

Andrew D Hanson

List of Publications by Year in descending order

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Version: 2024-02-01

110
papers

7,844
citations

81434

41
h-index

62345

84
g-index

116
all docs

116
docs citations

116
times ranked

10778
citing authors

#	ARTICLE	IF	CITATIONS
1	Using continuous directed evolution to improve enzymes for plant applications. <i>Plant Physiology</i> , 2022, 188, 971-983.	2.3	18
2	Chemical-damage MINE: A database of curated and predicted spontaneous metabolic reactions. <i>Metabolic Engineering</i> , 2022, 69, 302-312.	3.6	5
3	In vivo hypermutation and continuous evolution. <i>Nature Reviews Methods Primers</i> , 2022, 2, .	11.8	39
4	Metabolite Damage and Damage Control in a Minimal Genome. <i>MBio</i> , 2022, 13, .	1.8	10
5	The number of catalytic cycles in an enzyme's lifetime and why it matters to metabolic engineering. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	3.3	41
6	The Thiamin-Requiring 3 Mutation of Arabidopsis 5-Deoxyxylulose-Phosphate Synthase 1 Highlights How the Thiamin Economy Impacts the Methylerythritol 4-Phosphate Pathway. <i>Frontiers in Plant Science</i> , 2021, 12, 721391.	1.7	3
7	Structure and function of aerotolerant, multiple-turnover THI4 thiazole synthases. <i>Biochemical Journal</i> , 2021, 478, 3265-3279.	1.7	6
8	The Moderately (D)efficient Enzyme: Catalysis-Related Damage <i>In Vivo</i> and Its Repair. <i>Biochemistry</i> , 2021, 60, 3555-3565.	1.2	5
9	A Core Metabolome Response of Maize Leaves Subjected to Long-Duration Abiotic Stresses. <i>Metabolites</i> , 2021, 11, 797.	1.3	17
10	Construction and applications of a B vitamin genetic resource for investigation of vitamin-dependent metabolism in maize. <i>Plant Journal</i> , 2020, 101, 442-454.	2.8	9
11	An Enzyme Containing the Conserved Domain of Unknown Function DUF62 Acts as a Stereoselective (<i>R</i>)-S-Adenosylmethionine Hydrolase. <i>ChemBioChem</i> , 2020, 21, 3495-3499.	1.3	2
12	Potential for Applying Continuous Directed Evolution to Plant Enzymes: An Exploratory Study. <i>Life</i> , 2020, 10, 179.	1.1	20
13	Enzymes as Parts in Need of Replacement " and How to Extend Their Working Life. <i>Trends in Plant Science</i> , 2020, 25, 661-669.	4.3	20
14	Thioprolinone formation as a driver of formaldehyde toxicity in <i>Escherichia coli</i> . <i>Biochemical Journal</i> , 2020, 477, 1745-1757.	1.7	10
15	Bioinformatic and experimental evidence for suicidal and catalytic plant THI4s. <i>Biochemical Journal</i> , 2020, 477, 2055-2069.	1.7	24
16	The metabolite repair enzyme Nit1 is a dual-targeted amidase that disposes of damaged glutathione in <i>Arabidopsis</i> . <i>Biochemical Journal</i> , 2019, 476, 683-697.	1.7	13
17	Engineering Strategies to Boost Crop Productivity by Cutting Respiratory Carbon Loss. <i>Plant Cell</i> , 2019, 31, 297-314.	3.1	86
18	Focus Issue Editorial: Synthetic Biology. <i>Plant Physiology</i> , 2019, 179, 772-774.	2.3	4

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19	Rethinking the PDH Bypass and GABA Shunt as Thiamin-Deficiency Workarounds. <i>Plant Physiology</i> , 2019, 181, 389-393.	2.3	16
20	Revolutionizing agriculture with synthetic biology. <i>Nature Plants</i> , 2019, 5, 1207-1210.	4.7	100
21	Parts-Prospecting for a High-Efficiency Thiamin Thiazole Biosynthesis Pathway. <i>Plant Physiology</i> , 2019, 179, 958-968.	2.3	24
22	Carboxythiazole is a key microbial nutrient currency and critical component of thiamin biosynthesis. <i>Scientific Reports</i> , 2018, 8, 5940.	1.6	20
23	Evidence that the metabolite repair enzyme NAD(P)HX epimerase has a moonlighting function. <i>Bioscience Reports</i> , 2018, 38, .	1.1	20
24	Identification of a metabolic disposal route for the oncometabolite S-(2-succino)cysteine in <i>Bacillus subtilis</i> . <i>Journal of Biological Chemistry</i> , 2018, 293, 8255-8263.	1.6	18
25	A plastidial pantoate transporter with a potential role in pantothenate synthesis. <i>Biochemical Journal</i> , 2018, 475, 813-825.	1.7	13
26	Redesigning thiamin synthesis: Prospects and potential payoffs. <i>Plant Science</i> , 2018, 273, 92-99.	1.7	44
27	A Tale of Two Concepts: Harmonizing the Free Radical and Antagonistic Pleiotropy Theories of Aging. <i>Antioxidants and Redox Signaling</i> , 2018, 29, 1003-1017.	2.5	27
28	An unusual diphosphatase from the PhnP family cleaves reactive FAD photoproducts. <i>Biochemical Journal</i> , 2018, 475, 261-272.	1.7	3
29	Newly-discovered enzymes that function in metabolite damage-control. <i>Current Opinion in Chemical Biology</i> , 2018, 47, 101-108.	2.8	30
30	Comparative Genomics $\hat{\tau}$., 2018, , .		2
31	Plant metabolic engineering in the synthetic biology era: plant chassis selection. <i>Plant Cell Reports</i> , 2018, 37, 1357-1358.	2.8	9
32	Synthetic biology meets plant metabolism. <i>Plant Science</i> , 2018, 273, 1-2.	1.7	10
33	Salvage of the 5-deoxyribose byproduct of radical SAM enzymes. <i>Nature Communications</i> , 2018, 9, 3105.	5.8	15
34	The PLUTO plastidial nucleobase transporter also transports the thiamin precursor hydroxymethylpyrimidine. <i>Bioscience Reports</i> , 2018, 38, .	1.1	13
35	Non-enzymatic molecular damage as a prototypic driver of aging. <i>Journal of Biological Chemistry</i> , 2017, 292, 6029-6038.	1.6	57
36	Metabolite damage and repair in metabolic engineering design. <i>Metabolic Engineering</i> , 2017, 44, 150-159.	3.6	43

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37	Discovery of a widespread prokaryotic 5-oxoprolinase that was hiding in plain sight. <i>Journal of Biological Chemistry</i> , 2017, 292, 16360-16367.	1.6	41
38	A strictly monofunctional bacterial hydroxymethylpyrimidine phosphate kinase precludes damaging errors in thiamin biosynthesis. <i>Biochemical Journal</i> , 2017, 474, 2887-2895.	1.7	6
39	Experimental and Metabolic Modeling Evidence for a Folate-Cleaving Side-Activity of Ketopantoate Hydroxymethyltransferase (PanB). <i>Frontiers in Microbiology</i> , 2016, 7, 431.	1.5	6
40	<i>Arabidopsis thaliana</i> Encodes the Orphan Enzyme Thiamin Monophosphate Phosphatase. <i>Plant Cell</i> , 2016, 28, 2683-2696.	3.1	42
41	A Guardian Angel Phosphatase for Mainline Carbon Metabolism. <i>Trends in Biochemical Sciences</i> , 2016, 41, 893-894.	3.7	7
42	Systematic identification and analysis of frequent gene fusion events in metabolic pathways. <i>BMC Genomics</i> , 2016, 17, 473.	1.2	13
43	Nothing of chemistry disappears in biology™: the Top 30 damage-prone endogenous metabolites. <i>Biochemical Society Transactions</i> , 2016, 44, 961-971.	1.6	76
44	Does Abiotic Stress Cause Functional B Vitamin Deficiency in Plants?. <i>Plant Physiology</i> , 2016, 172, 2082-2097.	2.3	65
45	A family of metal-dependent phosphatases implicated in metabolite damage-control. <i>Nature Chemical Biology</i> , 2016, 12, 621-627.	3.9	48
46	Bacterial and plant HAD enzymes catalyse a missing phosphatase step in thiamin diphosphate biosynthesis. <i>Biochemical Journal</i> , 2016, 473, 157-166.	1.7	22
47	Metabolite Damage and Metabolite Damage Control in Plants. <i>Annual Review of Plant Biology</i> , 2016, 67, 131-152.	8.6	43
48	Evidence that COG0325 proteins are involved in PLP homeostasis. <i>Microbiology (United Kingdom)</i> , 2016, 162, 694-706.	0.7	47
49	Genomic and experimental evidence for multiple metabolic functions in the RidA/YjgF/YER057c/LUK114 (Rid) protein family. <i>BMC Genomics</i> , 2015, 16, 382.	1.2	70
50	Proteins of unknown biochemical function - A persistent problem and a roadmap to help overcome it. <i>Plant Physiology</i> , 2015, 169, pp.00959.2015.	2.3	60
51	Functional Diversity of Haloacid Dehalogenase Superfamily Phosphatases from <i>Saccharomyces cerevisiae</i> . <i>Journal of Biological Chemistry</i> , 2015, 290, 18678-18698.	1.6	70
52	A directed-overflow and damage-control N-glycosidase in riboflavin biosynthesis. <i>Biochemical Journal</i> , 2015, 466, 137-145.	1.7	38
53	Remobilization of Phytol from Chlorophyll Degradation Is Essential for Tocopherol Synthesis and Growth of <i>Arabidopsis</i> . <i>Plant Cell</i> , 2015, 27, tpc.15.00395.	3.1	122
54	MINEs: open access databases of computationally predicted enzyme promiscuity products for untargeted metabolomics. <i>Journal of Cheminformatics</i> , 2015, 7, 44.	2.8	172

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55	Evidence that glutamine transaminase and omega-amidase potentially act in tandem to close the methionine salvage cycle in bacteria and plants. <i>Phytochemistry</i> , 2015, 113, 160-169.	1.4	27
56	Divisions of labor in the thiamin biosynthetic pathway among organs of maize. <i>Frontiers in Plant Science</i> , 2014, 5, 370.	1.7	21
57	Salvage of the thiamin pyrimidine moiety by plant TenA proteins lacking an active-site cysteine. <i>Biochemical Journal</i> , 2014, 463, 145-155.	1.7	22
58	<i>Arabidopsis</i> and Maize RidA Proteins Preempt Reactive Enamine/Imine Damage to Branched-Chain Amino Acid Biosynthesis in Plastids. <i>Plant Cell</i> , 2014, 26, 3010-3022.	3.1	55
59	Plants Utilize a Highly Conserved System for Repair of NADH and NADPH Hydrates. <i>Plant Physiology</i> , 2014, 165, 52-61.	2.3	46
60	Plant-driven repurposing of the ancient <i>S</i> -adenosylmethionine repair enzyme homocysteine <i>S</i> -methyltransferase. <i>Biochemical Journal</i> , 2014, 463, 279-286.	1.7	13
61	High-throughput comparison, functional annotation, and metabolic modeling of plant genomes using the PlantSEED resource. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 9645-9650.	3.3	69
62	Identification of the thiamin salvage enzyme thiazole kinase in <i>Arabidopsis</i> and maize. <i>Phytochemistry</i> , 2013, 94, 68-73.	1.4	24
63	Comparative genomics approaches to understanding and manipulating plant metabolism. <i>Current Opinion in Biotechnology</i> , 2013, 24, 278-284.	3.3	24
64	Metabolite damage and its repair or pre-emption. <i>Nature Chemical Biology</i> , 2013, 9, 72-80.	3.9	248
65	A cross-kingdom Nudix enzyme that pre-empts damage in thiamin metabolism. <i>Biochemical Journal</i> , 2013, 454, 533-542.	1.7	31
66	Identification of Mitochondrial Coenzyme A Transporters from Maize and <i>Arabidopsis</i> . <i>Plant Physiology</i> , 2013, 162, 581-588.	2.3	31
67	Mitochondrial and plastidial COG0354 proteins have folate-dependent functions in iron-sulphur cluster metabolism. <i>Journal of Experimental Botany</i> , 2012, 63, 403-411.	2.4	30
68	Frontiers in metabolic reconstruction and modeling of plant genomes. <i>Journal of Experimental Botany</i> , 2012, 63, 2247-2258.	2.4	79
69	Identification and Characterization of the Missing Pyrimidine Reductase in the Plant Riboflavin Biosynthesis Pathway. <i>Plant Physiology</i> , 2012, 161, 48-56.	2.3	20
70	Plant B Vitamin Pathways and their Compartmentation: a Guide for the Perplexed. <i>Journal of Experimental Botany</i> , 2012, 63, 5379-5395.	2.4	78
71	Comparative genomics and functional analysis of the NiaP family uncover nicotinate transporters from bacteria, plants, and mammals. <i>Functional and Integrative Genomics</i> , 2012, 12, 25-34.	1.4	25
72	Identification of mitochondrial thiamin diphosphate carriers from <i>Arabidopsis</i> and maize. <i>Functional and Integrative Genomics</i> , 2012, 12, 317-326.	1.4	37

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73	Synergistic use of plant-prokaryote comparative genomics for functional annotations. BMC Genomics, 2011, 12, S2.	1.2	43
74	Folate Biosynthesis, Turnover, and Transport in Plants. Annual Review of Plant Biology, 2011, 62, 105-125.	8.6	228
75	A 5-formyltetrahydrofolate cycloligase paralog from all domains of life: comparative genomic and experimental evidence for a cryptic role in thiamin metabolism. Functional and Integrative Genomics, 2011, 11, 467-478.	1.4	21
76	Functional analysis of folate polyglutamylation and its essential role in plant metabolism and development. Plant Journal, 2010, 64, 267-279.	2.8	67
77	A central role for gamma-glutamyl hydrolases in plant folate homeostasis. Plant Journal, 2010, 64, 256-266.	2.8	48
78	Moonlighting Glutamate Formiminotransferases Can Functionally Replace 5-Formyltetrahydrofolate Cycloligase*. Journal of Biological Chemistry, 2010, 285, 41557-41566.	1.6	25
79	Identification of Transport-critical Residues in a Folate Transporter from the Folate-Biopterin Transporter (FBT) Family. Journal of Biological Chemistry, 2010, 285, 2867-2875.	1.6	22
80	A role for tetrahydrofolates in the metabolism of iron-sulfur clusters in all domains of life. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 10412-10417.	3.3	81
81	Nonflowering Plants Possess a Unique Folate-Dependent Phenylalanine Hydroxylase That Is Localized in Chloroplasts. Plant Cell, 2010, 22, 3410-3422.	3.1	37
82	“Unknown” proteins and “orphan” enzymes: the missing half of the engineering parts list “ and how to find it. Biochemical Journal, 2010, 425, 1-11.	1.7	183
83	A Novel Class of Modular Transporters for Vitamins in Prokaryotes. Journal of Bacteriology, 2009, 191, 42-51.	1.0	280
84	Characterization of the folate salvage enzyme p-aminobenzoylglutamate hydrolase in plants. Phytochemistry, 2008, 69, 29-37.	1.4	12
85	Folate biofortification in food plants. Trends in Plant Science, 2008, 13, 28-35.	4.3	112
86	Phylogenomic and Functional Analysis of Pterin-4a-Carbinolamine Dehydratase Family (COG2154) Proteins in Plants and Microorganisms. Plant Physiology, 2008, 146, 1515-1527.	2.3	33
87	Metabolism of the Folate Precursor p-Aminobenzoate in Plants. Journal of Biological Chemistry, 2008, 283, 15451-15459.	1.6	40
88	Tomato p-Glutamylhydrolases: Expression, Characterization, and Evidence for Heterodimer Formation. Plant Physiology, 2008, 148, 775-785.	2.3	19
89	Pterin and Folate Salvage. Plants and Escherichia coli Lack Capacity to Reduce Oxidized Pterins. Plant Physiology, 2007, 143, 1101-1109.	2.3	24
90	Finding novel metabolic genes through plant-prokaryote phylogenomics. Trends in Microbiology, 2007, 15, 563-570.	3.5	22

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91	Folate salvage in plants: pterin aldehyde reduction is mediated by multiple non-specific aldehyde reductases. <i>Plant Journal</i> , 2007, 51, 378-389.	2.8	24
92	Comparative genomics of bacterial and plant folate synthesis and salvage: predictions and validations. <i>BMC Genomics</i> , 2007, 8, 245.	1.2	133
93	5-Formyltetrahydrofolate Is an Inhibitory but Well Tolerated Metabolite in Arabidopsis Leaves. <i>Journal of Biological Chemistry</i> , 2005, 280, 26137-26142.	1.6	72
94	Plant \hat{I}^3 -Glutamyl Hydrolases and Folate Polyglutamates. <i>Journal of Biological Chemistry</i> , 2005, 280, 28877-28884.	1.6	89
95	Higher Plant Plastids and Cyanobacteria Have Folate Carriers Related to Those of Trypanosomatids. <i>Journal of Biological Chemistry</i> , 2005, 280, 38457-38463.	1.6	83
96	A Nudix Enzyme Removes Pyrophosphate from Dihydroneopterin Triphosphate in the Folate Synthesis Pathway of Bacteria and Plants. <i>Journal of Biological Chemistry</i> , 2005, 280, 5274-5280.	1.6	96
97	The Subsystems Approach to Genome Annotation and its Use in the Project to Annotate 1000 Genomes. <i>Nucleic Acids Research</i> , 2005, 33, 5691-5702.	6.5	1,806
98	Characterization and Metabolic Function of a Peroxisomal Sarcosine and Pipecolate Oxidase from Arabidopsis. <i>Journal of Biological Chemistry</i> , 2004, 279, 16947-16953.	1.6	69
99	Folate biofortification in tomatoes by engineering the pteridine branch of folate synthesis. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2004, 101, 13720-13725.	3.3	195
100	Folate synthesis in plants: the last step of the p-aminobenzoate branch is catalyzed by a plastidial aminodeoxychorismate lyase. <i>Plant Journal</i> , 2004, 40, 453-461.	2.8	86
101	The Folate Precursor p-Aminobenzoate Is Reversibly Converted to Its Glucose Ester in the Plant Cytosol. <i>Journal of Biological Chemistry</i> , 2003, 278, 20731-20737.	1.6	61
102	Cloning and Characterization of Mitochondrial 5-Formyltetrahydrofolate Cycloligase from Higher Plants. <i>Journal of Biological Chemistry</i> , 2002, 277, 42748-42754.	1.6	40
103	Plant Metabolic Engineeringâ€”Entering the S Curve. <i>Metabolic Engineering</i> , 2002, 4, 1-2.	3.6	15
104	ONE-CARBONMETABOLISM INHIGHERPLANTS. <i>Annual Review of Plant Biology</i> , 2001, 52, 119-137.	14.2	388
105	Isolation, Characterization, and Functional Expression of cDNAs Encoding NADH-dependent Methylenetetrahydrofolate Reductase from Higher Plants. <i>Journal of Biological Chemistry</i> , 1999, 274, 36089-36096.	1.6	66
106	Salinity Promotes Accumulation of 3-Dimethylsulfoniopropionate and Its Precursor S-Methylmethionine in Chloroplasts1. <i>Plant Physiology</i> , 1998, 116, 165-171.	2.3	56
107	Drought and salt tolerance: towards understanding and application. <i>Trends in Biotechnology</i> , 1990, 8, 358-362.	4.9	404
108	Evidence for a Ferredoxin-Dependent Choline Monooxygenase from Spinach Chloroplast Stroma. <i>Plant Physiology</i> , 1989, 90, 322-329.	2.3	132

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109	Oxygen-18 and Deuterium Labeling Studies of Choline Oxidation by Spinach and Sugar Beet. <i>Plant Physiology</i> , 1988, 88, 695-702.	2.3	30
110	Determination of glycine betaine by pyrolysis-gas chromatography in cereals and grasses. <i>Phytochemistry</i> , 1980, 19, 2371-2374.	1.4	75