Richard Wolfenden

List of Publications by Year
in descending order

85 papers	8,411 citations	57631 44 h-index	56606 83 g-index
87 all docs	87 docs citations	87 times ranked	6422 citing authors

#	Article	IF	Citations
1	The Depth of Chemical Time and the Power of Enzymes as Catalysts. Accounts of Chemical Research, 2001, 34, 938-945.	7.6	819
2	Analog approaches to the structure of the transition state in enzyme reactions. Accounts of Chemical Research, 1972, 5, 10-18.	7.6	623
3	Comparing the polarities of the amino acids: side-chain distribution coefficients between the vapor phase, cyclohexane, 1-octanol, and neutral aqueous solution. Biochemistry, 1988, 27, 1664-1670.	1.2	583
4	Rates of Uncatalyzed Peptide Bond Hydrolysis in Neutral Solution and the Transition State Affinities of Proteases. Journal of the American Chemical Society, 1996, 118, 6105-6109.	6.6	426
5	Transition State Analogues for Enzyme Catalysis. Nature, 1969, 223, 704-705.	13.7	403
6	Cytidine Deaminase. The 2Â·3 Ã… Crystal Structure of an Enzyme: Transition-state Analog Complex. Journal of Molecular Biology, 1994, 235, 635-656.	2.0	372
7	The ribosome as an entropy trap. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 7897-7901.	3.3	311
8	Catalytic Proficiency: The Unusual Case of OMP Decarboxylase. Annual Review of Biochemistry, 2002, 71, 847-885.	5.0	266
9	The rate of hydrolysis of phosphomonoester dianions and the exceptional catalytic proficiencies of protein and inositol phosphatases. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 5607-5610.	3.3	245
10	Spontaneous Hydrolysis of Glycosides. Journal of the American Chemical Society, 1998, 120, 6814-6815.	6.6	238
11	The time required for water attack at the phosphorus atom of simple phosphodiesters and of DNA. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 4052-4055.	3.3	234
12	Interaction of the peptide bond with solvent water: a vapor phase analysis. Biochemistry, 1978, 17, 201-204.	1.2	193
13	Degrees of Difficulty of Water-Consuming Reactions in the Absence of Enzymes. Chemical Reviews, 2006, 106, 3379-3396.	23.0	181
14	Influences of solvent water on protein folding: free energies of solvation of cis and trans peptides are nearly identical. Biochemistry, 1988, 27, 4538-4541.	1.2	161
15	Aldehydes as Inhibitors of Papain. Journal of Biological Chemistry, 1972, 247, 8195-8197.	1.6	161
16	The Burden Borne by Urease. Journal of the American Chemical Society, 2005, 127, 10828-10829.	6.6	138
17	Spontaneous Hydrolysis of Ionized Phosphate Monoesters and Diesters and the Proficiencies of Phosphatases and Phosphodiesterases as Catalysts. Journal of the American Chemical Society, 1998, 120, 833-834.	6.6	131
18	Benchmark Reaction Rates, the Stability of Biological Molecules in Water, and the Evolution of Catalytic Power in Enzymes. Annual Review of Biochemistry, 2011, 80, 645-667.	5.0	131

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19	The Temperature Dependence of Enzyme Rate Enhancements. Journal of the American Chemical Society, 1999, 121, 7419-7420.	6.6	114
20	Temperature Effects on the Catalytic Efficiency, Rate Enhancement, and Transition State Affinity of Cytidine Deaminase, and the Thermodynamic Consequences for Catalysis of Removing a Substrate â€œAnchorâ€• Biochemistry, 2000, 39, 9746-9753.	1.2	107
21	Experimental Measures of Amino Acid Hydrophobicity and the Topology of Transmembrane and Globular Proteins. Journal of General Physiology, 2007, 129, 357-362.	0.9	101
22	Enzyme catalysis: Conflicting requirements of substrate access and transition state affinity. Molecular and Cellular Biochemistry, 1974, 3, 207-211.	1.4	99
23	The Rate of Spontaneous Decarboxylation of Amino Acids. Journal of the American Chemical Society, 2000, 122, 11507-11508.	6.6	95
24	The Structure of the Cytidine Deaminaseâ^'Product Complex Provides Evidence for Efficient Proton Transfer and Ground-State Destabilizationâ€,â€¡. Biochemistry, 1997, 36, 4768-4774.	1.2	94
25	Catalytic Proficiency: The Extreme Case of Sâ€"O Cleaving Sulfatases. Journal of the American Chemical Society, 2012, 134, 525-531.	6.6	92
26	Testing the limits of protein-ligand binding discrimination with transition-state analogue inhibitors. Accounts of Chemical Research, 1991, 24, 209-215.	7.6	91
27	Cytidine Deaminase Complexed to 3-Deazacytidine:â€‰ A â€œValence Bufferâ€•in Zinc Enzyme Catalysis. Biochemistry, 1996, 35, 1335-1341.	1.2	85
28	Transition state stabilization by deaminases: Rates of nonenzymatic hydrolysis of adenosine and cytidine. Bioorganic Chemistry, 1987, 15, 100-108.	2.0	83
29	[11] Transition state and multisubstrate analog inhibitors. Methods in Enzymology, 1995, 249, 284-312.	0.4	82
30	Contribution of Enzymeâ^'Phosphoribosyl Contacts to Catalysis by Orotidine 5â€˜-Phosphate Decarboxylaseâ€. Biochemistry, 2000, 39, 8113-8118.	1.2	82
31	Thermodynamic and extrathermodynamic requirements of enzyme catalysis. Biophysical Chemistry, 2003, 105, 559-572.	1.5	81
32	Mandelate Racemase in Pieces:Â Effective Concentrations of Enzyme Functional Groups in the Transition Stateâ€. Biochemistry, 1997, 36, 1646-1656.	1.2	70
33	Temperature dependence of amino acid hydrophobicities. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 7484-7488.	3.3	68
34	tRNA acceptor stem and anticodon bases form independent codes related to protein folding. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 7489-7494.	3.3	64
35	Cytosine deamination and the precipitous decline of spontaneous mutation during Earth's history. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 8194-8199.	3.3	59
36	The Intrinsic Reactivity of ATP and the Catalytic Proficiencies of Kinases Acting on Glucose, N-Acetylgalactosamine, and Homoserine. Journal of Biological Chemistry, 2009, 284, 22747-22757.	1.6	58

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37	Monoalkyl sulfates as alkylating agents in water, alkylsulfatase rate enhancements, and the "energy-rich" nature of sulfate half-esters. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 83-86.	3.3	57
38	The Rate Enhancement Produced by the Ribosome:â€‰ An Improved Model. Biochemistry, 2007, 46, 4037-4044.	1.2	57
39	Rates of Spontaneous Cleavage of Glucose, Fructose, Sucrose, and Trehalose in Water, and the Catalytic Proficiencies of Invertase and Trehalas. Journal of the American Chemical Society, 2008, 130, 7548-7549.	6.6	54
40	Impact of temperature on the time required for the establishment of primordial biochemistry, and for the evolution of enzymes. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 22102-22105.	3.3	49
41	Contribution of a single hydroxyl group to transition-state discrimination by adenosine deaminase: evidence for an "entropy trap" mechanism. Biochemistry, 1989, 28, 7919-7927.	1.2	48
42	Role of Enzymeâ˘'Ribofuranosyl Contacts in the Ground State and Transition State for Orotidine 5â€˜-Phosphate Decarboxylase:Â A Role for Substrate Destabilization?â€. Biochemistry, 2001, 40, 6227-6232.	1.2	47
43	Rates of Spontaneous Disintegration of DNA and the Rate Enhancements Produced by DNA Glycosylases and Deaminases. Biochemistry, 2007, 46, 13638-13647.	1.2	47
44	A transition state in pieces: major contributions of entropic effects to ligand binding by adenosine deaminase. Biochemistry, 1992, 31, 7356-7366.	1.2	44
45	Cytidine Deaminases fromB. subtilisandE. coli:Â Compensating Effects of Changing Zinc Coordination and Quaternary Structureâ€. Biochemistry, 1999, 38, 12258-12265.	1.2	43
46	Migration of Methyl Groups between Aliphatic Amines in Water. Journal of the American Chemical Society, 2003, 125, 310-311.	6.6	41
47	The anomalous hydrophilic character of proline. Journal of the American Chemical Society, 1991, 113, 4714-4715.	6.6	40
48	Uroporphyrinogen decarboxylation as a benchmark for the catalytic proficiency of enzymes. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 17328-17333.	3.3	40
49	Enzymic hydration of an olefin: the burden borne by fumarase. Journal of the American Chemical Society, 1995, 117, 9588-9589.	6.6	36
50	15N Kinetic Isotope Effects on Uncatalyzed and Enzymatic Deamination of Cytidineâ€. Biochemistry, 2002, 41, 415-421.	1.2	36
51	The path to the transition state in enzyme reactions: a survey of catalytic efficiencies. Journal of Physical Organic Chemistry, 2004, 17, 586-591.	0.9	36
52	Kinetic Challenges Facing Oxalate, Malonate, Acetoacetate, and Oxaloacetate Decarboxylases. Journal of the American Chemical Society, 2011, 133, 5683-5685.	6.6	36
53	Kinetic Mechanism of Human Histidine Triad Nucleotide Binding Protein 1. Biochemistry, 2013, 52, 3588-3600.	1.2	35
54	Affinities of phosphoric acids, esters, and amides for solvent water. Journal of the American Chemical Society, 1983, 105, 1028-1031.	6.6	34

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55	Substrate Connectivity Effects in the Transition State for Cytidine Deaminaseâ€. Biochemistry, 1998, 37, 11873-11878.	1.2	34
56	tRNA acceptor-stem and anticodon bases embed separate features of amino acid chemistry. RNA Biology, 2016, 13, 145-151.	1.5	32
57	Solvent water and the biological group-transfer potential of phosphoric and carboxylic anhydrides. Journal of the American Chemical Society, 1985, 107, 4345-4346.	6.6	30
58	Enhancement of the Rate of Pyrophosphate Hydrolysis by Nonenzymatic Catalysts and by Inorganic Pyrophosphatase. Journal of Biological Chemistry, 2011, 286, 18538-18546.	1.6	30
59	The Nonenzymatic Decomposition of Guanidines and Amidines. Journal of the American Chemical Society, 2014, 136, 130-136.	6.6	29
60	Enzymeâ˘'Substrate Complexes of Adenosine and Cytidine Deaminases:Â Absence of Accumulation of Water Adductsâ€. Biochemistry, 1996, 35, 4697-4703.	1.2	24
61	The â€œNeutralâ€•Hydrolysis of Simple Carboxylic Esters in Water and the Rate Enhancements Produced by Acetylcholinesterase and Other Carboxylic Acid Esterases. Journal of the American Chemical Society, 2011, 133, 13821-13823.	6.6	24
62	Catalysis by Entropic Effects:Â The Action of Cytidine Deaminase on 5,6-Dihydrocytidineâ€. Biochemistry, 2002, 41, 3925-3930.	1.2	23
63	Orotic Acid Decarboxylation in Water and Nonpolar Solvents: A Potential Role for Desolvation in the Action of OMP Decarboxylase. Biochemistry, 2009, 48, 8738-8745.	1.2	23
64	Catalysis by Desolvation: The Catalytic Prowess of SAM-Dependent Halide-Alkylating Enzymes. Journal of the American Chemical Society, 2013, 135, 14473-14475.	6.6	23
65	Massive Thermal Acceleration of the Emergence of Primordial Chemistry, the Incidence of Spontaneous Mutation, and the Evolution of Enzymes. Journal of Biological Chemistry, 2014, 289, 30198-30204.	1.6	22
66	Site-Bound Water and the Shortcomings of a Less than Perfect Transition State Analogueâ€. Biochemistry, 2001, 40, 11364-11371.	1.2	21
67	Effects of Substrate Binding Determinants in the Transition State for Orotidine 5â€²-Monophosphate Decarboxylase. Bioorganic Chemistry, 1998, 26, 283-288.	2.0	20
68	Fourier transform ion cyclotron resonance MS reveals the presence of a water molecule in an enzyme transition-state analogue complex. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 15341-15345.	3.3	18
69	A vapor phase analysis of the hydrophobic effect. Journal of Theoretical Biology, 1976, 59, 231-235.	0.8	17
70	Charge Development in the Transition State for Decarboxylations in Water:Â Spontaneous and Acetone-Catalyzed Decarboxylation of Aminomalonate. Journal of the American Chemical Society, 2004, 126, 4514-4515.	6.6	16
71	The rate of spontaneous cleavage of the glycosidic bond of adenosine. Bioorganic Chemistry, 2010, 38, 224-228.	2.0	16
72	Primordial chemistry and enzyme evolution in a hot environment. Cellular and Molecular Life Sciences, 2014, 71, 2909-2915.	2.4	15

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73	Proton-in-Flight Mechanism for the Spontaneous Hydrolysis of N-Methyl O-Phenyl Sulfamate: Implications for the Design of Steroid Sulfatase Inhibitors. Journal of Organic Chemistry, 2012, 77, 4450-4453.	1.7	12
74	The hydrolysis of phosphate diesters in cyclohexane and acetone. Chemical Communications, 2010, 46, 4306.	2.2	11
75	Thermodynamic Analysis of Catalysis by the Dihydroorotases from Hamster and Bacillus caldolyticus, As Compared with the Uncatalyzed Reaction. Biochemistry, 2006, 45, 8275-8283.	1.2	9
76	Amide Bonds to the Nitrogen Atoms of Cysteine and Serine as â€œWeak Pointsâ€•in the Backbones of Proteins. Biochemistry, 2011, 50, 7259-7264.	1.2	9
77	Mechanisms of enzyme action and inhibition: Transition state analogues for acid-base catalysis. The Protein Journal, 1986, 5, 147-155.	1.1	8
78	Lithium-Catalyzed Hydroxide Attack at the Carbon Atom of Methyl Phosphate. Journal of the American Chemical Society, 2004, 126, 8646-8647.	6.6	7
79	Sulfonium Ion Condensation: The Burden Borne by SAM Synthetase. Biochemistry, 2018, 57, 3549-3551.	1.2	7
80	Ether Hydrolysis, Ether Thiolysis, and the Catalytic Power of Etherases in the Disassembly of Lignin. Biochemistry, 2019, 58, 5381-5385.	1.2	3
81	Hydrolysis of <i>N</i>-Alkyl Sulfamates and the Catalytic Efficiency of an Sâ€“N Cleaving Sulfamidase. Journal of Organic Chemistry, 2012, 77, 2907-2910.	1.7	2
82	The Burden Borne by Protein Methyltransferases: Rates and Equilibria of Non-enzymatic Methylation of Amino Acid Side Chains by SAM in Water. Biochemistry, 2021, 60, 854-858.	1.2	2
83	Experimental Measures of Amino Acid Hydrophobicity and the Topology of Transmembrane and Globular Proteins. Journal of Cell Biology, 2007, 177, i10-i10.	2.3	2
84	Three Pyrimidine Decarboxylations in the Absence of a Catalyst. Biochemistry, 2017, 56, 1498-1503.	1.2	1
85	Jan Hermans (1933â€2018): Redâ€blooded biophysicists study hemoglobin. Proteins: Structure, Function and Bioinformatics, 2019, 87, 171-173.	1.5	0