Howard Ronald Kaback

List of Publications by Year
in descending order

118 papers	7,984 citations	46918 47 h-index	51492 86 g-index
118 all docs	118 docs citations	118 times ranked	3331 citing authors

#	Article	IF	Citations
1	Structure and Mechanism of the Lactose Permease of Escherichia coli. Science, 2003, 301, 610-615.	6.0	1,390
2	Cysâ€scanning mutagenesis: a novel approach to structureâ€"function relationships in polytopic membrane proteins. FASEB Journal, 1998, 12, 1281-1299.	0.2	344
3	LESSONS FROM LACTOSE PERMEASE. Annual Review of Biophysics and Biomolecular Structure, 2006, 35, 67-91.	18.3	305
4	The kamikaze approach to membrane transport. Nature Reviews Molecular Cell Biology, 2001, 2, 610-620.	16.1	276
5	Structural determination of wild-type lactose permease. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 15294-15298.	3.3	206
6	Structural evidence for induced fit and a mechanism for sugar/H+ symport in LacY. EMBO Journal, 2006, 25, 1177-1183.	3.5	165
7	[32] Purification, reconstitution, and characterization of the lac permease of Escherichia coli. Methods in Enzymology, 1986, 125, 429-452.	0.4	162
8	Sugar binding induces an outward facing conformation of LacY. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 16504-16509.	3.3	161
9	Mechanism of lactose translocation in membrane vesicles from Escherichia coli. 2. Effect of imposed .DELTA..PSI., .DELTA.pH, and .DELTA..lovin..mu.H+. Biochemistry, 1979, 18, 3697-3704.	1.2	156
10	Single-molecule FRET reveals sugar-induced conformational dynamics in LacY. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 12640-12645.	3.3	144
11	Site-directed alkylation and the alternating access model for LacY. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 491-494.	3.3	139
12	From membrane to molecule to the third amino acid from the left with a membrane transport protein. Quarterly Reviews of Biophysics, 1997, 30, 333-364.	2.4	130
13	Structure-based mechanism for Na+/melibiose symport by MelB. Nature Communications, 2014, 5, 3009.	5.8	124
14	Active transport in membrane vesicles from Escherichia coli: the electrochemical proton gradient alters the distribution of the lac carrier between two different kinetic states. Biochemistry, 1980, 19, 5692-5702.	1.2	117
15	Cysteine scanning mutagenesis of putative transmembrane helices IX and X in the lactose permease of <i>Escherichia coli</i>. Protein Science, 1993, 2, 1024-1033.	3.1	112
16	Structure of sugar-bound LacY. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 1784-1788.	3.3	111
17	Proteomics on Full-Length Membrane Proteins Using Mass Spectrometryâ€. Biochemistry, 2000, 39, 4237-4242.	1.2	104
18	Characterization of site-directed mutants in the lac permease of Escherichia coli. 2. Glutamate-325 replacements. Biochemistry, 1989, 28, 2533-2539.	1.2	103

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19	Monoclonal antibodies against the lac carrier protein from Escherichia coli. 2. Binding studies with membrane vesicles and proteoliposomes reconstituted with purified lac carrier protein. Biochemistry, 1984, 23, 3688-3693.	1.2	102
20	Lactose Permease and the Alternating Access Mechanism. Biochemistry, 2011, 50, 9684-9693.	1.2	100
21	The Alternating Access Transport Mechanism in LacY. Journal of Membrane Biology, 2011, 239, 85-93.	1.0	100
22	Structure and mechanism of the lactose permease. Comptes Rendus - Biologies, 2005, 328, 557-567.	0.1	89
23	Membrane Topology of the Melibiose Permease ofEscherichiacoliStudied bymelBâ˘'phoAFusion Analysisâ€. Biochemistry, 1996, 35, 4161-4168.	1.2	86
24	A chemiosmotic mechanism of symport. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 1259-1264.	3.3	86
25	Expression of Lactose Permease in Contiguous Fragments as a Probe for Membrane-Spanning Domains. Biochemistry, 1994, 33, 8198-8206.	1.2	84
26	Identification of the Epitope for Monoclonal Antibody 4B1 Which Uncouples Lactose and Proton Translocation in the Lactose Permease ofEscherichiacoli. Biochemistry, 1996, 35, 990-998.	1.2	84
27	Opening and closing of the periplasmic gate in lactose permease. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 3774-3778.	3.3	84
28	Crystal structure of lactose permease in complex with an affinity inactivator yields unique insight into sugar recognition. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 9361-9366.	3.3	84
29	Mechanism of lactose translocation in proteoliposomes reconstituted with lac carrier protein purified from Escherichia coli. II. Deuterium solvent isotope effects. Biochemistry, 1983, 22, 2531-2536.	1.2	81
30	Aromatic Stacking in the Sugar Binding Site of the Lactose Permeaseâ€. Biochemistry, 2003, 42, 1377-1382.	1.2	70
31	YidC assists the stepwise and stochastic folding of membrane proteins. Nature Chemical Biology, 2016, 12, 911-917.	3.9	70
32	Proximity between Glu126 and Arg144 in the Lactose Permease of Escherichia coli. Biochemistry, 1999, 38, 7407-7412.	1.2	67
33	Quantification of Detergents Complexed with Membrane Proteins. Scientific Reports, 2017, 7, 41751.	1.6	66
34	What To Do while Awaiting Crystals of a Membrane Transport Protein and Thereafter. Accounts of Chemical Research, 1999, 32, 805-813.	7.6	63
35	Exploiting luminescence spectroscopy to elucidate the interaction between sugar and a tryptophan residue in the lactose permease of Escherichia coli. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 12706-12711.	3.3	60
36	Protonation and sugar binding to LacY. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 8896-8901.	3.3	60

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37	Binding affinity of lactose permease is not altered by the H+ electrochemical gradient. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 12148-12152.	3.3	59
38	Proximity of Periplasmic Loops in the Lactose Permease ofEscherichia coliDetermined by Site-Directed Cross-Linking. Biochemistry, 1997, 36, 11959-11965.	1.2	56
39	Probing of the rates of alternating access in LacY with Trp fluorescence. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 21561-21566.	3.3	56
40	Residues in the H⁺ Translocation Site Define the p<i>K</i>_a for Sugar Binding to LacY. Biochemistry, 2009, 48, 8852-8860.	1.2	56
41	Role of glutamate-269 in the lactose permease of<i>Escherichia coli</i>. Molecular Membrane Biology, 1994, 11, 9-16.	2.0	55
42	Elucidation of substrate binding interactions in a membrane transport protein by mass spectrometry. EMBO Journal, 2003, 22, 1467-1477.	3.5	51
43	Electrophysiological characterization of LacY. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 7373-7378.	3.3	50
44	Surface-exposed positions in the transmembrane helices of the lactose permease ofEscherichia colidetermined by intermolecular thiol cross-linking. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 3475-3480.	3.3	49
45	Direct Sugar Binding to LacY Measured by Resonance Energy Transferâ€. Biochemistry, 2006, 45, 15279-15287.	1.2	49
46	Effect of Calcium on Intracellular Sodium and Potassium Concentrations in Plant and Animal Cells. Nature, 1964, 204, 641-642.	13.7	48
47	Dynamics of Lactose Permease of Escherichia coli Determined by Site-Directed Chemical Labeling and Fluorescence Spectroscopy. Biochemistry, 1995, 34, 8257-8263.	1.2	48
48	Ligand Recognition by the Lactose Permease of Escherichia coli:â€‰ Specificity and Affinity Are Defined by Distinct Structural Elements of Galactopyranosides. Biochemistry, 2000, 39, 5097-5103.	1.2	48
49	Sequence Alignment and Homology Threading Reveals Prokaryotic and Eukaryotic Proteins Similar to Lactose Permease. Journal of Molecular Biology, 2006, 358, 1060-1070.	2.0	48
50	Ligandâ€Induced conformational changes in the lactose permease of <i>escherichia coli</i>: Evidence for two binding sites. Protein Science, 1994, 3, 2294-2301.	3.1	47
51	Site-Directed Spin Labeling Demonstrates That Transmembrane Domain XII in the Lactose Permease ofEscherichia coliIs an Î±-Helixâ€. Biochemistry, 1996, 35, 12915-12918.	1.2	47
52	Structure of LacY with an Î±-substituted galactoside: Connecting the binding site to the protonation site. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 9004-9009.	3.3	45
53	Site-Directed Sulfhydryl Labeling of the Lactose Permease of Escherichia coli:â€‰ Helix VII. Biochemistry, 2000, 39, 10641-10648.	1.2	44
54	Site-directed Alkylation of LacY: Effect of the Proton Electrochemical Gradient. Journal of Molecular Biology, 2007, 374, 356-364.	2.0	43

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55	The C-4 Hydroxyl Group of Galactopyranosides Is the Major Determinant for Ligand Recognition by the Lactose Permease ofEscherichia coliâ€. Biochemistry, 2001, 40, 13015-13019.	1.2	42
56	Engineering the lac permease for purification and crystallization. Journal of Bioenergetics and Biomembranes, 1996, 28, 29-34.	1.0	41
57	Site-Directed Sulfhydryl Labeling of the Lactose Permease of Escherichia coli:â€‰ N-Ethylmaleimide-Sensitive Face of Helix II. Biochemistry, 2000, 39, 10649-10655.	1.2	41
58	Trp replacements for tightly interacting Glyâ€"Gly pairs in LacY stabilize an outward-facing conformation. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 8876-8881.	3.3	40
59	Site-Directed Spin-Labeling of Transmembrane Domain VII and the 4B1 Antibody Epitope in the Lactose Permease ofEscherichia coliâ€. Biochemistry, 1997, 36, 15055-15061.	1.2	39
60	Delineating Electrogenic Reactions during Lactose/H⁺ Symport. Biochemistry, 2010, 49, 6115-6121.	1.2	39
61	Opening the periplasmic cavity in lactose permease is the limiting step for sugar binding. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 15147-15151.	3.3	39
62	It takes two to tango: The dance of the permease. Journal of General Physiology, 2019, 151, 878-886.	0.9	39
63	Crystal structure of a LacYâ€"nanobody complex in a periplasmic-open conformation. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 12420-12425.	3.3	38
64	Fluorescence of native singleâ€Trp mutants in the lactose permease from <i>Escherichia coli</i>: Structural properties and evidence for a substrateâ€induced conformational change. Protein Science, 1995, 4, 2310-2318.	3.1	37
65	Cysteine-Scanning Mutagenesis of Transmembrane Domain XII and the Flanking Periplasmic Loop in the Lactose Permease ofEscherichia coli. Biochemistry, 1996, 35, 12909-12914.	1.2	37
66	Sugar binding induces the same global conformational change in purified LacY as in the native bacterial membrane. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 9903-9908.	3.3	35
67	A conformational change in the lactose permease of <i>Escherichia coli</i> is induced by ligand binding or membrane potential. Protein Science, 1994, 3, 1052-1057.	3.1	34
68	Chemical Rescue of Asp237â†'Ala and Lys358â†'Ala Mutants in the Lactose Permease ofEscherichia coli. Biochemistry, 1996, 35, 13363-13367.	1.2	34
69	Binding of Ligand or Monoclonal Antibody 4B1 Induces Discrete Structural Changes in the Lactose Permease ofEscherichia coliâ€. Biochemistry, 1997, 36, 6408-6414.	1.2	33
70	Tilting of Helix I and Ligand-Induced Changes in the Lactose Permease Determined by Site-Directed Chemical Cross-Linking in Situâ€. Biochemistry, 1998, 37, 15785-15790.	1.2	33
71	Insertion and folding pathways of single membrane proteins guided by translocases and insertases. Science Advances, 2019, 5, eaau6824.	4.7	33
72	Site-Directed Sulfhydryl Labeling of the Lactose Permease of Escherichia coli:â€‰ Helix X. Biochemistry, 2000, 39, 10656-10661.	1.2	32

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73	Thermodynamic mechanism for inhibition of lactose permease by the phosphotransferase protein IIA ^{Glc}. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 2407-2412.	3.3	32
74	Observing a Lipid-Dependent Alteration in Single Lactose Permeases. Structure, 2015, 23, 754-761.	1.6	32
75	Crystal Structure of a ligand-bound LacYâ€“Nanobody Complex. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 8769-8774.	3.3	32
76	The role of helix VIII in the lactose permease of <i>Escherichia coli</i>: II. Siteâ€directed sulfhydryl modification. Protein Science, 1997, 6, 438-443.	3.1	31
77	Proximity between Periplasmic Loops in the Lactose Permease of Escherichia coli As Determined by Site-Directed Spin Labeling. Biochemistry, 1999, 38, 3100-3105.	1.2	31
78	Engineering Conformational Flexibility in the Lactose Permease ofEscherichia coli:Â Use of Glycine-Scanning Mutagenesis To Rescue Mutant Glu325â†’Aspâ€. Biochemistry, 2001, 40, 769-776.	1.2	31
79	Sulfhydryl Oxidation of Mutants with Cysteine in Place of Acidic Residues in the Lactose Permeaseâ€. Biochemistry, 1998, 37, 8191-8196.	1.2	29
80	The role of helix VIII in the lactose permease of<i>Escherichia coli</i>: I. Cysâ€scanning mutagenesis. Protein Science, 1997, 6, 431-437.	3.1	28
81	Thiol Cross-Linking of Cytoplasmic Loops in the Lactose Permease ofEscherichia coliâ€. Biochemistry, 2000, 39, 3134-3140.	1.2	28
82	pK _a of Glu325 in LacY. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 1530-1535.	3.3	28
83	pH Regulation of Electrogenic Sugar/H+ Symport in MFS Sugar Permeases. PLoS ONE, 2016, 11, e0156392.	1.1	25
84	Proximity of Helices VIII (Ala273) and IX (Met299) in the Lactose Permease of Escherichia coli. Biochemistry, 1998, 37, 4910-4915.	1.2	24
85	Real-time conformational changes in LacY. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 8440-8445.	3.3	24
86	Outward-facing conformers of LacY stabilized by nanobodies. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 18548-18553.	3.3	23
87	Structure-function relationships of integral membrane proteins: Membrane transporters vs channels. Biopolymers, 2000, 55, 297-307.	1.2	22
88	Manipulating conformational equilibria in the lactose permease of Escherichia coli 1 1Edited by G. von Heijne. Journal of Molecular Biology, 2002, 315, 561-571.	2.0	22
89	Transient conformers of LacY are trapped by nanobodies. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 13839-13844.	3.3	22
90	The role of transmembrane domain III in the lactose permease of <i>escherichia coli</i>. Protein Science, 1994, 3, 2302-2310.	3.1	21

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91	In Vitro Biotinylation Provides Quantitative Recovery of Highly Purified Active Lactose Permease in a Single Step. Biochemistry, 1998, 37, 15713-15719.	1.2	21
92	Helix Packing in the Lactose Permease of Escherichia coli Determined by Site-Directed Thiol Cross-Linking:â€‰ Helix I Is Close to Helices V and XI. Biochemistry, 1999, 38, 3120-3126.	1.2	20
93	Tertiary Contacts of Helix V in the Lactose Permease Determined by Site-Directed Chemical Cross-Linking in Situâ€. Biochemistry, 1999, 38, 2320-2325.	1.2	19
94	Electrophysiological Characterization of Uncoupled Mutants of LacY. Biochemistry, 2013, 52, 8261-8266.	1.2	18
95	Effect of the Lipid Phase Transition on the Lactose Permease from Escherichia coli. Biochemistry, 2000, 39, 14538-14542.	1.2	17
96	Ligand-Induced Movement of Helix X in the Lactose Permease fromEscherichia coli:A Fluorescence Quenching Study. Biochemistry, 1997, 36, 14120-14127.	1.2	16
97	Binding of monoclonal antibody 4B1 to homologs of the lactose permease of<i>Escherichia coli</i>. Protein Science, 1997, 6, 1503-1510.	3.1	16
98	An Early Event in the Transport Mechanism of LacY Protein. Journal of Biological Chemistry, 2011, 286, 30415-30422.	1.6	16
99	Location of Helix III in the Lactose Permease of Escherichia coli As Determined by Site-Directed Thiol Cross-Linking. Biochemistry, 1999, 38, 16777-16782.	1.2	14
100	Functional Conservation in the Putative Substrate Binding Site of the Sucrose Permease from Escherichia coli. Biochemistry, 2000, 39, 6170-6175.	1.2	13
101	Probing the Mechanism of a Membrane Transport Protein with Affinity Inactivators. Journal of Biological Chemistry, 2003, 278, 10641-10648.	1.6	13
102	Arg302 governs the pK _a of Glu325 in LacY. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 4934-4939.	3.3	11
103	In vitro folding of a membrane protein: Effect of denaturation and renaturation on substrate binding by the lactose permease of<i>Escherichia coli</i>. Molecular Membrane Biology, 1998, 15, 15-20.	2.0	10
104	An Asymmetric Conformational Change in LacY. Biochemistry, 2017, 56, 1943-1950.	1.2	10
105	Investigation of sugar binding kinetics of the E.Âcoli sugar/H+ symporter XylE using solid-supported membrane-based electrophysiology. Journal of Biological Chemistry, 2022, 298, 101505.	1.6	10
106	Oversized galactosides as a probe for conformational dynamics in LacY. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 4146-4151.	3.3	8
107	The proton electrochemical gradient induces a kinetic asymmetry in the symport cycle of LacY. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 977-981.	3.3	7
108	Thermodynamics of Nanobody Binding to Lactose Permease. Biochemistry, 2016, 55, 5917-5926.	1.2	5

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109	Diversity in kinetics correlated with structure in nano body-stabilized LacY. PLoS ONE, 2020, 15, e0232846.	1.1	3
110	Engineered occluded apo-intermediate of LacY. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 12716-12721.	3.3	2
111	Mass Spectrometry of Membrane Transport Proteins. , 0, , 179-189.		0
112	H+/Lactose Membrane Transport Protein, LacY. , 2018, , 1-10.		0
113	Monoclonal antibody 4B1 influences the p K a of Glu325 in lactose permease (LacY) from EscherichiaÂcoli : evidence from SEIRAS. FEBS Letters, 2020, 594, 3356-3362.	1.3	0
114	Structural Analysis of Murine Voltage Dependent Anion Channel (VDAC) 1. FASEB Journal, 2006, 20, .	0.2	0
115	Diversity in kinetics correlated with structure in nano body-stabilized LacY. , 2020, 15, e0232846.		0
116	Diversity in kinetics correlated with structure in nano body-stabilized LacY. , 2020, 15, e0232846.		0
117	Diversity in kinetics correlated with structure in nano body-stabilized LacY. , 2020, 15, e0232846.		0
118	Diversity in kinetics correlated with structure in nano body-stabilized LacY. , 2020, 15, e0232846.		0