M Thomas Record

List of Publications by Year
in descending order

79 papers	9,923 citations	61857 43 h-index	74018 75 g-index
83 all docs	83 docs citations	83 times ranked	5910 citing authors

#	Article	IF	Citations
1	Thermodynamic analysis of ion effects on the binding and conformational equilibria of proteins and nucleic acids: the roles of ion association or release, screening, and ion effects on water activity. Quarterly Reviews of Biophysics, 1978, 11, 103-178.	2.4	1,606
2	Ion effects on ligand-nucleic acid interactions. Journal of Molecular Biology, 1976, 107, 145-158.	2.0	1,057
3	Hofmeister Salt Effects on Surface Tension Arise from Partitioning of Anions and Cations between Bulk Water and the Airâˆ'Water Interface. Journal of Physical Chemistry B, 2007, 111, 5411-5417.	1.2	398
4	Novel computer program for fast exact calculation of accessible and molecular surface areas and average surface curvature. Journal of Computational Chemistry, 2002, 23, 600-609.	1.5	382
5	Contribution to the thermodynamics of protein folding from the reduction in water-accessible nonpolar surface area. Biochemistry, 1991, 30, 4237-4244.	1.2	367
6	Analysis of Effects of Salts and Uncharged Solutes on Protein and Nucleic Acid Equilibria and Processes: A Practical Guide to Recognizing and Interpreting Polyelectrolyte Effects, Hofmeister Effects, and Osmotic Effects of Salts. Advances in Protein Chemistry, 1998, 51, 281-353.	4.4	363
7	Mechanism of Bacterial Transcription Initiation: RNA Polymerase - Promoter Binding, Isomerization to Initiation-Competent Open Complexes, and Initiation of RNA Synthesis. Journal of Molecular Biology, 2011, 412, 754-771.	2.0	284
8	Replacement of potassium chloride by potassium glutamate dramatically enhances protein-DNA interactions in vitro. Biochemistry, 1987, 26, 2095-2101.	1.2	282
9	Nonspecific interaction of lac repressor with DNA: an association reaction driven by counterion release. Biochemistry, 1977, 16, 4783-4790.	1.2	275
10	RNA Polymerase-Promoter Interactions: the Comings and Goings of RNA Polymerase. Journal of Bacteriology, 1998, 180, 3019-3025.	1.0	268
11	Thermodynamic Origin of Hofmeister Ion Effects. Journal of Physical Chemistry B, 2008, 112, 9428-9436.	1.2	254
12	Enthalpy and Heat Capacity Changes for Formation of an Oligomeric DNA Duplex:Â Interpretation in Terms of Coupled Processes of Formation and Association of Single-Stranded Helicesâ€. Biochemistry, 1999, 38, 8409-8422.	1.2	222
13	Pentalysine-deoxyribonucleic acid interactions: a model for the general effects of ion concentrations on the interactions of proteins with nucleic acids. Biochemistry, 1980, 19, 3522-3530.	1.2	217
14	Quantifying why urea is a protein denaturant, whereas glycine betaine is a protein stabilizer. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 16932-16937.	3.3	213
15	Nonspecific interactions of Escherichia coli RNA polymerase with native and denatured DNA: differences in the binding behavior of core and holoenzyme. Biochemistry, 1978, 17, 1612-1622.	1.2	162
16	Separation of preferential interaction and excluded volume effects on DNA duplex and hairpin stability. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 12699-12704.	3.3	162
17	Roles of Cytoplasmic Osmolytes, Water, and Crowding in the Response ofEscherichia colito Osmotic Stress:Â Biophysical Basis of Osmoprotection by Glycine Betaineâ€. Biochemistry, 2003, 42, 12596-12609.	1.2	161
18	Partitioning of atmospherically relevant ions between bulk water and the water/vapor interface. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 14278-14281.	3.3	161

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19	Initial Events in Bacterial Transcription Initiation. Biomolecules, 2015, 5, 1035-1062.	1.8	157
20	Why Hofmeister effects of many salts favor protein folding but not DNA helix formation. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 7716-7721.	3.3	156
21	Thermodynamics of interactions of urea and guanidinium salts with protein surface: Relationship between solute effects on protein processes and changes in water-accessible surface area. Protein Science, 2009, 10, 2485-2497.	3.1	140
22	The Exclusion of Glycine Betaine from Anionic Biopolymer Surface:â€‰ Why Glycine Betaine Is an Effective Osmoprotectant but Also a Compatible Solute. Biochemistry, 2004, 43, 14732-14743.	1.2	115
23	Kinetic Studies and Structural Models of the Association of E.coli Ïƒ70 RNA Polymerase with the Î»PR Promoter: Large Scale Conformational Changes in Forming the Kinetically Significant Intermediates. Journal of Molecular Biology, 2002, 319, 649-671.	2.0	111
24	Preferential Interactions of Glycine Betaine and of Urea with DNA:â€‰ Implications for DNA Hydration and for Effects of These Solutes on DNA Stability. Biochemistry, 2004, 43, 14744-14758.	1.2	111
25	Introductory Lecture: Interpreting and predicting Hofmeister salt ion and solute effects on biopolymer and model processes using the solute partitioning model. Faraday Discussions, 2013, 160, 9-44.	1.6	111
26	HO.bul. and DNase I Probing of E.sigma.70 RNA Polymerase-.lambda.PR Promoter Open Complexes: Mg2+ Binding and Its Structural Consequences at the Transcription Start Site. Biochemistry, 1995, 34, 15624-15632.	1.2	106
27	A semiempirical extension of polyelectrolyte theory to the treatment of oligoelectrolytes: Application to oligonucleotide helix-coil transitions. Biopolymers, 1978, 17, 159-166.	1.2	103
28	Interactions of the Osmolyte Glycine Betaine with Molecular Surfaces in Water: Thermodynamics, Structural Interpretation, and Prediction of <i>m</i>-Values. Biochemistry, 2009, 48, 10372-10379.	1.2	103
29	Chemical Interactions of Polyethylene Glycols (PEGs) and Glycerol with Protein Functional Groups: Applications to Effects of PEG and Glycerol on Protein Processes. Biochemistry, 2015, 54, 3528-3542.	1.2	93
30	Thermodynamic Characterization of Interactions of Native Bovine Serum Albumin with Highly Excluded (Glycine Betaine) and Moderately Accumulated (Urea) Solutes by a Novel Application of Vapor Pressure Osmometryâ€. Biochemistry, 1996, 35, 10506-10516.	1.2	89
31	Regulation of the kinetics of the interaction of Escherichia coli RNA polymerase with the .lambda.PR promoter by salt concentration. Biochemistry, 1985, 24, 4721-4726.	1.2	88
32	Importance of oligoelectrolyte end effects for the thermodynamics of conformational transitions of nucleic acid oligomers: A grand canonical Monte Carlo analysis. Biopolymers, 1991, 31, 1593-1604.	1.2	87
33	Real-time footprinting of DNA in the first kinetically significant intermediate in open complex formation by Escherichia coli RNA polymerase. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 7833-7838.	3.3	85
34	Application of the Local-Bulk Partitioning and Competitive Binding Models to Interpret Preferential Interactions of Glycine Betaine and Urea with Protein Surfaceâ€. Biochemistry, 2004, 43, 9276-9288.	1.2	79
35	Thermal and Urea-Induced Unfolding of the Marginally Stable Lac Repressor DNA-Binding Domain:Â A Model System for Analysis of Solute Effects on Protein Processesâ€. Biochemistry, 2003, 42, 2202-2217.	1.2	73
36	Mechanism of transcription initiation and promoter escape by <i>E</i> . <i>coli</i> RNA polymerase. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E3032-E3040.	3.3	72

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37	Protein surface salt bridges and paths for DNA wrapping. Current Opinion in Structural Biology, 2002, 12, 311-319.	2.6	70
38	The Importance of Coulombic End Effects: Experimental Characterization of the Effects of Oligonucleotide Flanking Charges on the Strength and Salt Dependence of Oligocation (L8+) Binding to Single-Stranded DNA Oligomers. Biophysical Journal, 1999, 76, 1008-1017.	0.2	62
39	Quantifying Additive Interactions of the Osmolyte Proline with Individual Functional Groups of Proteins: Comparisons with Urea and Glycine Betaine, Interpretation of <i>m</i>-Values. Biochemistry, 2013, 52, 5997-6010.	1.2	59
40	The effects of upstream DNA on open complex formation by Escherichia coli RNA polymerase. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 285-290.	3.3	56
41	Solute Probes of Conformational Changes in Open Complex (RPo) Formation by Escherichia coli RNA Polymerase at the Î»PR Promoter:â€‰ Evidence for Unmasking of the Active Site in the Isomerization Step and for Large-Scale Coupled Folding in the Subsequent Conversion to RPo. Biochemistry, 2006, 45, 2161-2177.	1.2	52
42	Formation of a Wrapped DNAâ€“Protein Interface: Experimental Characterization and Analysis of the Large Contributions of Ions and Water to the Thermodynamics of Binding IHF to Hâ€² DNA. Journal of Molecular Biology, 2008, 377, 9-27.	2.0	52
43	One-step DNA melting in the RNA polymerase cleft opens the initiation bubble to form an unstable open complex. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 10418-10423.	3.3	50
44	Quantifying Functional Group Interactions That Determine Urea Effects on Nucleic Acid Helix Formation. Journal of the American Chemical Society, 2013, 135, 5828-5838.	6.6	49
45	Use of Urea and Glycine Betaine To Quantify Coupled Folding and Probe the Burial of DNA Phosphates in Lac Repressorâˆ’Lac Operator Binding. Biochemistry, 2005, 44, 16896-16911.	1.2	48
46	Probing DNA Binding, DNA Opening, and Assembly of a Downstream Clamp/Jaw in <i>Escherichia coli</i> RNA Polymeraseâˆ’Î»P_R Promoter Complexes Using Salt and the Physiological Anion Glutamate. Biochemistry, 2010, 49, 4361-4373.	1.2	45
47	E. coli RNA Polymerase Determinants of Open Complex Lifetime and Structure. Journal of Molecular Biology, 2015, 427, 2435-2450.	2.0	45
48	Separating chemical and excluded volume interactions of polyethylene glycols with native proteins: Comparison with PEG effects on DNA helix formation. Biopolymers, 2015, 103, 517-527.	1.2	44
49	Late Steps in the Formation of E. coli RNA Polymeraseâ€”Î»PR Promoter Open Complexes: Characterization of Conformational Changes by Rapid [Perturbant] Upshift Experiments. Journal of Molecular Biology, 2008, 376, 1034-1047.	2.0	43
50	DNA Binding Mode Transitions of Escherichia coli HUÎ±Î²: Evidence for Formation of a Bent DNA â€” Protein Complex on Intact, Linear Duplex DNA. Journal of Molecular Biology, 2008, 383, 324-346.	2.0	42
51	Complete Asymptotic Solution of Cylindrical and Spherical Poissonâˆ’Boltzmann Equations at Experimental Salt Concentrations. Journal of Physical Chemistry B, 2000, 104, 5161-5170.	1.2	38
52	Probing the protein-folding mechanism using denaturant and temperature effects on rate constants. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 16784-16789.	3.3	38
53	General Method of Analysis of Kinetic Equations for Multistep Reversible Mechanisms in the Single-Exponential Regime: Application to Kinetics of Open Complex Formation between EÏƒ70 RNA Polymerase and Î»PR Promoter DNA. Biophysical Journal, 1999, 76, 1320-1329.	0.2	35
54	Basis of Protein Stabilization by K Glutamate: Unfavorable Interactions with Carbon, Oxygen Groups. Biophysical Journal, 2016, 111, 1854-1865.	0.2	35

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55	Kinetics of the helix-coil transition in DNA. Biopolymers, 1972, 11, 1435-1484.	1.2	32
56	Interactions of the KWK6 cationic peptide with short nucleic acid oligomers: demonstration of large Coulombic end effects on binding at 0.1-0.2 M salt. Nucleic Acids Research, 2004, 32, 3271-3281.	6.5	26
57	Key Roles of the Downstream Mobile Jaw of <i>Escherichia coli</i> RNA Polymerase in Transcription Initiation. Biochemistry, 2012, 51, 9447-9459.	1.2	26
58	How Glutamate Promotes Liquid-liquid Phase Separation and DNA Binding Cooperativity of E. coli SSB Protein. Journal of Molecular Biology, 2022, 434, 167562.	2.0	25
59	Positioning the Intracellular Salt Potassium Glutamate in the Hofmeister Series by Chemical Unfolding Studies of NTL9. Biochemistry, 2016, 55, 2251-2259.	1.2	23
60	Experimental Atom-by-Atom Dissection of Amideâ€“Amide and Amideâ€“Hydrocarbon Interactions in H₂O. Journal of the American Chemical Society, 2017, 139, 9885-9894.	6.6	21
61	Contributions of Coulombic and Hofmeister Effects to the Osmotic Activation of <i>Escherichia coli</i> Transporter ProP. Biochemistry, 2016, 55, 1301-1313.	1.2	20
62	Nonspecific DNA Binding and Bending by HUÎ±Î²: Interfaces of the Three Binding Modes Characterized by Salt-Dependent Thermodynamics. Journal of Molecular Biology, 2011, 410, 241-267.	2.0	19
63	RNA Polymerase: Step-by-Step Kinetics and Mechanism of Transcription Initiation. Biochemistry, 2019, 58, 2339-2352.	1.2	18
64	Fluorescence-Detected Conformational Changes in Duplex DNA in Open Complex Formation by <i>Escherichia coli</i> RNA Polymerase: Upstream Wrapping and Downstream Bending Precede Clamp Opening and Insertion of the Downstream Duplex. Biochemistry, 2020, 59, 1565-1581.	1.2	18
65	Interactions of Cationic Ligands and Proteins with Small Nucleic Acids:â€‰ Analytic Treatment of the Large Coulombic End Effect on Binding Free Energy as a Function of Salt Concentration. Biochemistry, 2006, 45, 8411-8426.	1.2	17
66	Fluorescence Resonance Energy Transfer Characterization of DNA Wrapping in Closed and OpenEscherichia coliRNA Polymeraseâˆ'Î»PRPromoter Complexes. Biochemistry, 2016, 55, 2174-2186.	1.2	15
67	Temperature effects on RNA polymerase initiation kinetics reveal which open complex initiates and that bubble collapse is stepwise. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	15
68	Experimentally determined strengths of favorable and unfavorable interactions of amide atoms involved in protein self-assembly in water. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 27339-27345.	3.3	14
69	Contributions of the Histidine Side Chain and the N-Terminal Î±-Amino Group to the Binding Thermodynamics of Oligopeptides to Nucleic Acids as a Function of pH. Biochemistry, 2010, 49, 2018-2030.	1.2	12
70	Quantifying the Roles of Water and Solutes (Denaturants, Osmolytes, and Hofmeister Salts) in Protein and Model Processes Using the Solute Partitioning Model. Methods in Molecular Biology, 2009, 490, 179-193.	0.4	11
71	Coulombic free energy and salt ion association per phosphate of all-atom models of DNA oligomer: dependence on oligomer size. Soft Matter, 2012, 8, 9345.	1.2	10
72	The mechanism and high-free-energy transition state of lac repressorâ€“lac operator interaction. Nucleic Acids Research, 2017, 45, 12671-12680.	6.5	9

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73	Quantifying Interactions of Nucleobase Atoms with Model Compounds for the Peptide Backbone and Glutamine and Asparagine Side Chains in Water. Biochemistry, 2018, 57, 2227-2237.	1.2	6
74	Using Solutes and Kinetics to Probe Large Conformational Changes in the Steps of Transcription Initiation. Methods in Molecular Biology, 2015, 1276, 241-261.	0.4	4
75	Step-by-Step Regulation of Productive and Abortive Transcription Initiation by Pyrophosphorolysis. Journal of Molecular Biology, 2022, 434, 167621.	2.0	2
76	nâ€•Ï€ * and Other Atomic Level Interactions of Formamides with Nucleobases and Base Analogs in Water. FASEB Journal, 2018, 32, .	0.2	0
77	Fluorescence Kinetic Studies of DNA Unwrapping in Transcription Initiation with NTP addition and in Open Complex Dissociation by high salt. FASEB Journal, 2018, 32, .	0.2	0
78	Roles of the Initial Transcribed Sequence on Productive and Nonâ€Productive Initiation. FASEB Journal, 2019, 33, 458.10.	0.2	0
79	Open complex stability regulates transcription initiation by E. coli RNA polymerase from the rrnB P1 promoter. FASEB Journal, 2019, 33, 624.1.	0.2	0