Lance C Seefeldt

List of Publications by Citations

190 papers	14,750 citations	62 h-index	118 g-index
207 ext. papers	17,101 ext. citations	9.2 avg, IF	6.57 L-index

#	Paper	IF	Citations
190	X-ray crystal structure of the Fe-only hydrogenase (CpI) from Clostridium pasteurianum to 1.8 angstrom resolution. *Science*, **1998**, 282, 1853-8	33.3	1513
189	Frontiers, opportunities, and challenges in biochemical and chemical catalysis of CO2 fixation. *Chemical Reviews*, **2013**, 113, 6621-58	68.1	1415
188	Mechanism of nitrogen fixation by nitrogenase: the next stage. *Chemical Reviews*, **2014**, 114, 4041-62	68.1	1073
187	Beyond fossil fuel-driven nitrogen transformations. *Science*, **2018**, 360,	33.3	772
186	Light-driven dinitrogen reduction catalyzed by a CdS:nitrogenase MoFe protein biohybrid. *Science*, **2016**, 352, 448-50	33.3	507
185	Mechanism of Mo-dependent nitrogenase. *Annual Review of Biochemistry*, **2009**, 78, 701-22	29.1	457
184	Biodiesel production by simultaneous extraction and conversion of total lipids from microalgae, cyanobacteria, and wild mixed-cultures. *Bioresource Technology*, **2011**, 102, 2724-30	11	342
183	Climbing nitrogenase: toward a mechanism of enzymatic nitrogen fixation. *Accounts of Chemical Research*, **2009**, 42, 609-19	24.3	287
182	Nitrogenase: a draft mechanism. *Accounts of Chemical Research*, **2013**, 46, 587-95	24.3	282
181	Nitrogen fixation: the mechanism of the Mo-dependent nitrogenase. *Critical Reviews in Biochemistry and Molecular Biology*, **2003**, 38, 351-84	8.7	200
180	Substrate interactions with the nitrogenase active site. *Accounts of Chemical Research*, **2005**, 38, 208-14	24.3	177
179	Substrate interactions with nitrogenase: Fe versus Mo. *Biochemistry*, **2004**, 43, 1401-9	3.2	175
178	Trapping H- bound to the nitrogenase FeMo-cofactor active site during H2 evolution: characterization by ENDOR spectroscopy. *Journal of the American Chemical Society*, **2005**, 127, 6231-41	16.4	170
177	Catalytic and biophysical properties of a nitrogenase Apo-MoFe protein produced by a nifB-deletion mutant of Azotobacter vinelandii. *Biochemistry*, **1998**, 37, 12611-23	3.2	161
176	Understanding precision nitrogen stress to optimize the growth and lipid content tradeoff in oleaginous green microalgae. *Bioresource Technology*, **2013**, 131, 188-94	11	143
175	Nitrogenase bioelectrocatalysis: heterogeneous ammonia and hydrogen production by MoFe protein. *Energy and Environmental Science*, **2016**, 9, 2550-2554	35.4	139
174	Breaking the N2 triple bond: insights into the nitrogenase mechanism. *Dalton Transactions*, **2006**, 2277-843	4	119

173	Substrate interaction at an iron-sulfur face of the FeMo-cofactor during nitrogenase catalysis. *Journal of Biological Chemistry*, **2004**, 279, 53621-4	5.4	119
172	MECHANISTIC FEATURES OF THE MO-CONTAINING NITROGENASE. *Annual Review of Plant Biology*, **2001**, 52, 269-295		117
171	Intermediates trapped during nitrogenase reduction of N triple bond N, CH3-N=NH, and H2N-NH2. *Journal of the American Chemical Society*, **2005**, 127, 14960-1	16.4	112
170	Role of Nucleotides in Nitrogenase Catalysis. *Accounts of Chemical Research*, **1997**, 30, 260-266	24.3	107
169	An organometallic intermediate during alkyne reduction by nitrogenase. *Journal of the American Chemical Society*, **2004**, 126, 9563-9	16.4	105
168	Biodiesel from Microalgae, Yeast, and Bacteria: Engine Performance and Exhaust Emissions. *Energy & Fuels*, **2013**, 27, 220-228	4.1	104
167	Reductive Elimination of H2 Activates Nitrogenase to Reduce the N?N Triple Bond: Characterization of the E4(4H) Janus Intermediate in Wild-Type Enzyme. *Journal of the American Chemical Society*, **2016**, 138, 10674-83	16.4	100
166	Electron transfer within nitrogenase: evidence for a deficit-spending mechanism. *Biochemistry*, **2011**, 50, 9255-63	3.2	97
165	The interstitial atom of the nitrogenase FeMo-cofactor: ENDOR and ESEEM show it is not an exchangeable nitrogen. *Journal of the American Chemical Society*, **2003**, 125, 5604-5	16.4	93
164	Connecting nitrogenase intermediates with the kinetic scheme for N2 reduction by a relaxation protocol and identification of the N2 binding state. *Proceedings of the National Academy of Sciences of the United States of America*, **2007**, 104, 1451-5	11.5	91
163	Reduction of Substrates by Nitrogenases. *Chemical Reviews*, **2020**, 120, 5082-5106	68.1	90
162	Carbon dioxide reduction to methane and coupling with acetylene to form propylene catalyzed by remodeled nitrogenase. *Proceedings of the National Academy of Sciences of the United States of America*, **2012**, 109, 19644-8	11.5	90
161	Trapping a hydrazine reduction intermediate on the nitrogenase active site. *Biochemistry*, **2005**, 44, 8030-7	3.2	89
160	Insights into nucleotide signal transduction in nitrogenase: structure of an iron protein with MgADP bound. *Biochemistry*, **2000**, 39, 14745-52	3.2	88
159	Characterization of a fatty acyl-CoA reductase from Marinobacter aquaeolei VT8: a bacterial enzyme catalyzing the reduction of fatty acyl-CoA to fatty alcohol. *Biochemistry*, **2011**, 50, 10550-8	3.2	87
158	Electron transfer in nitrogenase catalysis. *Current Opinion in Chemical Biology*, **2012**, 16, 19-25	9.7	86
157	The Electron Bifurcating FixABCX Protein Complex from Azotobacter vinelandii: Generation of Low-Potential Reducing Equivalents for Nitrogenase Catalysis. *Biochemistry*, **2017**, 56, 4177-4190	3.2	84
156	Diazene (HN=NH) is a substrate for nitrogenase: insights into the pathway of N2 reduction. *Biochemistry*, **2007**, 46, 6784-94	3.2	84

155	Identification of a key catalytic intermediate demonstrates that nitrogenase is activated by the reversible exchange of N for H. *Journal of the American Chemical Society*, **2015**, 137, 3610-5	16.4	83
154	Molybdenum nitrogenase catalyzes the reduction and coupling of CO to form hydrocarbons. *Journal of Biological Chemistry*, **2011**, 286, 19417-21	5.4	82
153	Localization of a substrate binding site on the FeMo-cofactor in nitrogenase: trapping propargyl alcohol with an alpha-70-substituted MoFe protein. *Biochemistry*, **2003**, 42, 9102-9	3.2	82
152	Electrochemical Dinitrogen Reduction to Ammonia by Mo2N: Catalysis or Decomposition?. *ACS Energy Letters*, **2019**, 4, 1053-1054	20.1	81
151	Elucidation of a MgATP signal transduction pathway in the nitrogenase iron protein: formation of a conformation resembling the MgATP-bound state by protein engineering. *Biochemistry*, **1996**, 35, 4766-75	3.2	81
150	Changes in the midpoint potentials of the nitrogenase metal centers as a result of iron protein-molybdenum-iron protein complex formation. *Biochemistry*, **1997**, 36, 12976-83	3.2	79
149	On reversible H2 loss upon N2 binding to FeMo-cofactor of nitrogenase. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 16327-32	11.5	78
148	Testing if the interstitial atom, X, of the nitrogenase molybdenum-iron cofactor is N or C: ENDOR, ESEEM, and DFT studies of the S = 3/2 resting state in multiple environments. *Inorganic Chemistry*, **2007**, 46, 11437-49	5.1	77
147	A continuous, spectrophotometric activity assay for nitrogenase using the reductant titanium(III) citrate. *Analytical Biochemistry*, **1994**, 221, 379-86	3.1	77
146	Carbonyl sulfide and carbon dioxide as new substrates, and carbon disulfide as a new inhibitor, of nitrogenase. *Biochemistry*, **1995**, 34, 5382-9	3.2	76
145	A pathway for biological methane production using bacterial iron-only nitrogenase. *Nature Microbiology*, **2018**, 3, 281-286	26.6	75
144	ENDOR/HYSCORE studies of the common intermediate trapped during nitrogenase reduction of N2H2, CH3N2H, and N2H4 support an alternating reaction pathway for N2 reduction. *Journal of the American Chemical Society*, **2011**, 133, 11655-64	16.4	75
143	Evidence for electron transfer from the nitrogenase iron protein to the molybdenum-iron protein without MgATP hydrolysis: characterization of a tight protein-protein complex. *Biochemistry*, **1996**, 35, 7188-96	3.2	75
142	Electron transfer precedes ATP hydrolysis during nitrogenase catalysis. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 16414-9	11.5	74
141	A methyldiazene (HN=N-CH3)-derived species bound to the nitrogenase active-site FeMo cofactor: Implications for mechanism. *Proceedings of the National Academy of Sciences of the United States of America*, **2006**, 103, 17113-8	11.5	74
140	MgATP-Bound and nucleotide-free structures of a nitrogenase protein complex between the Leu 127 Delta-Fe-protein and the MoFe-protein. *Biochemistry*, **2001**, 40, 641-50	3.2	74
139	Is Mo involved in hydride binding by the four-electron reduced (E4) intermediate of the nitrogenase MoFe protein?. *Journal of the American Chemical Society*, **2010**, 132, 2526-7	16.4	72
138	Exploring the alternatives of biological nitrogen fixation. *Metallomics*, **2018**, 10, 523-538	4.5	70

137	Evidence That the Pi Release Event Is the Rate-Limiting Step in the Nitrogenase Catalytic Cycle. *Biochemistry*, **2016**, 55, 3625-35	3.2	70
136	Critical computational analysis illuminates the reductive-elimination mechanism that activates nitrogenase for N reduction. *Proceedings of the National Academy of Sciences of the United States of America*, **2018**, 115, E10521-E10530	11.5	69
135	Nitrogenase reduction of carbon-containing compounds. *Biochimica Et Biophysica Acta - Bioenergetics*, **2013**, 1827, 1102-11	4.6	68
134	The interstitial atom of the nitrogenase FeMo-cofactor: ENDOR and ESEEM evidence that it is not a nitrogen. *Journal of the American Chemical Society*, **2005**, 127, 12804-5	16.4	68
133	57Fe ENDOR spectroscopy and Pelectron inventoryPanalysis of the nitrogenase E4 intermediate suggest the metal-ion core of FeMo-cofactor cycles through only one redox couple. *Journal of the American Chemical Society*, **2011**, 133, 17329-40	16.4	66
132	Spectroscopic evidence for changes in the redox state of the nitrogenase P-cluster during turnover. *Biochemistry*, **1999**, 38, 5779-85	3.2	65
131	Evidence for coupled electron and proton transfer in the [8Fe-7S] cluster of nitrogenase. *Biochemistry*, **1998**, 37, 11376-84	3.2	63
130	Energy Transduction in Nitrogenase. *Accounts of Chemical Research*, **2018**, 51, 2179-2186	24.3	62
129	Nucleotide hydrolysis and protein conformational changes in Azotobacter vinelandii nitrogenase iron protein: defining the function of aspartate 129. *Biochemistry*, **1995**, 34, 10713-23	3.2	62
128	Crystal structure of the L protein of Rhodobacter sphaeroides light-independent protochlorophyllide reductase with MgADP bound: a homologue of the nitrogenase Fe protein. *Biochemistry*, **2008**, 47, 13004-15	3.2	61
127	Localization of a catalytic intermediate bound to the FeMo-cofactor of nitrogenase. *Journal of Biological Chemistry*, **2004**, 279, 34770-5	5.4	61
126	Mo-, V-, and Fe-Nitrogenases Use a Universal Eight-Electron Reductive-Elimination Mechanism To Achieve N Reduction. *Biochemistry*, **2019**, 58, 3293-3301	3.2	59
125	Differences in substrate specificities of five bacterial wax ester synthases. *Applied and Environmental Microbiology*, **2012**, 78, 5734-45	4.8	58
124	Insights into substrate binding at FeMo-cofactor in nitrogenase from the structure of an alpha-70(Ile) MoFe protein variant. *Journal of Inorganic Biochemistry*, **2010**, 104, 385-9	4.2	58
123	Purification to homogeneity of Azotobacter vinelandii hydrogenase: a nickel and iron containing alpha beta dimer. *Biochimie*, **1986**, 68, 25-34	4.6	58
122	Isolation and characterization of an acetylene-resistant nitrogenase. *Journal of Biological Chemistry*, **2000**, 275, 11459-64	5.4	55
121	Increasing nitrogenase catalytic efficiency for MgATP by changing serine 16 of its Fe protein to threonine: use of Mn2+ to show interaction of serine 16 with Mg2+. *Protein Science*, **1993**, 2, 93-102	6.3	55
120	Uncoupling nitrogenase: catalytic reduction of hydrazine to ammonia by a MoFe protein in the absence of Fe protein-ATP. *Journal of the American Chemical Society*, **2010**, 132, 13197-9	16.4	54

119	Trapping an intermediate of dinitrogen (N2) reduction on nitrogenase. *Biochemistry*, **2009**, 48, 9094-102	3.2	53
118	Conformational gating of electron transfer from the nitrogenase Fe protein to MoFe protein. *Journal of the American Chemical Society*, **2010**, 132, 6894-5	16.4	52
117	Unification of reaction pathway and kinetic scheme for N2 reduction catalyzed by nitrogenase. *Proceedings of the National Academy of Sciences of the United States of America*, **2012**, 109, 5583-7	11.5	52
116	The identification, characterization, sequencing and mutagenesis of the genes (hupSL) encoding the small and large subunits of the H2-uptake hydrogenase of Azotobacter chroococcum. *Molecular Microbiology*, **1990**, 4, 999-1008	4.1	50
115	Mapping the site(s) of MgATP and MgADP interaction with the nitrogenase of Azotobacter vinelandii. Lysine 15 of the iron protein plays a major role in MgATP interaction. *Journal of Biological Chemistry*, **1992**, 267, 6680-8	5.4	49
114	Reversible Photoinduced Reductive Elimination of H2 from the Nitrogenase Dihydride State, the E(4)(4H) Janus Intermediate. *Journal of the American Chemical Society*, **2016**, 138, 1320-7	16.4	48
113	Purification, characterization, and potential bacterial wax production role of an NADPH-dependent fatty aldehyde reductase from Marinobacter aquaeolei VT8. *Applied and Environmental Microbiology*, **2009**, 75, 2758-64	4.8	48
112	Competitive substrate and inhibitor interactions at the physiologically relevant active site of nitrogenase. *Journal of Biological Chemistry*, **2000**, 275, 36104-7	5.4	48
111	Mechanism of N Reduction Catalyzed by Fe-Nitrogenase Involves Reductive Elimination of H. *Biochemistry*, **2018**, 57, 701-710	3.2	47
110	EXAFS and NRVS reveal a conformational distortion of the FeMo-cofactor in the MoFe nitrogenase propargyl alcohol complex. *Journal of Inorganic Biochemistry*, **2012**, 112, 85-92	4.2	47
109	Synthesis of Biodiesel from Mixed Feedstocks and Longer Chain Alcohols Using an Acid-Catalyzed Method. *Energy & Fuels*, **2008**, 22, 4223-4228	4.1	46
108	Immunological relationship among hydrogenases. *Journal of Bacteriology*, **1989**, 171, 430-5	3.5	45
107	Oleaginous yeast platform for producing biofuels via co-solvent hydrothermal liquefaction. *Biotechnology for Biofuels*, **2015**, 8, 167	7.8	43
106	Light-driven carbon dioxide reduction to methane by nitrogenase in a photosynthetic bacterium. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 10163-7	11.5	43
105	Alkyne substrate interaction within the nitrogenase MoFe protein. *Journal of Inorganic Biochemistry* , **2007**, 101, 1642-8	4.2	42
104	Electron Transfer to Nitrogenase in Different Genomic and Metabolic Backgrounds. *Journal of Bacteriology*, **2018**, 200,	3.5	40
103	A new era for electron bifurcation. *Current Opinion in Chemical Biology*, **2018**, 47, 32-38	9.7	39
102	Electron transfer from the nitrogenase iron protein to the [8Fe-(7/8)S] clusters of the molybdenum-iron protein. *Biochemistry*, **1996**, 35, 16770-6	3.2	39

101	Mechanism of Nitrogenase H Formation by Metal-Hydride Protonation Probed by Mediated Electrocatalysis and H/D Isotope Effects. *Journal of the American Chemical Society*, **2017**, 139, 13518-13524	16.4	38
100	Circular dichroism and x-ray spectroscopies of Azotobacter vinelandii nitrogenase iron protein. MgATP and MgADP induced protein conformational changes affecting the [4Fe-4S] cluster and characterization of a [2Fe-2S] form. *Journal of Biological Chemistry*, **1996**, 271, 1551-7	5.4	38
99	Immunological and molecular evidence for a membrane-bound, dimeric hydrogenase in Rhodopseudomonas capsulata. *BBA - Proteins and Proteomics*, **1987**, 914, 299-303		38
98	Evidence for electron transfer-dependent formation of a nitrogenase iron protein-molybdenum-iron protein tight complex. The role of aspartate 39. *Journal of Biological Chemistry*, **1997**, 272, 4157-65	5.4	37
97	Interaction of acetylene and cyanide with the resting state of nitrogenase alpha-96-substituted MoFe proteins. *Biochemistry*, **2001**, 40, 13816-25	3.2	37
96	Elucidating the mechanism of nucleotide-dependent changes in the redox potential of the [4Fe-4S] cluster in nitrogenase iron protein: the role of phenylalanine 135. *Biochemistry*, **1996**, 35, 9424-34	3.2	37
95	Molecular and immunological comparison of membrane-bound, H2-oxidizing hydrogenases of Bradyrhizobium japonicum, Alcaligenes eutrophus, Alcaligenes latus, and Azotobacter vinelandii. *Journal of Bacteriology*, **1985**, 163, 15-20	3.5	37
94	Techno-economic feasibility and life cycle assessment of dairy effluent to renewable diesel via hydrothermal liquefaction. *Bioresource Technology*, **2015**, 196, 431-40	11	35
93	Defining Electron Bifurcation in the Electron-Transferring Flavoprotein Family. *Journal of Bacteriology*, **2017**, 199,	3.5	35
92	Electron transfer in nitrogenase analyzed by Marcus theory: evidence for gating by MgATP. *Biochemistry*, **1998**, 37, 399-407	3.2	35
91	Proton NMR investigation of the [4Fe--4S]1+ cluster environment of nitrogenase iron protein from Azotobacter vinelandii: defining nucleotide-induced conformational changes. *Biochemistry*, **1995**, 34, 15646-53	3.2	34
90	CO2 Reduction Catalyzed by Nitrogenase: Pathways to Formate, Carbon Monoxide, and Methane. *Inorganic Chemistry*, **2016**, 55, 8321-30	5.1	34
89	Photoinduced Reductive Elimination of H from the Nitrogenase Dihydride (Janus) State Involves a FeMo-cofactor-H Intermediate. *Inorganic Chemistry*, **2017**, 56, 2233-2240	5.1	33
88	High-Resolution ENDOR Spectroscopy Combined with Quantum Chemical Calculations Reveals the Structure of Nitrogenase Janus Intermediate E(4H). *Journal of the American Chemical Society*, **2019**, 141, 11984-11996	16.4	33
87	Reduction of thiocyanate, cyanate, and carbon disulfide by nitrogenase: kinetic characterization and EPR spectroscopic analysis. *Biochemistry*, **1997**, 36, 8574-85	3.2	33
86	A conformational mimic of the MgATP-bound "on state" of the nitrogenase iron protein. *Biochemistry*, **2004**, 43, 1787-97	3.2	33
85	Modulating the midpoint potential of the [4Fe-4S] cluster of the nitrogenase Fe protein. *Biochemistry*, **2000**, 39, 641-8	3.2	33
84	Docking of nitrogenase iron- and molybdenum-iron proteins for electron transfer and MgATP hydrolysis: the role of arginine 140 and lysine 143 of the Azotobacter vinelandii iron protein. *Protein Science*, **1994**, 3, 2073-81	6.3	33

83	Infrared spectroscopy of the nitrogenase MoFe protein under electrochemical control: potential-triggered CO binding. *Chemical Science*, **2017**, 8, 1500-1505	9.4	32
82	A confirmation of the quench-cryoannealing relaxation protocol for identifying reduction states of freeze-trapped nitrogenase intermediates. *Inorganic Chemistry*, **2014**, 53, 3688-93	5.1	31
81	Nitrogenase reduction of carbon disulfide: freeze-quench EPR and ENDOR evidence for three sequential intermediates with cluster-bound carbon moieties. *Biochemistry*, **2000**, 39, 1114-9	3.2	31
80	Structural characterization of the P intermediate state of the P-cluster of nitrogenase. *Journal of Biological Chemistry*, **2018**, 293, 9629-9635	5.4	30
79	A substrate channel in the nitrogenase MoFe protein. *Journal of Biological Inorganic Chemistry*, **2009**, 14, 1015-22	3.7	30
78	Fe protein-independent substrate reduction by nitrogenase MoFe protein variants. *Biochemistry*, **2015**, 54, 2456-62	3.2	29
77	Mechanism of Mo-dependent nitrogenase. *Methods in Molecular Biology*, **2011**, 766, 9-29	1.4	29
76	Stereospecificity of acetylene reduction catalyzed by nitrogenase. *Journal of the American Chemical Society*, **2001**, 123, 1822-7	16.4	29
75	Electrocatalytic CO reduction catalyzed by nitrogenase MoFe and FeFe proteins. *Bioelectrochemistry*, **2018**, 120, 104-109	5.6	29
74	Nitrite and hydroxylamine as nitrogenase substrates: mechanistic implications for the pathway of N reduction. *Journal of the American Chemical Society*, **2014**, 136, 12776-83	16.4	28
73	Sequential and differential interaction of assembly factors during nitrogenase MoFe protein maturation. *Journal of Biological Chemistry*, **2018**, 293, 9812-9823	5.4	27
72	Evidence for a central role of lysine 15 of Azotobacter vinelandii nitrogenase iron protein in nucleotide binding and protein conformational changes. *Journal of Biological Chemistry*, **1995**, 270, 13112-7	5.4	27
71	Control of electron transfer in nitrogenase. *Current Opinion in Chemical Biology*, **2018**, 47, 54-59	9.7	26
70	Negative cooperativity in the nitrogenase Fe protein electron delivery cycle. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, E5783-E5791	11.5	25
69	Kinetic Understanding of N Reduction versus H Evolution at the E(4H) Janus State in the Three Nitrogenases. *Biochemistry*, **2018**, 57, 5706-5714	3.2	25
68	Spectroscopic Description of the E State of Mo Nitrogenase Based on Mo and Fe X-ray Absorption and Mssbauer Studies. *Inorganic Chemistry*, **2019**, 58, 12365-12376	5.1	23
67	Steric control of the Hi-CO MoFe nitrogenase complex revealed by stopped-flow infrared spectroscopy. *Angewandte Chemie - International Edition*, **2011**, 50, 272-5	16.4	23
66	Kinetic and spectroscopic analysis of the inactivating effects of nitric oxide on the individual components of Azotobacter vinelandii nitrogenase. *Biochemistry*, **1992**, 31, 2947-55	3.2	23

65	Establishing a Thermodynamic Landscape for the Active Site of Mo-Dependent Nitrogenase. *Journal of the American Chemical Society*, **2019**, 141, 17150-17157	16.4	22
64	A Voltammetric Study of Nitrogenase Catalysis Using Electron Transfer Mediators. *ACS Catalysis*, **2019**, 9, 1366-1372	13.1	21
63	Hydrolysis of nucleoside triphosphates other than ATP by nitrogenase. *Journal of Biological Chemistry*, **2000**, 275, 6214-9	5.4	20
62	Insights into the role of nucleotide-dependent conformational change in nitrogenase catalysis: Structural characterization of the nitrogenase Fe protein Leu127 deletion variant with bound MgATP. *Journal of Inorganic Biochemistry*, **2006**, 100, 1041-52	4.2	19
61	Use of stopped-flow spectrophotometry to establish midpoint potentials for redox proteins. *Analytical Biochemistry*, **2000**, 287, 118-25	3.1	19
60	Oxygen effects on the nickel- and iron-containing hydrogenase from Azotobacter vinelandii. *Biochemistry*, **1989**, 28, 1588-1596	3.2	19
59	Improving energetics of triacylglyceride extraction from wet oleaginous microbes. *Bioresource Technology*, **2014**, 167, 416-24	11	18
58	Two-step process for production of biodiesel blends from oleaginous yeast and microalgae. *Fuel*, **2014**, 137, 269-276	7.1	18
57	Thermodynamics of nucleotide interactions with the Azotobacter vinelandii nitrogenase iron protein. *BBA - Proteins and Proteomics*, **1999**, 1429, 411-21		18
56	Hydride Conformers of the Nitrogenase FeMo-cofactor Two-Electron Reduced State E(2H), Assigned Using Cryogenic Intra Electron Paramagnetic Resonance Cavity Photolysis. *Inorganic Chemistry*, **2018**, 57, 6847-6852	5.1	17
55	The nitrogenase regulatory enzyme dinitrogenase reductase ADP-ribosyltransferase (DraT) is activated by direct interaction with the signal transduction protein GlnB. *Journal of Bacteriology*, **2013**, 195, 279-86	3.5	17
54	Evidence that MgATP accelerates primary electron transfer in a Clostridium pasteurianum Fe protein-Azotobacter vinelandii MoFe protein nitrogenase tight complex. *Journal of Biological Chemistry*, **1999**, 274, 17593-8	5.4	17
53	Substrate channel in nitrogenase revealed by a molecular dynamics approach. *Biochemistry*, **2014**, 53, 2278-85	3.2	16
52	Entropies of redox reactions between proteins and mediators: the temperature dependence of reversible electrode potentials in aqueous buffers. *Analytical Biochemistry*, **1997**, 250, 196-202	3.1	15
51	Structural and biochemical implications of single amino acid substitutions in the nucleotide-dependent switch regions of the nitrogenase Fe protein from Azotobacter vinelandii. *Journal of Biological Inorganic Chemistry*, **2004**, 9, 1028-33	3.7	15
50	A mediated thin-layer voltammetry method for the study of redox protein electrochemistry. *Analytical Biochemistry*, **1997**, 247, 152-7	3.1	14
49	Redox-dependent subunit dissociation of Azotobacter vinelandii hydrogenase in the presence of sodium dodecyl sulfate.. *Journal of Biological Chemistry*, **1987**, 262, 16816-16821	5.4	14
48	Unraveling the interactions of the physiological reductant flavodoxin with the different conformations of the Fe protein in the nitrogenase cycle. *Journal of Biological Chemistry*, **2017**, 292, 15661-15669	5.4	13

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46	Grand challenges in the nitrogen cycle. *Chemical Society Reviews*, **2021**, 50, 3640-3646	58.5	13
45	Nitrogen Fixation **2017**, 1-21		12
44	Probing the MgATP-bound conformation of the nitrogenase Fe protein by solution small-angle X-ray scattering. *Biochemistry*, **2007**, 46, 14058-66	3.2	12
43	Electron Redistribution within the Nitrogenase Active Site FeMo-Cofactor During Reductive Elimination of H to Achieve N?N Triple-Bond Activation. *Journal of the American Chemical Society*, **2020**, 142, 21679-21690	16.4	11
42	Temperature invariance of the nitrogenase electron transfer mechanism. *Biochemistry*, **2012**, 51, 8391-8	3.2	11
41	The NifZ accessory protein has an equivalent function in maturation of both nitrogenase MoFe protein P-clusters. *Journal of Biological Chemistry*, **2019**, 294, 6204-6213	5.4	10
40	Structural characterization of the nitrogenase molybdenum-iron protein with the substrate acetylene trapped near the active site. *Journal of Inorganic Biochemistry*, **2018**, 180, 129-134	4.2	10
39	Phototrophic N and CO Fixation Using a -H Mediated Electrochemical System With Infrared Photons. *Frontiers in Microbiology*, **2019**, 10, 1817	5.7	10
38	Determination of rate and equilibrium constants for the reactions between electron transfer mediators and proteins by linear sweep voltammetry. *Analytical Biochemistry*, **1997**, 249, 212-8	3.1	10
37	The role of the MoFe protein alpha-125Phe and beta-125Phe residues in Azotobacter vinelandii MoFe protein-Fe protein interaction. *Journal of Inorganic Biochemistry*, **2000**, 80, 195-204	4.2	10
36	Construction and characterization of a heterodimeric iron protein: defining roles for adenosine triphosphate in nitrogenase catalysis. *Biochemistry*, **2000**, 39, 7221-8	3.2	10
35	Exploring Electron/Proton Transfer and Conformational Changes in the Nitrogenase MoFe Protein and FeMo-cofactor Through Cryoreduction/EPR Measurements. *Israel Journal of Chemistry*, **2016**, 56, 841-851	3.4	10
34	Comment on "Structural evidence for a dynamic metallocofactor during N reduction by Mo-nitrogenase". *Science*, **2021**, 371,	33.3	10
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31	Redox-dependent subunit dissociation of Azotobacter vinelandii hydrogenase in the presence of sodium dodecyl sulfate. *Journal of Biological Chemistry*, **1987**, 262, 16816-21	5.4	9
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