Gary J Pielak

List of Publications by Year in descending order

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		29994	43802
148	9,472	54	91
papers	citations	h-index	g-index
150	150	150	(2)7
155	155	155	6327
all docs	docs citations	times ranked	citing authors

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#	Article	IF	CITATIONS
1	Physicochemical Properties of Cells and Their Effects on Intrinsically Disordered Proteins (IDPs). Chemical Reviews, 2014, 114, 6661-6714.	23.0	391
2	Tardigrades Use Intrinsically Disordered Proteins to Survive Desiccation. Molecular Cell, 2017, 65, 975-984.e5.	4.5	302
3	FlgM gains structure in living cells. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 12681-12684.	3.3	290
4	Impact of Protein Denaturants and Stabilizers on Water Structure. Journal of the American Chemical Society, 2004, 126, 1958-1961.	6.6	289
5	Macromolecular Crowding and Protein Stability. Journal of the American Chemical Society, 2012, 134, 16614-16618.	6.6	289
6	Interpreting the Effects of Small Uncharged Solutes on Protein-Folding Equilibria. Annual Review of Biophysics and Biomolecular Structure, 2001, 30, 271-306.	18.3	264
7	Protein Crowding Tunes Protein Stability. Journal of the American Chemical Society, 2011, 133, 7116-7120.	6.6	255
8	Effects of Proteins on Protein Diffusion. Journal of the American Chemical Society, 2010, 132, 9392-9397.	6.6	223
9	Soft interactions and crowding. Biophysical Reviews, 2013, 5, 187-194.	1.5	205
10	Protein ¹⁹ F NMR in <i>Escherichia coli</i> . Journal of the American Chemical Society, 2010, 132, 321-327.	6.6	196
11	Unexpected Effects of Macromolecular Crowding on Protein Stability. Biochemistry, 2012, 51, 9773-9775.	1.2	191
12	Quinary structure modulates protein stability in cells. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 1739-1742.	3.3	186
13	Site-directed mutagenesis of cytochrome c shows that an invariant Phe is not essential for function. Nature, 1985, 313, 152-154.	13.7	175
14	Impact of reconstituted cytosol on protein stability. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 19342-19347.	3.3	172
15	Solvent-induced collapse of α-synuclein and acid-denatured cytochrome c. Protein Science, 2008, 10, 2195-2199.	3.1	169
16	Macromolecular Crowding in the Escherichia coli Periplasm Maintains α-Synuclein Disorder. Journal of Molecular Biology, 2006, 355, 893-897.	2.0	164
17	Osmolyte-induced changes in protein conformational equilibria. Biopolymers, 2000, 53, 293-307.	1.2	159
18	Volume Exclusion and Soft Interaction Effects on Protein Stability under Crowded Conditions. Biochemistry, 2010, 49, 6984-6991.	1.2	148

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19	In-cell thermodynamics and a new role for protein surfaces. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 1725-1730.	3.3	147
20	Macromolecular Crowding Fails To Fold a Globular Protein in Cells. Journal of the American Chemical Society, 2011, 133, 8082-8085.	6.6	132
21	Differential Dynamical Effects of Macromolecular Crowding on an Intrinsically Disordered Protein and a Globular Protein: Implications for In-Cell NMR Spectroscopy. Journal of the American Chemical Society, 2008, 130, 6310-6311.	6.6	119
22	A cell is more than the sum of its (dilute) parts: A brief history of quinary structure. Protein Science, 2017, 26, 403-413.	3.1	111
23	Protein Crowder Charge and Protein Stability. Biochemistry, 2014, 53, 1601-1606.	1.2	106
24	Residue level quantification of protein stability in living cells. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 11335-11340.	3.3	106
25	The Cellular Environment Stabilizes Adenine Riboswitch RNA Structure. Biochemistry, 2013, 52, 8777-8785.	1.2	104
26	Elimination of the negative soret Cotton effect of cytochrome c by replacement of the invariant phenylalanine using site-directed mutagenesis. Journal of the American Chemical Society, 1986, 108, 2724-2727.	6.6	95
27	Design of a Ruthenium-Cytochrome c Derivative to Measure Electron Transfer to the Initial Acceptor in Cytochrome c Oxidase. Journal of Biological Chemistry, 1995, 270, 2466-2472.	1.6	92
28	Residue-Level Interrogation of Macromolecular Crowding Effects on Protein Stability. Journal of the American Chemical Society, 2008, 130, 6826-6830.	6.6	88
29	Osmotic Shock Induced Protein Destabilization in Living Cells and Its Reversal by Glycine Betaine. Journal of Molecular Biology, 2017, 429, 1155-1161.	2.0	86
30	Interaction of α-synuclein with vesicles that mimic mitochondrial membranes. Biochimica Et Biophysica Acta - Biomembranes, 2012, 1818, 512-519.	1.4	85
31	Stability of yeast isoâ€1â€ferricytochrome <i>c</i> as a function of pH and temperature. Protein Science, 1994, 3, 1253-1260.	3.1	83
32	In Situ Structural Characterization of a Recombinant Protein in Native Escherichia coli Membranes with Solid-State Magic-Angle-Spinning NMR. Journal of the American Chemical Society, 2011, 133, 12370-12373.	6.6	83
33	¹⁹ Fâ€NMR Spectroscopy as a Probe of Cytoplasmic Viscosity and Weak Protein Interactions in Living Cells. Chemistry - A European Journal, 2013, 19, 12705-12710.	1.7	83
34	Translational and Rotational Diffusion of a Small Globular Protein under Crowded Conditions. Journal of Physical Chemistry B, 2009, 113, 13390-13392.	1.2	82
35	Assignment of proton resonances, identification of secondary structural elements, and analysis of backbone chemical shifts for the C102T variant of yeast iso-1-cytochrome c and horse cytochrome c. Biochemistry, 1990, 29, 6994-7003.	1.2	81
36	Sugar-Induced Molten-Globule Model. Biochemistry, 1998, 37, 17048-17053.	1.2	81

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37	Introduction of a disulfide bond into cytochrome c stabilizes a compact denatured state. Biochemistry, 1992, 31, 12337-12344.	1.2	79
38	Native tertiary structure in an A-state 1 1Edited by P. E. Wright. Journal of Molecular Biology, 1998, 275, 379-388.	2.0	77
39	19F NMR Studies of α-Synuclein Conformation and Fibrillation. Biochemistry, 2009, 48, 8578-8584.	1.2	76
40	Protein Nuclear Magnetic Resonance under Physiological Conditions. Biochemistry, 2009, 48, 226-234.	1.2	75
41	Comparison of reduced and oxidized yeast iso-1-cytochrome c using proton paramagnetic shifts. Biochemistry, 1991, 30, 1928-1934.	1.2	74
42	Entropic Stabilization of Cytochrome c upon Reduction. Journal of the American Chemical Society, 1995, 117, 1675-1677.	6.6	72
43	Electrostatic Contributions to Protein Quinary Structure. Journal of the American Chemical Society, 2016, 138, 13139-13142.	6.6	72
44	Protein shape modulates crowding effects. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 10965-10970.	3.3	72
45	Role of Configurational Gating in Intracomplex Electron Transfer from Cytochrome c to the Radical Cation in Cytochrome c Peroxidase. Biochemistry, 1999, 38, 6846-6854.	1.2	70
46	Stability and apoptotic activity of recombinant human cytochrome c. Biochemical and Biophysical Research Communications, 2003, 312, 733-740.	1.0	66
47	Design of a Rutheniumâ^'CytochromecDerivative To Measure Electron Transfer to the Radical Cation and Oxyferryl Heme in CytochromecPeroxidaseâ€. Biochemistry, 1996, 35, 15107-15119.	1.2	64
48	In ell protein NMR and protein leakage. Proteins: Structure, Function and Bioinformatics, 2011, 79, 347-351.	1.5	63
49	Intrinsically Disordered Proteins and Desiccation Tolerance: Elucidating Functional and Mechanistic Underpinnings of Anhydrobiosis. BioEssays, 2017, 39, 1700119.	1.2	62
50	Using NMR to Distinguish Viscosity Effects from Nonspecific Protein Binding under Crowded Conditions. Journal of the American Chemical Society, 2009, 131, 1368-1369.	6.6	61
51	Osmolytes and Protein–Protein Interactions. Journal of the American Chemical Society, 2018, 140, 7441-7444.	6.6	61
52	¹⁹ F NMR studies of αâ€synucleinâ€membrane interactions. Protein Science, 2010, 19, 1686-1691.	3.1	58
53	NMR studies of protein folding and binding in cells and cell-like environments. Current Opinion in Structural Biology, 2015, 30, 7-16.	2.6	58
54	Amide proton exchange rates of oxidized and reduced saccharomyces cerevisiae isoâ€lâ€cytochrome c. Protein Science, 1993, 2, 1966-1974.	3.1	56

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55	A bioreactor for in-cell protein NMR. Journal of Magnetic Resonance, 2010, 202, 140-146.	1.2	56
56	Challenge of Mimicking the Influences of the Cellular Environment on RNA Structure by PEG-Induced Macromolecular Crowding. Biochemistry, 2015, 54, 6447-6453.	1.2	56
57	Surface Charge Modulates Protein–Protein Interactions in Physiologically Relevant Environments. Biochemistry, 2018, 57, 1681-1684.	1.2	56
58	Disordered Protein Diffusion under Crowded Conditions. Journal of Physical Chemistry Letters, 2012, 3, 2703-2706.	2.1	53
59	Protein thermal denaturation, side-chain models, and evolution: amino acid substitutions at a conserved helix-helix interface. Biochemistry, 1995, 34, 3268-3276.	1.2	51
60	Effects of molecular crowding by saccharides on α-chymotrypsin dimerization. Protein Science, 2002, 11, 997-1003.	3.1	51
61	Protecting activity of desiccated enzymes. Protein Science, 2019, 28, 941-951.	3.1	51
62	Macromolecular Crowding Is More than Hard-Core Repulsions. Annual Review of Biophysics, 2022, 51, 267-300.	4.5	51
63	Baseline length and automated fitting of denaturation data. Protein Science, 1998, 7, 1262-1263.	3.1	49
64	Cosolutes, Crowding, and Protein Folding Kinetics. Journal of Physical Chemistry B, 2017, 121, 6527-6537.	1.2	49
65	The intracellular environment affects protein–protein interactions. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	49
66	Intracellular p <scp>H</scp> modulates quinary structure. Protein Science, 2015, 24, 1748-1755.	3.1	48
67	Characterization of Horse Cytochrome c Expressed in Escherichia coli. Protein Expression and Purification, 2001, 22, 220-224.	0.6	47
68	Probing the CytochromecPeroxidaseâ `CytochromecElectron Transfer Reaction Using Site Specific Cross-Linkingâ€. Biochemistry, 1996, 35, 4837-4845.	1.2	46
69	Control of Formation and Dissociation of the High-Affinity Complex between Cytochromecand CytochromecPeroxidase by Ionic Strength and the Low-Affinity Binding Siteâ€. Biochemistry, 1996, 35, 15800-15806.	1.2	46
70	Temperature-induced reversible conformational change in the first 100 residues of α-synuclein. Protein Science, 2006, 15, 602-608.	3.1	46
71	Protein Dynamics in Living Cells. Biochemistry, 2005, 44, 9275-9279.	1.2	45
72	Identifying the Physiological Electron Transfer Site of CytochromecPeroxidase by Structure-Based Engineeringâ€. Biochemistry, 1996, 35, 667-673.	1.2	44

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73	Protein Stability in Reverse Micelles. Angewandte Chemie - International Edition, 2016, 55, 3586-3589.	7.2	43
74	Internal and Global Protein Motion Assessed with a Fusion Construct and In ell NMR Spectroscopy. ChemBioChem, 2011, 12, 390-391.	1.3	42
75	Cosolute and Crowding Effects on a Side-By-Side Protein Dimer. Biochemistry, 2017, 56, 971-976.	1.2	42
76	Macromolecular and Small Molecular Crowding Have Similar Effects on αâ€Synuclein Structure. ChemPhysChem, 2017, 18, 55-58.	1.0	41
77	Second virial coefficients as a measure of protein-osmolyte interactions. Protein Science, 2001, 10, 12-16.	3.1	40
78	Protecting Enzymes from Stress-Induced Inactivation. Biochemistry, 2019, 58, 3825-3833.	1.2	37
79	Protein-complex stability in cells and in vitro under crowded conditions. Current Opinion in Structural Biology, 2021, 66, 183-192.	2.6	37
80	Hydrogen exchange of disordered proteins in <i>Escherichia coli</i> . Protein Science, 2015, 24, 706-713.	3.1	36
81	A model of intracellular organization. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 5901-5902.	3.3	35
82	Magnetic Resonance Spectroscopy as a Tool for Assessing Macromolecular Structure and Function in Living Cells. Annual Review of Analytical Chemistry, 2017, 10, 157-182.	2.8	35
83	Rapid Quantification of Protein-Ligand Binding via 19F NMR Lineshape Analysis. Biophysical Journal, 2020, 118, 2537-2548.	0.2	34
84	α-Synuclein Conformation Affects Its Tyrosine-Dependent Oxidative Aggregation. Biochemistry, 2008, 47, 13604-13609.	1.2	33
85	The structure of cytochrome c and its relation to recent studies of long-range electron transfer. Protein Engineering, Design and Selection, 1987, 1, 83-88.	1.0	31
86	Emergence of life: Physical chemistry changes the paradigm. Biology Direct, 2015, 10, 33.	1.9	31
87	Effects of Recombinant Protein Expression on Green Fluorescent Protein Diffusion in Escherichia coli. Biochemistry, 2009, 48, 5083-5089.	1.2	29
88	An upper limit for macromolecular crowding effects. BMC Biophysics, 2011, 4, 13.	4.4	29
89	Large cosolutes, small cosolutes, and dihydrofolate reductase activity. Protein Science, 2017, 26, 2417-2425.	3.1	29
90	1H and15N Hyperfine Shifts of Cytochromec. Journal of the American Chemical Society, 1999, 121, 9247-9248.	6.6	28

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91	Effects of Crowding by Mono-, Di-, and Tetrasaccharides on Cytochrome câ^'Cytochrome c Peroxidase Binding:  Comparing Experiment to Theory. Biochemistry, 2001, 40, 281-285.	1.2	28
92	Using NMR-Detected Backbone Amide 1H Exchange to Assess Macromolecular Crowding Effects on Globular-Protein Stability. Methods in Enzymology, 2009, 466, 1-18.	0.4	28
93	Positively Charged Tags Impede Protein Mobility in Cells as Quantified by ¹⁹ F NMR. Journal of Physical Chemistry B, 2019, 123, 4527-4533.	1.2	28
94	Proton nuclear magnetic resonance as a probe of differences in structure between the C102T and F82S,C102T variants of iso-1-cytochrome c from the yeast Saccharomyces cerevisiae. Biochemistry, 1991, 30, 7033-7040.	1.2	27
95	Quinary interactions with an unfolded state ensemble. Protein Science, 2017, 26, 1698-1703.	3.1	26
96	An osmolyte mitigates the destabilizing effect of protein crowding. Protein Science, 2014, 23, 1161-1164.	3.1	25
97	Polarity of disulfide bonds. Protein Science, 1993, 2, 1183-1184.	3.1	24
98	Equilibrium Thermodynamics of a Physiologically-Relevant Hemeâ^'Protein Complex. Biochemistry, 1999, 38, 16876-16881.	1.2	24
99	Strategies for Protein NMR in <i>Escherichia coli</i> . Biochemistry, 2014, 53, 1971-1981.	1.2	24
100	Two-dimensional NMR as a probe of structural similarity applied to mutants of cytochrome c. FEBS Journal, 1988, 177, 179-185.	0.2	23
101	Interactions between Yeast Iso-1-cytochromecand Its Peroxidaseâ€. Biochemistry, 2001, 40, 422-428.	1.2	22
102	Enthalpic stabilization of an SH3 domain by D ₂ O. Protein Science, 2018, 27, 1710-1716.	3.1	22
103	Crowding and function reunite. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 17457-17458.	3.3	21
104	Quantification of size effect on protein rotational mobility in cells by 19F NMR spectroscopy. Analytical and Bioanalytical Chemistry, 2018, 410, 869-874.	1.9	21
105	Changing the Transition State for Protein (Un)foldingâ€. Biochemistry, 1996, 35, 7403-7411.	1.2	20
106	Peroxidative aggregation of \hat{l} ±-synuclein requires tyrosines. Protein Science, 2008, 13, 2852-2856.	3.1	20
107	Quantifying Green Fluorescent Protein Diffusion in <i>Escherichia coli</i> by Using Continuous Photobleaching with Evanescent Illumination. Journal of Physical Chemistry B, 2009, 113, 4837-4845.	1.2	20
108	Probing the Micelleâ€Bound Aggregationâ€Prone State of αâ€Synuclein with ¹⁹ F NMR Spectroscopy. ChemBioChem, 2010, 11, 1993-1996.	1.3	20

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109	Interaction of α-Synuclein and a Cell Penetrating Fusion Peptide with Higher Eukaryotic Cell Membranes Assessed by ¹⁹ F NMR. Molecular Pharmaceutics, 2012, 9, 1024-1029.	2.3	20
110	Crowding and Confinement Can Oppositely Affect Protein Stability. ChemPhysChem, 2018, 19, 3350-3355.	1.0	19
111	Protein–Peptide Binding Energetics under Crowded Conditions. Journal of Physical Chemistry B, 2020, 124, 9297-9309.	1.2	19
112	Dynamical spectroscopy and microscopy of proteins in cells. Current Opinion in Structural Biology, 2021, 70, 1-7.	2.6	19
113	Nonideality and protein thermal denaturation. , 1999, 49, 471-479.		16
114	Searching for quantitative entropy-enthalpy compensation among protein variants. Proteins: Structure, Function and Bioinformatics, 2002, 49, 398-402.	1.5	16
115	Amide proton exchange of a dynamic loop in cell extracts. Protein Science, 2013, 22, 1313-1319.	3.1	16
116	Buffers, Especially the Good Kind. Biochemistry, 2021, 60, 3436-3440.	1.2	15
117	Crowding by Trisaccharides and the 2:1 Cytochrome câ^'Cytochrome c Peroxidase Complex. Biochemistry, 2002, 41, 547-551.	1.2	14
118	Peeking into living eukaryotic cells with high-resolution NMR. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 11817-11818.	3.3	14
119	Roles of structural plasticity in chaperone HdeA activity are revealed by 19F NMR. Chemical Science, 2016, 7, 2222-2228.	3.7	14
120	Protection by desiccationâ€ŧolerance proteins probed at the residue level. Protein Science, 2022, 31, 396-406.	3.1	14
121	Dried Protein Structure Revealed at the Residue Level by Liquid-Observed Vapor Exchange NMR. Biochemistry, 2021, 60, 152-159.	1.2	13
122	Cytosol Has a Small Effect on Protein Backbone Dynamicsâ€. Biochemistry, 2006, 45, 10085-10091.	1.2	12
123	Testing Hypotheses about Determinants of Protein Structure with High-Precision, High-Throughput Stability Measurements and Statistical Modeling. Biochemistry, 2003, 42, 7594-7603.	1.2	11
124	Pressure perturbation calorimetry of helical peptides. Proteins: Structure, Function and Bioinformatics, 2005, 63, 322-326.	1.5	11
125	<i>Danio rerio</i> Oocytes for Eukaryotic In-Cell NMR. Biochemistry, 2021, 60, 451-459.	1.2	11
126	Water's Variable Role in Protein Stability Uncovered by Liquid-Observed Vapor Exchange NMR. Biochemistry, 2021, 60, 3041-3045.	1.2	11

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127	Controlling and quantifying protein concentration in <i>Escherichia coli</i> . Protein Science, 2019, 28, 1307-1311.	3.1	10
128	Azo protein analogs: synthesis and characterization of arsanilazo and sulfanilazo derivatives of tyrosine and histidine. Biochemistry, 1984, 23, 589-596.	1.2	9
129	Preparation and characterization of sulfanilazo and arsanilazo proteins. Biochemistry, 1984, 23, 596-603.	1.2	9
130	Reconsideration of sedimentation equilibrium distributions reflecting the effects of small inert cosolutes on the dimerization of \hat{l}_{\pm} -chymotrypsin. Biophysical Chemistry, 2007, 130, 89-92.	1.5	9
131	The Expanding Zoo of In-Cell Protein NMR. Biophysical Journal, 2018, 115, 1628-1629.	0.2	9
132	Toxicity and Immunogenicity of a Tardigrade Cytosolic Abundant Heat Soluble Protein in Mice. Frontiers in Pharmacology, 2020, 11, 565969.	1.6	9
133	Membrane proteins, magic-angle spinning, and in-cell NMR. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 4715-4716.	3.3	8
134	Protein Stability in Reverse Micelles. Angewandte Chemie, 2016, 128, 3650-3653.	1.6	8
135	Membraneâ€mediated disorderâ€ŧoâ€order transition of SNAP25 flexible linker facilitates its interaction with syntaxinâ€1 and SNAREâ€complex assembly. FASEB Journal, 2019, 33, 7985-7994.	0.2	8
136	Temperature-sensitive variants of Saccharomyces cerevisiae iso-1-cytochrome c produced by random mutagenesis of codons 43 to 54. Journal of Molecular Biology, 1991, 221, 97-105.	2.0	7
137	Rheostatic Control of Protein Expression Using Tuner Cells. Biochemistry, 2020, 59, 733-735.	1.2	7
138	Chapter 12. Protein Stability and Weak Intracellular Interactions. New Developments in NMR, 2019, , 188-206.	0.1	6
139	Requirements for perpendicular helix pairing. , 1996, 26, 95-107.		4
140	Woes of proline: A cautionary kinetic tale. Protein Science, 2006, 15, 393-394.	3.1	3
141	A Difference between <i>In Vitro</i> and In-Cell Protein Dimer Formation. Biochemistry, 2022, 61, 409-412.	1.2	3
142	Design, synthesis, expression, and characterization of the genes for mouse Fcl ³ RIIb1 and Fcl ³ RIIb2 cytoplasmic regions. Protein Science, 1997, 6, 1038-1046.	3.1	2
143	Osmolyte-induced changes in protein conformational equilibria. Biopolymers, 2000, 53, 293.	1.2	2
144	Desiccationâ€ŧolerance and globular proteins adsorb similar amounts of water. Protein Science, 2022, 31, e4288.	3.1	2

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145	Glycine Betaine Reverses Osmotic Shock Induced Protein Destabilization in Living Cells. Biophysical Journal, 2017, 112, 57a.	0.2	1
146	Osmolyte-induced changes in protein conformational equilibria. , 2000, 53, 293.		1
147	Physiologically-Relevant Crowding Effects on the SH3-Son of Sevenless Interaction. Biophysical Journal, 2019, 116, 158a.	0.2	0
148	Jan Hermans (1933â€2018): Redâ€blooded biophysicists study hemoglobin. Proteins: Structure, Function and Bioinformatics, 2019, 87, 171-173.	1.5	0