

M Thomas Record

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78
papers

8,642
citations

43
h-index

83
g-index

83
ext. papers

9,204
ext. citations

5.3
avg, IF

5.86
L-index

#	Paper	IF	Citations
78	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. <i>Quarterly Reviews of Biophysics</i> , 1978 , 11, 103-78	7	1435
77	Ion effects on ligand-nucleic acid interactions. <i>Journal of Molecular Biology</i> , 1976 , 107, 145-58	6.5	965
76	Hofmeister salt effects on surface tension arise from partitioning of anions and cations between bulk water and the air-water interface. <i>Journal of Physical Chemistry B</i> , 2007 , 111, 5411-7	3.4	348
75	Contribution to the thermodynamics of protein folding from the reduction in water-accessible nonpolar surface area. <i>Biochemistry</i> , 1991 , 30, 4237-44	3.2	343
74	Novel computer program for fast exact calculation of accessible and molecular surface areas and average surface curvature. <i>Journal of Computational Chemistry</i> , 2002 , 23, 600-9	3.5	338
73	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. <i>Advances in Protein Chemistry</i> , 1998 , 51, 281-353		329
72	Replacement of potassium chloride by potassium glutamate dramatically enhances protein-DNA interactions in vitro. <i>Biochemistry</i> , 1987 , 26, 2095-101	3.2	257
71	Nonspecific interaction of lac repressor with DNA: an association reaction driven by counterion release. <i>Biochemistry</i> , 1977 , 16, 4783-90	3.2	257
70	RNA polymerase-promoter interactions: the comings and goings of RNA polymerase. <i>Journal of Bacteriology</i> , 1998 , 180, 3019-25	3.5	238
69	Mechanism of bacterial transcription initiation: RNA polymerase - promoter binding, isomerization to initiation-competent open complexes, and initiation of RNA synthesis. <i>Journal of Molecular Biology</i> , 2011 , 412, 754-71	6.5	232
68	Thermodynamic origin of hofmeister ion effects. <i>Journal of Physical Chemistry B</i> , 2008 , 112, 9428-36	3.4	222
67	Enthalpy and heat capacity changes for formation of an oligomeric DNA duplex: interpretation in terms of coupled processes of formation and association of single-stranded helices. <i>Biochemistry</i> , 1999 , 38, 8409-22	3.2	204
66	Pentylsine-deoxyribonucleic acid interactions: a model for the general effects of ion concentrations on the interactions of proteins with nucleic acids. <i>Biochemistry</i> , 1980 , 19, 3522-30	3.2	191
65	Quantifying why urea is a protein denaturant, whereas glycine betaine is a protein stabilizer. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2011 , 108, 16932-7	11.5	179
64	Partitioning of atmospherically relevant ions between bulk water and the water/vapor interface. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2006 , 103, 14278-81	11.5	149
63	Nonspecific interactions of Escherichia coli RNA polymerase with native and denatured DNA: differences in the binding behavior of core and holoenzyme. <i>Biochemistry</i> , 1978 , 17, 1612-22	3.2	145
62	Roles of cytoplasmic osmolytes, water, and crowding in the response of Escherichia coli to osmotic stress: biophysical basis of osmoprotection by glycine betaine. <i>Biochemistry</i> , 2003 , 42, 12596-609	3.2	139

61	Separation of preferential interaction and excluded volume effects on DNA duplex and hairpin stability. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2011 , 108, 12699-704	11.5	130
60	Why Hofmeister effects of many salts favor protein folding but not DNA helix formation. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010 , 107, 7716-21	11.5	129
59	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. <i>Protein Science</i> , 2001 , 10, 2485-97	6.3	120
58	Initial events in bacterial transcription initiation. <i>Biomolecules</i> , 2015 , 5, 1035-62	5.9	102
57	The exclusion of glycine betaine from anionic biopolymer surface: why glycine betaine is an effective osmoprotectant but also a compatible solute. <i>Biochemistry</i> , 2004 , 43, 14732-43	3.2	102
56	Preferential interactions of glycine betaine and of urea with DNA: implications for DNA hydration and for effects of these solutes on DNA stability. <i>Biochemistry</i> , 2004 , 43, 14744-58	3.2	102
55	Kinetic studies and structural models of the association of E. coli sigma(70) RNA polymerase with the lambdaP(R) promoter: large scale conformational changes in forming the kinetically significant intermediates. <i>Journal of Molecular Biology</i> , 2002 , 319, 649-71	6.5	102
54	HO. 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. <i>Biochemistry</i> , 1995 , 34, 15624-32	3.2	95
53	A semiempirical extension of polyelectrolyte theory to the treatment of oligoelectrolytes: Application to oligonucleotide helix-coil transitions. <i>Biopolymers</i> , 1978 , 17, 159-166	2.2	93
52	Introductory lecture: interpreting and predicting Hofmeister salt ion and solute effects on biopolymer and model processes using the solute partitioning model. <i>Faraday Discussions</i> , 2013 , 160, 9-44; discussion 103-20	3.6	86
51	Interactions of the osmolyte glycine betaine with molecular surfaces in water: thermodynamics, structural interpretation, and prediction of m-values. <i>Biochemistry</i> , 2009 , 48, 10372-9	3.2	85
50	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 osmometry. <i>Biochemistry</i> , 1996 , 35, 10506-16	3.2	83
49	Importance of oligoelectrolyte end effects for the thermodynamics of conformational transitions of nucleic acid oligomers: a grand canonical Monte Carlo analysis. <i>Biopolymers</i> , 1991 , 31, 1593-604	2.2	80
48	Regulation of the kinetics of the interaction of Escherichia coli RNA polymerase with the lambda PR promoter by salt concentration. <i>Biochemistry</i> , 1985 , 24, 4721-6	3.2	80
47	Application of the local-bulk partitioning and competitive binding models to interpret preferential interactions of glycine betaine and urea with protein surface. <i>Biochemistry</i> , 2004 , 43, 9276-88	3.2	72
46	Real-time footprinting of DNA in the first kinetically significant intermediate in open complex formation by Escherichia coli RNA polymerase. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007 , 104, 7833-8	11.5	70
45	Chemical Interactions of Polyethylene Glycols (PEGs) and Glycerol with Protein Functional Groups: Applications to Effects of PEG and Glycerol on Protein Processes. <i>Biochemistry</i> , 2015 , 54, 3528-42	3.2	68
44	Thermal and urea-induced unfolding of the marginally stable lac repressor DNA-binding domain: a model system for analysis of solute effects on protein processes. <i>Biochemistry</i> , 2003 , 42, 2202-17	3.2	66

43	Protein surface salt bridges and paths for DNA wrapping. <i>Current Opinion in Structural Biology</i> , 2002 , 12, 311-9	8.1	64
42	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. <i>Biophysical Journal</i> , 1999 , 76, 1008-17	2.9	59
41	Solute probes of conformational changes in open complex (RPO) formation by Escherichia coli RNA polymerase at the lambdaPR promoter: evidence for unmasking of the active site in the isomerization step and for large-scale coupled folding in the subsequent conversion to RPO. <i>Biochemistry</i> , 2006 , 45, 2161-77	3.2	50
40	Quantifying additive interactions of the osmolyte proline with individual functional groups of proteins: comparisons with urea and glycine betaine, interpretation of m-values. <i>Biochemistry</i> , 2013 , 52, 5997-6010	3.2	48
39	Mechanism of transcription initiation and promoter escape by . RNA polymerase. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017 , 114, E3032-E3040	11.5	46
38	Formation of a wrapped DNA-protein interface: experimental characterization and analysis of the large contributions of ions and water to the thermodynamics of binding IHF to HSDNA. <i>Journal of Molecular Biology</i> , 2008 , 377, 9-27	6.5	46
37	Use of urea and glycine betaine to quantify coupled folding and probe the burial of DNA phosphates in lac repressor-lac operator binding. <i>Biochemistry</i> , 2005 , 44, 16896-911	3.2	46
36	The effects of upstream DNA on open complex formation by Escherichia coli RNA polymerase. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005 , 102, 285-90	11.5	46
35	Quantifying functional group interactions that determine urea effects on nucleic acid helix formation. <i>Journal of the American Chemical Society</i> , 2013 , 135, 5828-38	16.4	41
34	One-step DNA melting in the RNA polymerase cleft opens the initiation bubble to form an unstable open complex. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010 , 107, 10418-23	11.5	39
33	Probing DNA binding, DNA opening, and assembly of a downstream clamp/jaw in Escherichia coli RNA polymerase-lambdaP(R) promoter complexes using salt and the physiological anion glutamate. <i>Biochemistry</i> , 2010 , 49, 4361-73	3.2	39
32	Late steps in the formation of E. coli RNA polymerase-lambda P R promoter open complexes: characterization of conformational changes by rapid [perturbant] upshift experiments. <i>Journal of Molecular Biology</i> , 2008 , 376, 1034-47	6.5	36
31	DNA binding mode transitions of Escherichia coli HU(alpha-beta): evidence for formation of a bent DNA--protein complex on intact, linear duplex DNA. <i>Journal of Molecular Biology</i> , 2008 , 383, 324-66	6.5	36
30	Complete Asymptotic Solution of Cylindrical and Spherical Poisson-Boltzmann Equations at Experimental Salt Concentrations. <i>Journal of Physical Chemistry B</i> , 2000 , 104, 5161-5170	3.4	35
29	E. coli RNA Polymerase Determinants of Open Complex Lifetime and Structure. <i>Journal of Molecular Biology</i> , 2015 , 427, 2435-2450	6.5	34
28	Separating chemical and excluded volume interactions of polyethylene glycols with native proteins: Comparison with PEG effects on DNA helix formation. <i>Biopolymers</i> , 2015 , 103, 517-27	2.2	33
27	Kinetics of the helix-coil transition in DNA. <i>Biopolymers</i> , 1972 , 11, 1435-84	2.2	31
26	General method of analysis of kinetic equations for multistep reversible mechanisms in the single-exponential regime: application to kinetics of open complex formation between Esigma70 RNA polymerase and lambdaP(R) promoter DNA. <i>Biophysical Journal</i> , 1999 , 76, 1320-9	2.9	29

25	Probing the protein-folding mechanism using denaturant and temperature effects on rate constants. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013 , 110, 16784-9	11.5	26
24	Basis of Protein Stabilization by K Glutamate: Unfavorable Interactions with Carbon, Oxygen Groups. <i>Biophysical Journal</i> , 2016 , 111, 1854-1865	2.9	25
23	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. <i>Nucleic Acids Research</i> , 2004 , 32, 3271-81	20.1	24
22	Key roles of the downstream mobile jaw of Escherichia coli RNA polymerase in transcription initiation. <i>Biochemistry</i> , 2012 , 51, 9447-59	3.2	21
21	Positioning the Intracellular Salt Potassium Glutamate in the Hofmeister Series by Chemical Unfolding Studies of NTL9. <i>Biochemistry</i> , 2016 , 55, 2251-9	3.2	17
20	Contributions of Coulombic and Hofmeister Effects to the Osmotic Activation of Escherichia coli Transporter ProP. <i>Biochemistry</i> , 2016 , 55, 1301-13	3.2	16
19	Nonspecific DNA binding and bending by HU interfaces of the three binding modes characterized by salt-dependent thermodynamics. <i>Journal of Molecular Biology</i> , 2011 , 410, 241-67	6.5	15
18	Interactions of cationic ligands and proteins with small nucleic acids: analytic treatment of the large coulombic end effect on binding free energy as a function of salt concentration. <i>Biochemistry</i> , 2006 , 45, 8411-26	3.2	14
17	Experimental Atom-by-Atom Dissection of Amide-Amide and Amide-Hydrocarbon Interactions in HO. <i>Journal of the American Chemical Society</i> , 2017 , 139, 9885-9894	16.4	13
16	Quantifying the roles of water and solutes (denaturants, osmolytes, and Hofmeister salts) in protein and model processes using the solute partitioning model. <i>Methods in Molecular Biology</i> , 2009 , 490, 179-93	1.4	11
15	RNA Polymerase: Step-by-Step Kinetics and Mechanism of Transcription Initiation. <i>Biochemistry</i> , 2019 , 58, 2339-2352	3.2	9
14	Fluorescence Resonance Energy Transfer Characterization of DNA Wrapping in Closed and Open Escherichia coli RNA Polymerase- σ (R) Promoter Complexes. <i>Biochemistry</i> , 2016 , 55, 2174-86	3.2	9
13	Coulombic free energy and salt ion association per phosphate of all-atom models of DNA oligomer: dependence on oligomer size. <i>Soft Matter</i> , 2012 , 8, 9345-9355	3.6	9
12	Fluorescence-Detected Conformational Changes in Duplex DNA in Open Complex Formation by RNA Polymerase: Upstream Wrapping and Downstream Bending Precede Clamp Opening and Insertion of the Downstream Duplex. <i>Biochemistry</i> , 2020 , 59, 1565-1581	3.2	8
11	Contributions of the histidine side chain and the N-terminal alpha-amino group to the binding thermodynamics of oligopeptides to nucleic acids as a function of pH. <i>Biochemistry</i> , 2010 , 49, 2018-30	3.2	8
10	The mechanism and high-free-energy transition state of lac repressor-lac operator interaction. <i>Nucleic Acids Research</i> , 2017 , 45, 12671-12680	20.1	5
9	Using solutes and kinetics to probe large conformational changes in the steps of transcription initiation. <i>Methods in Molecular Biology</i> , 2015 , 1276, 241-61	1.4	4
8	Experimentally determined strengths of favorable and unfavorable interactions of amide atoms involved in protein self-assembly in water. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020 , 117, 27339-27345	11.5	4

7	Temperature effects on RNA polymerase initiation kinetics reveal which open complex initiates and that bubble collapse is stepwise. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021 , 118,	11.5	4
6	Quantifying Interactions of Nucleobase Atoms with Model Compounds for the Peptide Backbone and Glutamine and Asparagine Side Chains in Water. <i>Biochemistry</i> , 2018 , 57, 2227-2237	3.2	2
5	How Glutamate Promotes Liquid-liquid Phase Separation and DNA Binding Cooperativity of E. coli SSB Protein.. <i>Journal of Molecular Biology</i> , 2022 , 167562	6.5	2
4	Kinetic-Mechanistic Evidence for Which E. coli RNA Polymerase- σ R Open Promoter Complex Initiates and for Stepwise Disruption of Contacts in Bubble Collapse		1
3	Roles of the Initial Transcribed Sequence on Productive and Non-Productive Initiation. <i>FASEB Journal</i> , 2019 , 33, 458.10	0.9	
2	Open complex stability regulates transcription initiation by E. coli RNA polymerase from the rrnB P1 promoter. <i>FASEB Journal</i> , 2019 , 33, 624.1	0.9	
1	Step-by-Step Regulation of Productive and Abortive Transcription Initiation by Pyrophosphorolysis.. <i>Journal of Molecular Biology</i> , 2022 , 167621	6.5	