucose-6-Phosphate Stability In Vivo and the Deoxyglucose Method: Response to Comments of Hawkins and Miller. <i>Journal of Neurochemistry</i> , 1987, 49, 1949-1960.	3.9	35
45	Exchange-mediated dilution of brain lactate specific activity: implications for the origin of glutamate dilution and the contributions of glutamine dilution and other pathways. <i>Journal of Neurochemistry</i> , 2009, 109, 30-37.	3.9	35
46	Generalized Sensory Stimulation of Conscious Rats Increases Labeling of Oxidative Pathways of Glucose Metabolism When the Brain Glucose/Oxygen Uptake Ratio Rises. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2002, , 1490-1502.	4.3	35
47	Metabolic Stability of 3-O-Methyl-d-Glucose in Brain and Other Tissues. <i>Journal of Neurochemistry</i> , 1990, 55, 989-1000.	3.9	34
48	Reduced gap junctional communication among astrocytes in experimental diabetes: Contributions of altered connexin protein levels and oxidative/nitrosative modifications. <i>Journal of Neuroscience Research</i> , 2011, 89, 2052-2067.	2.9	34
49	Acid Lability of Metabolites of 2-Deoxyglucose in Rat Brain: Implications for Estimates of Kinetic Parameters of Deoxyglucose Phosphorylation and Transport Between Blood and Brain. <i>Journal of Neurochemistry</i> , 1990, 54, 1440-1448.	3.9	33
50	The unfolded protein response to endoplasmic reticulum stress in cultured astrocytes and rat brain during experimental diabetes. <i>Neurochemistry International</i> , 2013, 62, 784-795.	3.8	33
51	Synthesis of Deoxyglucose-1-Phosphate, Deoxyglucose-1,6-Bisphosphate, and Other Metabolites of 2-Deoxy-D-[14C]Glucose in Rat Brain In Vivo: Influence of Time and Tissue Glucose Level. <i>Journal of Neurochemistry</i> , 1993, 60, 2217-2231.	3.9	31
52	Metabolites of 2-Deoxy-[14C]Glucose in Plasma and Brain: Influence on Rate of Glucose Utilization Determined with Deoxyglucose Method in Rat Brain. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 1993, 13, 315-327.	4.3	29
53	Astrocyte activation <i>in vivo</i> during graded photic stimulation. <i>Journal of Neurochemistry</i> , 2007, 103, 1506-1522.	3.9	28
54	Reevaluation of Astrocyte-Neuron Energy Metabolism with Astrocyte Volume Fraction Correction: Impact on Cellular Glucose Oxidation Rates, Glutamate-Glutamine Cycle Energetics, Glycogen Levels and Utilization Rates vs. Exercising Muscle, and Na ⁺ /K ⁺ Pumping Rates. <i>Neurochemical Research</i> , 2020, 45, 2607-2630.	3.3	28

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55	Astrocytic Gap Junctional Communication is Reduced in Amyloid- β^2 -Treated Cultured Astrocytes, but not in Alzheimer's Disease Transgenic Mice. <i>ASN Neuro</i> , 2010, 2, AN20100017.	2.7	25
56	Glucose sparing by glycogenolysis (GSG) determines the relationship between brain metabolism and neurotransmission. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2022, 42, 844-860.	4.3	24
57	Influence of Glucose Supply and Demand on Determination of Brain Glucose Content with Labeled Methylglucose. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 1996, 16, 439-449.	4.3	22
58	Glycogenolysis in Cerebral Cortex During Sensory Stimulation, Acute Hypoglycemia, and Exercise: Impact on Astrocytic Energetics, Aerobic Glycolysis, and Astrocyte-Neuron Interactions. <i>Advances in Neurobiology</i> , 2019, 23, 209-267.	1.8	22
59	Major Advances in Brain Glycogen Research: Understanding of the Roles of Glycogen Have Evolved from Emergency Fuel Reserve to Dynamic, Regulated Participant in Diverse Brain Functions. <i>Advances in Neurobiology</i> , 2019, 23, 1-16.	1.8	20
60	Determination of local brain glucose level with [^{14}C]methylglucose: effects of glucose supply and demand. <i>American Journal of Physiology - Endocrinology and Metabolism</i> , 1997, 273, E839-E849.	3.5	19
61	Regional Reductions of Transketolase in Thiamine-Deficient Rat Brain. <i>Journal of Neurochemistry</i> , 2002, 67, 684-691.	3.9	19
62	Microdialysate concentration changes do not provide sufficient information to evaluate metabolic effects of lactate supplementation in brain-injured patients. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2016, 36, 1844-1864.	4.3	18
63	Chronic Hyperphenylalaninemia Produces Cerebral Hyperglycinemia in Immature Rats. <i>Journal of Neurochemistry</i> , 1981, 36, 34-43.	3.9	15
64	Astrocytes are "Good Scouts": Being Prepared Also Helps Neighboring Neurons. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 2010, 30, 1893-1894.	4.3	15
65	Stop the rot. Enzyme inactivation at brain harvest prevents artifacts. <i>Journal of Neurochemistry</i> , 2021, 158, 1007-1031.	3.9	14
66	Brain Glucose Levels in Portacaval-Shunted Rats with Chronic, Moderate Hyperammonemia: Implications for Determination of Local Cerebral Glucose Utilization. <i>Journal of Cerebral Blood Flow and Metabolism</i> , 1994, 14, 113-124.	4.3	13
67	Cellular Origin of [^{18}F]FDG-PET Imaging Signals During Ceftriaxone-Stimulated Glutamate Uptake: Astrocytes and Neurons. <i>Neuroscientist</i> , 2018, 24, 316-328.	3.5	13
68	Behavioral training increases local astrocytic metabolic activity but does not alter outcome of mild transient ischemia. <i>Brain Research</i> , 2003, 961, 201-212.	2.2	12
69	Trajectories of Brain Lactate and Re-visited Oxygen-Glucose Index Calculations Do Not Support Elevated Non-oxidative Metabolism of Glucose Across Childhood. <i>Frontiers in Neuroscience</i> , 2018, 12, 631.	2.8	12
70	Metabolomic Assays of Postmortem Brain Extracts: Pitfalls in Extrapolation of Concentrations of Glucose and Amino Acids to Metabolic Dysregulation In Vivo in Neurological Diseases. <i>Neurochemical Research</i> , 2019, 44, 2239-2260.	3.3	12
71	Enhanced Acetate and Glucose Utilization during Graded Photic Stimulation: Neuronal-Glial Interactions in Vivo. <i>Annals of the New York Academy of Sciences</i> , 1999, 893, 279-281.	3.8	11
72	Metabolomic and Imaging Mass Spectrometric Assays of Labile Brain Metabolites: Critical Importance of Brain Harvest Procedures. <i>Neurochemical Research</i> , 2020, 45, 2586-2606.	3.3	11

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73	Lactate muscles its way into consciousness: fueling brain activation. American Journal of Physiology - Regulatory Integrative and Comparative Physiology, 2004, 287, R519-R521.	1.8	10
74	The "protected" glucose transport through the astrocytic endoplasmic reticulum is too slow to serve as a quantitatively important highway for nutrient delivery. Journal of Neuroscience Research, 2019, 97, 854-862.	2.9	10
75	Analysis of Time Courses of Metabolic Precursors and Products in Heterogeneous Rat Brain Tissue: Limitations of Kinetic Modeling for Predictions of Intracompartmental Concentrations from Total Tissue Activity. Journal of Cerebral Blood Flow and Metabolism, 1995, 15, 474-484.	4.3	9
76	Regional registration of [¹⁴ C]glucose metabolism during brain activation of β -syn trophin knockout mice. Journal of Neurochemistry, 2013, 125, 247-259.	3.9	9
77	Determination of Glucose Utilization Rates in Cultured Astrocytes and Neurons with [14C]deoxyglucose: Progress, Pitfalls, and Discovery of Intracellular Glucose Compartmentation. Neurochemical Research, 2017, 42, 50-63.	3.3	9
78	Development of a Model to Test Whether Glycogenolysis Can Support Astrocytic Energy Demands of Na ⁺ , K ⁺ -ATPase and Glutamate-Glutamine Cycling, Sparing an Equivalent Amount of Glucose for Neurons. Advances in Neurobiology, 2019, 23, 385-433.	1.8	9
79	Effect of reactive cell density on net [2-14C]acetate uptake into rat brain: labeling of clusters containing GFAP ⁺ and lectin ⁺ immunoreactive cells. Neurochemistry International, 2003, 42, 359-374.	3.8	8
80	Energy Metabolism in the Brain. , 2014, , 53-117.		8
81	Hypothesis: A Novel Neuroprotective Role for Glucose-6-phosphatase (G6PC3) in Brain "To Maintain Energy-Dependent Functions Including Cognitive Processes. Neurochemical Research, 2020, 45, 2529-2552.	3.3	6
82	Brain glycogen content is increased in the acute and interictal chronic stages of the mouse pilocarpine model of epilepsy. Epilepsia Open, 2022, 7, 361-367.	2.4	6
83	Biochemical, Metabolic, and Behavioral Characteristics of Immature Chronic Hyperphenylalanemic Rats. Neurochemical Research, 2016, 41, 16-32.	3.3	4
84	Organ Distribution of ¹³ N Following Intravenous Injection of [13N]Ammonia into Portacaval-Shunted Rats. Neurochemical Research, 2017, 42, 1683-1696.	3.3	4
85	Fluxes of Lactate Into, From, and Among Gap Junction-Coupled Astroglia and Their Interaction With Noradrenaline. , 2017, , 145-166.		3
86	Introduction to the Thematic Minireview Series: Brain glycogen metabolism. Journal of Biological Chemistry, 2018, 293, 7087-7088.	3.4	3
87	Exploring and Mapping the World of Astrocytes. Neurochemical Research, 2012, 37, 2295-2298.	3.3	2
88	Reduced clearance of proteins labeled with diisopropylfluorophosphate in portacaval-shunted rats. Metabolic Brain Disease, 2014, 29, 1041-1052.	2.9	2
89	β -Adrenergics enhance brain extraction of levodopa. Movement Disorders, 2002, 17, 54.	3.9	2
90	Glial biology: functional interactions among glia and neurons. Neurochemistry International, 2004, 45, 189-190.	3.8	1

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91	In memoriam Louis Sokoloff, M.D. 1921â€“2015. Journal of Cerebral Blood Flow and Metabolism, 2016, 36, 278-280.	4.3	1