Matthew G Vander Heiden

List of Publications by Year
in descending order

136 papers	54,717 citations	6613 79 h-index	11052 137 g-index
158 all docs	158 docs citations	158 times ranked	61242 citing authors

#	Article	IF	Citations
1	Understanding the Warburg Effect: The Metabolic Requirements of Cell Proliferation. Science, 2009, 324, 1029-1033.	12.6	12,186
2	Molecular mechanisms of cell death: recommendations of the Nomenclature Committee on Cell Death 2018. Cell Death and Differentiation, 2018, 25, 486-541.	11.2	4,036
3	Cancer-associated IDH1 mutations produce 2-hydroxyglutarate. Nature, 2009, 462, 739-744.	27.8	3,315
4	The M2 splice isoform of pyruvate kinase is important for cancer metabolism and tumour growth. Nature, 2008, 452, 230-233.	27.8	2,423
5	Aerobic Glycolysis: Meeting the Metabolic Requirements of Cell Proliferation. Annual Review of Cell and Developmental Biology, 2011, 27, 441-464.	9.4	2,333
6	Activation of a Metabolic Gene Regulatory Network Downstream of mTOR Complex 1. Molecular Cell, 2010, 39, 171-183.	9.7	1,598
7	Understanding the Intersections between Metabolism and Cancer Biology. Cell, 2017, 168, 657-669.	28.9	1,561
8	Reductive glutamine metabolism by IDH1 mediates lipogenesis under hypoxia. Nature, 2012, 481, 380-384.	27.8	1,470
9	Macropinocytosis of protein is an amino acid supply route in Ras-transformed cells. Nature, 2013, 497, 633-637.	27.8	1,316
10	Targeting cancer metabolism: a therapeutic window opens. Nature Reviews Drug Discovery, 2011, 10, 671-684.	46.4	1,227
11	Inhibition of Pyruvate Kinase M2 by Reactive Oxygen Species Contributes to Cellular Antioxidant Responses. Science, 2011, 334, 1278-1283.	12.6	984
12	Phosphoglycerate dehydrogenase diverts glycolytic flux and contributes to oncogenesis. Nature Genetics, 2011, 43, 869-874.	21.4	945
13	Pyruvate kinase M2 is a phosphotyrosine-binding protein. Nature, 2008, 452, 181-186.	27.8	881
14	Supporting Aspartate Biosynthesis Is an Essential Function of Respiration in Proliferating Cells. Cell, 2015, 162, 552-563.	28.9	878
15	Targeting Metabolism for Cancer Therapy. Cell Chemical Biology, 2017, 24, 1161-1180.	5.2	677
16	Human Pancreatic Cancer Tumors Are Nutrient Poor and Tumor Cells Actively Scavenge Extracellular Protein. Cancer Research, 2015, 75, 544-553.	0.9	673
17	Tyrosine Phosphorylation Inhibits PKM2 to Promote the Warburg Effect and Tumor Growth. Science Signaling, 2009, 2, ra73.	3.6	632
18	Environment Impacts the Metabolic Dependencies of Ras-Driven Non-Small Cell Lung Cancer. Cell Metabolism, 2016, 23, 517-528.	16.2	616

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19	Pyruvate kinase M2 activators promote tetramer formation and suppress tumorigenesis. Nature Chemical Biology, 2012, 8, 839-847.	8.0	614
20	Evidence for an Alternative Glycolytic Pathway in Rapidly Proliferating Cells. Science, 2010, 329, 1492-1499.	12.6	586
21	A roadmap for interpreting 13 C metabolite labeling patterns from cells. Current Opinion in Biotechnology, 2015, 34, 189-201.	6.6	513
22	Elevation of circulating branched-chain amino acids is an early event in human pancreatic adenocarcinoma development. Nature Medicine, 2014, 20, 1193-1198.	30.7	510
23	Cell-programmed nutrient partitioning in the tumour microenvironment. Nature, 2021, 593, 282-288.	27.8	491
24	Amino Acids Rather than Glucose Account for the Majority of Cell Mass in Proliferating Mammalian Cells. Developmental Cell, 2016, 36, 540-549.	7.0	479
25	Tracing Compartmentalized NADPH Metabolism in the Cytosol and Mitochondria of Mammalian Cells. Molecular Cell, 2014, 55, 253-263.	9.7	477
26	Growth Factors Can Influence Cell Growth and Survival through Effects on Glucose Metabolism. Molecular and Cellular Biology, 2001, 21, 5899-5912.	2.3	466
27	Keap1 loss promotes Kras-driven lung cancer and results in dependence on glutaminolysis. Nature Medicine, 2017, 23, 1362-1368.	30.7	462
28	Tissue of origin dictates branched-chain amino acid metabolism in mutant <i>Kras</i> -driven cancers. Science, 2016, 353, 1161-1165.	12.6	447
29	PKM2 Isoform-Specific Deletion Reveals a Differential Requirement for Pyruvate Kinase in Tumor Cells. Cell, 2013, 155, 397-409.	28.9	429
30	A PHGDH inhibitor reveals coordination of serine synthesis and one-carbon unit fate. Nature Chemical Biology, 2016, 12, 452-458.	8.0	389
31	Pyruvate kinase: Function, regulation and role in cancer. Seminars in Cell and Developmental Biology, 2015, 43, 43-51.	5.0	388
32	<scp>PKM</scp> 2, cancer metabolism, and the road ahead. EMBO Reports, 2016, 17, 1721-1730.	4.5	384
33	Heterogeneity of tumor-induced gene expression changes in the human metabolic network. Nature Biotechnology, 2013, 31, 522-529.	17.5	381
34	Circadian Rhythm Disruption Promotes Lung Tumorigenesis. Cell Metabolism, 2016, 24, 324-331.	16.2	366
35	The alternative splicing repressors hnRNP A1/A2 and PTB influence pyruvate kinase isoform expression and cell metabolism. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 1894-1899.	7.1	351
36	Quantification of microenvironmental metabolites in murine cancers reveals determinants of tumor nutrient availability. ELife, 2019, 8, .	6.0	350

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37	Altered metabolite levels in cancer: implications for tumour biology and cancer therapy. Nature Reviews Cancer, 2016, 16, 680-693.	28.4	306
38	SHMT2 drives glioma cell survival in ischaemia but imposes a dependence on glycine clearance. Nature, 2015, 520, 363-367.	27.8	303
39	The importance of serine metabolism in cancer. Journal of Cell Biology, 2016, 214, 249-257.	5.2	299
40	Collagen-derived proline promotes pancreatic ductal adenocarcinoma cell survival under nutrient limited conditions. Nature Communications, 2017, 8, 16031.	12.8	299
41	Cell-State-Specific Metabolic Dependency in Hematopoiesis and Leukemogenesis. Cell, 2014, 158, 1309-1323.	28.9	289
42	Environment Dictates Dependence on Mitochondrial Complex I for NAD+ and Aspartate Production and Determines Cancer Cell Sensitivity to Metformin. Cell Metabolism, 2016, 24, 716-727.	16.2	269
43	Metabolomics in cancer research and emerging applications in clinical oncology. Ca-A Cancer Journal for Clinicians, 2021, 71, 333-358.	329.8	267
44	Direct evidence for cancer-cell-autonomous extracellular protein catabolism in pancreatic tumors. Nature Medicine, 2017, 23, 235-241.	30.7	263
45	Aspartate is an endogenous metabolic limitation for tumour growth. Nature Cell Biology, 2018, 20, 782-788.	10.3	240
46	Environmental cystine drives glutamine anaplerosis and sensitizes cancer cells to glutaminase inhibition. ELife, 2017, 6, .	6.0	237
47	Transaminase Inhibition by 2-Hydroxyglutarate Impairs Glutamate Biosynthesis and Redox Homeostasis in Glioma. Cell, 2018, 175, 101-116.e25.	28.9	234
48	Emerging Roles for Branched-Chain Amino Acid Metabolism in Cancer. Cancer Cell, 2020, 37, 147-156.	16.8	233
49	Increased demand for NAD+ relative to ATP drives aerobic glycolysis. Molecular Cell, 2021, 81, 691-707.e6.	9.7	232
50	Dysregulated metabolism contributes to oncogenesis. Seminars in Cancer Biology, 2015, 35, S129-S150.	9.6	225
51	A metastasis map of human cancer cell lines. Nature, 2020, 588, 331-336.	27.8	214
52	Pyruvate Kinase Isoform Expression Alters Nucleotide Synthesis to Impact Cell Proliferation. Molecular Cell, 2015, 57, 95-107.	9.7	209
53	Increased Serine Synthesis Provides an Advantage for Tumors Arising in Tissues Where Serine Levels Are Limiting. Cell Metabolism, 2019, 29, 1410-1421.e4.	16.2	168
54	Activation of the NRF2 antioxidant program generates an imbalance in central carbon metabolism in cancer. ELife, 2017, 6, .	6.0	167

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55	Famine versus feast: understanding the metabolism of tumors in vivo. Trends in Biochemical Sciences, 2015, 40, 130-140.	7.5	150
56	Small Molecule Activation of PKM2 in Cancer Cells Induces Serine Auxotrophy. Chemistry and Biology, 2012, 19, 1187-1198.	6.0	149
57	Fatty acid synthesis is required for breast cancer brain metastasis. Nature Cancer, 2021, 2, 414-428.	13.2	147
58	Targetable Signaling Pathway Mutations Are Associated with Malignant Phenotype in <i>IDH</i>-Mutant Gliomas. Clinical Cancer Research, 2014, 20, 2898-2909.	7.0	146
59	Limited Environmental Serine and Glycine Confer Brain Metastasis Sensitivity to PHGDH Inhibition. Cancer Discovery, 2020, 10, 1352-1373.	9.4	145
60	Low glycaemic diets alter lipid metabolism to influence tumour growth. Nature, 2021, 599, 302-307.	27.8	142
61	The metabolic landscape of RAS-driven cancers from biology to therapy. Nature Cancer, 2021, 2, 271-283.	13.2	139
62	Cytosolic Aspartate Availability Determines Cell Survival When Glutamine Is Limiting. Cell Metabolism, 2018, 28, 706-720.e6.	16.2	132
63	Serine Synthesis via PHGDH Is Essential for Heme Production in Endothelial Cells. Cell Metabolism, 2018, 28, 573-587.e13.	16.2	127
64	Germline loss of PKM2 promotes metabolic distress and hepatocellular carcinoma. Genes and Development, 2016, 30, 1020-1033.	5.9	122
65	Targeting MTHFD2 in acute myeloid leukemia. Journal of Experimental Medicine, 2016, 213, 1285-1306.	8.5	118
66	Altered exocrine function can drive adipose wasting in early pancreatic cancer. Nature, 2018, 558, 600-604.	27.8	114
67	EGLN1 Inhibition and Rerouting of Î±-Ketoglutarate Suffice for Remote Ischemic Protection. Cell, 2016, 164, 884-895.	28.9	108
68	Biochemical Underpinnings of Immune Cell Metabolic Phenotypes. Immunity, 2017, 46, 703-713.	14.3	107
69	Cellular redox state constrains serine synthesis and nucleotide production to impact cell proliferation. Nature Metabolism, 2019, 1, 861-867.	11.9	107
70	The nutrient environment affects therapy. Science, 2018, 360, 962-963.	12.6	104
71	The redox requirements of proliferating mammalian cells. Journal of Biological Chemistry, 2018, 293, 7490-7498.	3.4	100
72	Metabolic requirements for cancer cell proliferation. Cancer & Metabolism, 2016, 4, 16.	5.0	99

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73	Metabolomic Biomarkers of Prostate Cancer: Prediction, Diagnosis, Progression, Prognosis, and Recurrence. Cancer Epidemiology Biomarkers and Prevention, 2016, 25, 887-906.	2.5	98
74	Netrin G1 Promotes Pancreatic Tumorigenesis through Cancer-Associated Fibroblastâ€"Driven Nutritional Support and Immunosuppression. Cancer Discovery, 2021, 11, 446-479.	9.4	97
75	Microenvironmental regulation of cancer cell metabolism: implications for experimental design and translational studies. DMM Disease Models and Mechanisms, 2018, 11, .	2.4	96
76	A DERL3-associated defect in the degradation of SLC2A1 mediates the Warburg effect. Nature Communications, 2014, 5, 3608.	12.8	94
77	Allosteric Regulation of PKM2 Allows Cellular Adaptation to Different Physiological States. Science Signaling, 2013, 6, pe7.	3.6	93
78	Deoxycytidine Release from Pancreatic Stellate Cells Promotes Gemcitabine Resistance. Cancer Research, 2019, 79, 5723-5733.	0.9	90
79	Identification of DHODH as a therapeutic target in small cell lung cancer. Science Translational Medicine, 2019, 11, .	12.4	89
80	A framework for examining how diet impacts tumour metabolism. Nature Reviews Cancer, 2019, 19, 651-661.	28.4	87
81	Lack of Evidence for PKM2 Protein Kinase Activity. Molecular Cell, 2015, 59, 850-857.	9.7	85
82	Induction of a Timed Metabolic Collapse to Overcome Cancer Chemoresistance. Cell Metabolism, 2020, 32, 391-403.e6.	16.2	79
83	Yap regulates glucose utilization and sustains nucleotide synthesis to enable organ growth. EMBO Journal, 2018, 37, .	7.8	73
84	JAK2/IDH-mutantâ€"driven myeloproliferative neoplasm is sensitive to combined targeted inhibition. Journal of Clinical Investigation, 2018, 128, 789-804.	8.2	66
85	Exploiting tumor metabolism: challenges for clinical translation. Journal of Clinical Investigation, 2013, 123, 3648-3651.	8.2	64
86	Metabolism in the Tumor Microenvironment. Annual Review of Cancer Biology, 2020, 4, 17-40.	4.5	61
87	Dissecting cell-type-specific metabolism in pancreatic ductal adenocarcinoma. ELife, 2020, 9, .	6.0	61
88	Nature and Nurture: What Determines Tumor Metabolic Phenotypes?. Cancer Research, 2017, 77, 3131-3134.	0.9	60
89	Hepcidin sequesters iron to sustain nucleotide metabolism and mitochondrial function in colorectal cancer epithelial cells. Nature Metabolism, 2021, 3, 969-982.	11.9	58
90	Pyruvate Kinase Inhibits Proliferation during Postnatal Cerebellar Neurogenesis and Suppresses Medulloblastoma Formation. Cancer Research, 2017, 77, 3217-3230.	0.9	45

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91	Reactive metabolite production is a targetable liability of glycolytic metabolism in lung cancer. Nature Communications, 2019, 10, 5604.	12.8	45
92	Suppression of pancreatic ductal adenocarcinoma growth and metastasis by fibrillar collagens produced selectively by tumor cells. Nature Communications, 2021, 12, 2328.	12.8	45
93	Keap1 mutation renders lung adenocarcinomas dependent on Slc33a1. Nature Cancer, 2020, 1, 589-602.	13.2	44
94	Determinants of nutrient limitation in cancer. Critical Reviews in Biochemistry and Molecular Biology, 2019, 54, 193-207.	5.2	36
95	An epitope tag alters phosphoglycerate dehydrogenase structure and impairs ability to support cell proliferation. Cancer & Metabolism, 2015, 3, 5.	5.0	34
96	Circulating Metabolites and Survival Among Patients With Pancreatic Cancer. Journal of the National Cancer Institute, 2016, 108, djv409.	6.3	31
97	Cancer cells depend on environmental lipids for proliferation when electron acceptors are limited. Nature Metabolism, 2022, 4, 711-723.	11.9	29
98	PKM2 is not required for colon cancer initiated by APC loss. Cancer & Metabolism, 2017, 5, 10.	5.0	28
99	REV1 inhibitor JH-RE-06 enhances tumor cell response to chemotherapy by triggering senescence hallmarks. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 28918-28921.	7.1	27
100	PKM2 is not required for pancreatic ductal adenocarcinoma. Cancer & Metabolism, 2018, 6, 17.	5.0	26
101	Postdiagnosis Loss of Skeletal Muscle, but Not Adipose Tissue, Is Associated with Shorter Survival of Patients with Advanced Pancreatic Cancer. Cancer Epidemiology Biomarkers and Prevention, 2019, 28, 2062-2069.	2.5	26
102	Methionine synthase is essential for cancer cell proliferation in physiological folate environments. Nature Metabolism, 2021, 3, 1500-1511.	11.9	26
103	Isoform-specific deletion of PKM2 constrains tumor initiation in a mouse model of soft tissue sarcoma. Cancer & Metabolism, 2018, 6, 6.	5.0	24
104	Ketogenic HMGâ€CoA lyase and its product Î²â€hydroxybutyrate promote pancreatic cancer progression. EMBO Journal, 2022, 41, e110466.	7.8	24
105	PKM1 Exerts Critical Roles in Cardiac Remodeling Under Pressure Overload in the Heart. Circulation, 2021, 144, 712-727.	1.6	23
106	Biophysical changes reduce energetic demand in growth factorâ€"deprived lymphocytes. Journal of Cell Biology, 2016, 212, 439-447.	5.2	21
107	MFSD7C switches mitochondrial ATP synthesis to thermogenesis in response to heme. Nature Communications, 2020, 11, 4837.	12.8	21
108	Interactions with stromal cells promote a more oxidized cancer cell redox state in pancreatic tumors. Science Advances, 2022, 8, eabg6383.	10.3	20

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109	Monitoring and modeling of lymphocytic leukemia cell bioenergetics reveals decreased ATP synthesis during cell division. Nature Communications, 2020, 11, 4983.	12.8	19
110	Height, Obesity, and the Risk of <i>TMPRSS2:ERG</i>-Defined Prostate Cancer. Cancer Epidemiology Biomarkers and Prevention, 2018, 27, 193-200.	2.5	18
111	Cancerâ€associatedÂmutations in human pyruvate kinase M2 impair enzyme activity. FEBS Letters, 2020, 594, 646-664.	2.8	15
112	Phenotypic selection with an intrabody library reveals an anti-apoptotic function of PKM2 requiring Mitofusin-1. PLoS Biology, 2019, 17, e2004413.	5.6	14
113	Antibody-Mediated Neutralization of Perfringolysin O for Intracellular Protein Delivery. Molecular Pharmaceutics, 2015, 12, 1992-2000.	4.6	13
114	When cancer needs what's non-essential. Nature Cell Biology, 2017, 19, 418-420.	10.3	13
115	A Metabolomics Analysis of Adiposity and Advanced Prostate Cancer Risk in the Health Professionals Follow-Up Study. Metabolites, 2020, 10, 99.	2.9	12
116	Lack of evidence for substrate channeling or flux between wildtype and mutant isocitrate dehydrogenase to produce the oncometabolite 2-hydroxyglutarate. Journal of Biological Chemistry, 2018, 293, 20051-20061.	3.4	11
117	Deficiency of malate-aspartate shuttle component SLC25A12 induces pulmonary metastasis. Cancer & Metabolism, 2020, 8, 26.	5.0	11
118	Arginase Therapy Combines Effectively with Immune Checkpoint Blockade or Agonist Anti-OX40 Immunotherapy to Control Tumor Growth. Cancer Immunology Research, 2021, 9, 415-429.	3.4	11
119	Pyruvate Kinase M1 Suppresses Development and Progression of Prostate Adenocarcinoma. Cancer Research, 2022, 82, 2403-2416.	0.9	10
120	Regulation of chromatin accessibility by the histone chaperone CAF-1 sustains lineage fidelity. Nature Communications, 2022, 13, 2350.	12.8	8
121	The Impact of PIK3R1 Mutations and Insulinâ€“PI3Kâ€“Glycolytic Pathway Regulation in Prostate Cancer. Clinical Cancer Research, 2022, 28, 3603-3617.	7.0	7
122	Increased PHGDH expression promotes aberrant melanin accumulation. BMC Cancer, 2019, 19, 723.	2.6	6
123	Endothelial Cells Get Î²-ox-ed In to Support Lymphangiogenesis. Developmental Cell, 2017, 40, 118-119.	7.0	4
124	Metabolism and Congenital Malformations â€" NADâ€™s Effects on Development. New England Journal of Medicine, 2017, 377, 509-511.	27.0	4
125	Putting the K+ in K+aloric Restriction. Immunity, 2019, 50, 1129-1131.	14.3	4
126	Differential Substrate Use in EGFâ€•and Oncogenic KRASâ€Stimulated Human Mammary Epithelial Cells. FEBS Journal, 2021, 288, 5629-5649.	4.7	4

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127	Protocols for Studies on TMPRSS2/ERG in Prostate Cancer. Methods in Molecular Biology, 2018, 1786, 131-151.	0.9	3
128	Pancreatic Î² cells put the glutamine engine in reverse. Cell Metabolism, 2021, 33, 702-704.	16.2	3
129	Differential Dependence On Aerobic Glycolysis In Normal and Malignant Hematopoietic Stem and Progenitor Cells To Sustain Daughter Cell Production. Blood, 2013, 122, 793-793.	1.4	3
130	Association of Prediagnostic Blood Metabolomics with Prostate Cancer Defined by ERG or PTEN Molecular Subtypes. Cancer Epidemiology Biomarkers and Prevention, 2021, 30, 1000-1008.	2.5	2
131	Mitochondrial NADPH is a pro at Pro synthesis. Nature Metabolism, 2021, 3, 453-455.	11.9	2
132	Transcriptional activation of macropinocytosis by the Hippo pathway following nutrient limitation. Genes and Development, 2020, 34, 1253-1255.	5.9	2
133	The CAT-SIR is out of the bag: tumors prefer host rather than dietary nutrients. BMC Biology, 2021, 19, 92.	3.8	1
134	Gene Expression Pathways in Prostate Tissue Associated with Vigorous Physical Activity in Prostate Cancer. Cancer Epidemiology Biomarkers and Prevention, 2021, 30, 751-756.	2.5	1
135	Inhibiting GLUTtony in cancer. Cell Chemical Biology, 2022, 29, 353-355.	5.2	1
136	Patient-Derived Xenografts to Study Cancer Metabolism: When Does X Mark the Spot?. Cancer Research, 2021, 81, 4399-4401.	0.9	0