Cheryl A Kerfeld

List of Publications by Year in Descending Order

144 papers	10,473 citations	55 h-index	100 g-index
154 ext. papers	12,939 ext. citations	9 avg, IF	6.54 L-index

#	Paper	IF	Citations
144	BMC Caller: a webtool to identify and analyze bacterial microcompartment types in sequence data.. *Biology Direct*, **2022**, 17, 9	7.2	1
143	A Survey of Bacterial Microcompartment Distribution in the Human Microbiome. *Frontiers in Microbiology*, **2021**, 12, 669024	5.7	5
142	Clues to the function of bacterial microcompartments from ancillary genes. *Biochemical Society Transactions*, **2021**, 49, 1085-1098	5.1	0
141	A catalog of the diversity and ubiquity of bacterial microcompartments. *Nature Communications*, **2021**, 12, 3809	17.4	13
140	A genomic catalog of EarthЂ microbiomes. *Nature Biotechnology*, **2021**, 39, 499-509	44.5	120
139	Bioenergetics Theory and Components | The Shells of Bacterial Microcompartments **2021**, 108-122		
138	Validation of an insertion-engineered isoprene synthase as a strategy to functionalize terpene synthases.. *RSC Advances*, **2021**, 11, 29997-30005	3.7	1
137	Liposome-based measurement of light-driven chloride transport kinetics of halorhodopsin. *Biochimica Et Biophysica Acta - Biomembranes*, **2021**, 1863, 183637	3.8	0
136	Evolutionary relationships among shell proteins of carboxysomes and metabolosomes. *Current Opinion in Microbiology*, **2021**, 63, 1-9	7.9	5
135	Engineered bacterial microcompartments: apps for programming metabolism. *Current Opinion in Biotechnology*, **2020**, 65, 225-232	11.4	11
134	Binding Options for the Small Subunit-Like Domain of Cyanobacteria to Rubisco. *Frontiers in Microbiology*, **2020**, 11, 187	5.7	2
133	Ubiquity and functional uniformity in CO2 concentrating mechanisms in multiple phyla of Bacteria is suggested by a diversity and prevalence of genes encoding candidate dissolved inorganic carbon transporters. *FEMS Microbiology Letters*, **2020**, 367,	2.9	3
132	Excited-State Properties of Canthaxanthin in Cyanobacterial Carotenoid-Binding Proteins HCP2 and HCP3. *Journal of Physical Chemistry B*, **2020**, 124, 4896-4905	3.4	5
131	Cyanobacterial carboxysomes contain an unique rubisco-activase-like protein. *New Phytologist*, **2020**, 225, 793-806	9.8	18
130	Redox Characterization of Electrode-Immobilized Bacterial Microcompartment Shell Proteins Engineered To Bind Metal Centers.. *ACS Applied Bio Materials*, **2020**, 3, 685-692	4.1	6
129	Comparative ultrafast spectroscopy and structural analysis of OCP1 and OCP2 from Tolypothrix. *Biochimica Et Biophysica Acta - Bioenergetics*, **2020**, 1861, 148120	4.6	7
128	Visualizing in Vivo Dynamics of Designer Nanoscaffolds. *Nano Letters*, **2020**, 20, 208-217	11.5	6

127	Structural analysis of a new carotenoid-binding protein: the C-terminal domain homolog of the OCP. *Scientific Reports*, **2020**, 10, 15564	4.9	6
126	Bacterial microcompartments: catalysis-enhancing metabolic modules for next generation metabolic and biomedical engineering. *BMC Biology*, **2019**, 17, 79	7.3	20
125	A designed bacterial microcompartment shell with tunable composition and precision cargo loading. *Metabolic Engineering*, **2019**, 54, 286-291	9.7	20
124	Structural Characterization of a Synthetic Tandem-Domain Bacterial Microcompartment Shell Protein Capable of Forming Icosahedral Shell Assemblies. *ACS Synthetic Biology*, **2019**, 8, 668-674	5.7	12
123	Structural and spectroscopic characterization of HCP2. *Biochimica Et Biophysica Acta - Bioenergetics*, **2019**, 1860, 414-424	4.6	9
122	Engineering the orange carotenoid protein for applications in synthetic biology. *Current Opinion in Structural Biology*, **2019**, 57, 110-117	8.1	8
121	X-ray radiolytic labeling reveals the molecular basis of orange carotenoid protein photoprotection and its interactions with fluorescence recovery protein. *Journal of Biological Chemistry*, **2019**, 294, 8848-8860	5.4	13
120	Functionalization of Bacterial Microcompartment Shell Proteins With Covalently Attached Heme. *Frontiers in Bioengineering and Biotechnology*, **2019**, 7, 432	5.8	9
119	Characterization of Novel Homologs to the C-terminal Domain of the Orange Carotenoid Protein. *FASEB Journal*, **2019**, 33, 779.45	0.9	
118	The Plasticity of Molecular Interactions Governs Bacterial Microcompartment Shell Assembly. *Structure*, **2019**, 27, 749-763.e4	5.2	27
117	Glycyl Radical Enzyme-Associated Microcompartments: Redox-Replete Bacterial Organelles. *MBio*, **2019**, 10,	7.8	20
116	Structure of a Synthetic -Carboxysome Shell. *Plant Physiology*, **2019**, 181, 1050-1058	6.6	27
115	Heterohexamers Formed by CcmK3 and CcmK4 Increase the Complexity of Beta Carboxysome Shells. *Plant Physiology*, **2019**, 179, 156-167	6.6	30
114	Genomes of ubiquitous marine and hypersaline Hydrogenovibrio, Thiomicrorhabdus and Thiomicrospira spp. encode a diversity of mechanisms to sustain chemolithoautotrophy in heterogeneous environments. *Environmental Microbiology*, **2018**, 20, 2686-2708	5.2	14
113	Bacterial microcompartments. *Nature Reviews Microbiology*, **2018**, 16, 277-290	22.2	188
112	Fluorescence and Excited-State Conformational Dynamics of the Orange Carotenoid Protein. *Journal of Physical Chemistry B*, **2018**, 122, 1792-1800	3.4	8
111	Engineering nanoreactors using bacterial microcompartment architectures. *Current Opinion in Biotechnology*, **2018**, 51, 1-7	11.4	29
110	Light-Driven Chloride Transport Kinetics of Halorhodopsin. *Biophysical Journal*, **2018**, 115, 353-360	2.9	4

109	Programmed loading and rapid purification of engineered bacterial microcompartment shells. *Nature Communications*, **2018**, 9, 2881	17.4	62
108	Structural and functional insights into the unique CBS-CP12 fusion protein family in cyanobacteria. *Proceedings of the National Academy of Sciences of the United States of America*, **2018**, 115, 7141-7146	11.5	10
107	Free-electron laser data for multiple-particle fluctuation scattering analysis. *Scientific Data*, **2018**, 5, 180201	2.2	4
106	In Vitro Assembly of Diverse Bacterial Microcompartment Shell Architectures. *Nano Letters*, **2018**, 18, 7030-7037	11.5	32
105	Structure and functions of Orange Carotenoid Protein homologs in cyanobacteria. *Current Opinion in Plant Biology*, **2017**, 37, 1-9	9.9	38
104	Carboxysome bioinformatics: identification and evolution of new bacterial microcompartment protein gene classes and core locus constraints. *Journal of Experimental Botany*, **2017**, 68, 3841-3855	7	21
103	Synthetic OCP heterodimers are photoactive and recapitulate the fusion of two primitive carotenoproteins in the evolution of cyanobacterial photoprotection. *Plant Journal*, **2017**, 91, 646-656	6.9	18
102	Connecting Earth observation to high-throughput biodiversity data. *Nature Ecology and Evolution*, **2017**, 1, 176	12.3	117
101	Assembly principles and structure of a 6.5-MDa bacterial microcompartment shell. *Science*, **2017**, 356, 1293-1297	33.3	121
100	In Vitro Characterization and Concerted Function of Three Core Enzymes of a Glycyl Radical Enzyme - Associated Bacterial Microcompartment. *Scientific Reports*, **2017**, 7, 42757	4.9	35
99	Structural and Functional Characterization of a Short-Chain Flavodoxin Associated with a Noncanonical 1,2-Propanediol Utilization Bacterial Microcompartment. *Biochemistry*, **2017**, 56, 5679-5690	3.2	3
98	Engineering the Bacterial Microcompartment Domain for Molecular Scaffolding Applications. *Frontiers in Microbiology*, **2017**, 8, 1441	5.7	35
97	Structure, function and evolution of the cyanobacterial orange carotenoid protein and its homologs. *New Phytologist*, **2017**, 215, 937-951	9.8	51
96	Carboxysomes: metabolic modules for CO2 fixation. *FEMS Microbiology Letters*, **2017**, 364,	2.9	51
95	A bioarchitectonic approach to the modular engineering of metabolism. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **2017**, 372,	5.8	12
94	Raman Optical Activity Reveals Carotenoid Photoactivation Events in the Orange Carotenoid Protein in Solution. *Journal of the American Chemical Society*, **2017**, 139, 10456-10460	16.4	27
93	Additional families of orange carotenoid proteins in the photoprotective system of cyanobacteria. *Nature Plants*, **2017**, 3, 17089	11.5	38
92	David W. Krogmann, 1931-2016. *Photosynthesis Research*, **2017**, 132, 1-12	3.7	6

91	Biochemical characterization of predicted Precambrian RuBisCO. *Nature Communications*, **2016**, 7, 10382	17.4	72
90	Bacterial microcompartments as metabolic modules for plant synthetic biology. *Plant Journal*, **2016** , 87, 66-75	6.9	24
89	Cyanobacterial ultrastructure in light of genomic sequence data. *Photosynthesis Research*, **2016**, 129, 147-57	3.7	27
88	Visualization of Bacterial Microcompartment Facet Assembly Using High-Speed Atomic Force Microscopy. *Nano Letters*, **2016**, 16, 1590-5	11.5	77
87	Purification and Characterization of Protein Nanotubes Assembled from a Single Bacterial Microcompartment Shell Subunit. *Advanced Materials Interfaces*, **2016**, 3, 1500295	4.6	23
86	Structure and Function of a Bacterial Microcompartment Shell Protein Engineered to Bind a [4Fe-4S] Cluster. *Journal of the American Chemical Society*, **2016**, 138, 5262-70	16.4	42
85	Production and Characterization of Synthetic Carboxysome Shells with Incorporated Luminal Proteins. *Plant Physiology*, **2016**, 170, 1868-77	6.6	50
84	The Structural Basis of Coenzyme A Recycling in a Bacterial Organelle. *PLoS Biology*, **2016**, 14, e1002399	9.7	24
83	Structure, Diversity, and Evolution of a New Family of Soluble Carotenoid-Binding Proteins in Cyanobacteria. *Molecular Plant*, **2016**, 9, 1379-1394	14.4	41
82	Cyanobacterial photoprotection by the orange carotenoid protein. *Nature Plants*, **2016**, 2, 16180	11.5	111
81	Different Functions of the Paralogs to the N-Terminal Domain of the Orange Carotenoid Protein in the Cyanobacterium Anabaena sp. PCC 7120. *Plant Physiology*, **2016**, 171, 1852-66	6.6	40
80	Assembly, function and evolution of cyanobacterial carboxysomes. *Current Opinion in Plant Biology*, **2016**, 31, 66-75	9.9	136
79	Interrelated modules in cyanobacterial photosynthesis: the carbon-concentrating mechanism, photorespiration, and light perception. *Journal of Experimental Botany*, **2016**, 67, 2931-40	7	16
78	Rewiring Escherichia coli for carbon-dioxide fixation. *Nature Biotechnology*, **2016**, 34, 1035-1036	44.5	8
77	Bioinformatic analysis of the distribution of inorganic carbon transporters and prospective targets for bioengineering to increase Ci uptake by cyanobacteria. *Photosynthesis Research*, **2015**, 126, 99-109	3.7	18
76	PHOTOSYNTHESIS. A 12 [illegible]carotenoid translocation in a photoswitch associated with cyanobacterial photoprotection. *Science*, **2015**, 348, 1463-6	33.3	131
75	Operational properties of fluctuation X-ray scattering data. *IUCrJ*, **2015**, 2, 309-16	4.7	19
74	Bioinformatic characterization of glycyl radical enzyme-associated bacterial microcompartments. *Applied and Environmental Microbiology*, **2015**, 81, 8315-29	4.8	41

73	Bacterial microcompartment assembly: The key role of encapsulation peptides. *Communicative and Integrative Biology*, **2015**, 8, e1039755	1.7	52
72	Streamlined Construction of the Cyanobacterial CO2-Fixing Organelle via Protein Domain Fusions for Use in Plant Synthetic Biology. *Plant Cell*, **2015**, 27, 2637-44	11.6	43
71	Local and global structural drivers for the photoactivation of the orange carotenoid protein. *Proceedings of the National Academy of Sciences of the United States of America*, **2015**, 112, E5567-74	11.5	86
70	Bacterial microcompartments and the modular construction of microbial metabolism. *Trends in Microbiology*, **2015**, 23, 22-34	12.4	124
69	Engineering bacterial microcompartment shells: chimeric shell proteins and chimeric carboxysome shells. *ACS Synthetic Biology*, **2015**, 4, 444-53	5.7	72
68	Structural Characterization of a Newly Identified Component of α-Carboxysomes: The AAA+ Domain Protein CsoCbbQ. *Scientific Reports*, **2015**, 5, 16243	4.9	34
67	Plug-and-play for improving primary productivity. *American Journal of Botany*, **2015**, 102, 1949-50	2.7	7
66	Advances in Understanding Carboxysome Assembly in Prochlorococcus and Synechococcus Implicate CsoS2 as a Critical Component. *Life*, **2015**, 5, 1141-71	3	60
65	Structural and functional modularity of the orange carotenoid protein: distinct roles for the N- and C-terminal domains in cyanobacterial photoprotection. *Plant Cell*, **2014**, 26, 426-37	11.6	81
64	Specificity of the cyanobacterial orange carotenoid protein: influences of orange carotenoid protein and phycobilisome structures. *Plant Physiology*, **2014**, 164, 790-804	6.6	26
63	Characterization of a planctomycetal organelle: a novel bacterial microcompartment for the aerobic degradation of plant saccharides. *Applied and Environmental Microbiology*, **2014**, 80, 2193-205	4.8	93
62	Assembly of robust bacterial microcompartment shells using building blocks from an organelle of unknown function. *Journal of Molecular Biology*, **2014**, 426, 2217-28	6.5	73
61	Bayesian analysis of congruence of core genes in Prochlorococcus and Synechococcus and implications on horizontal gene transfer. *PLoS ONE*, **2014**, 9, e85103	3.7	10
60	Phylum-wide comparative genomics unravel the diversity of secondary metabolism in Cyanobacteria. *BMC Genomics*, **2014**, 15, 977	4.5	103
59	A taxonomy of bacterial microcompartment loci constructed by a novel scoring method. *PLoS Computational Biology*, **2014**, 10, e1003898	5	170
58	Introduction of a synthetic CO_2-fixing photorespiratory bypass into a cyanobacterium. *Journal of Biological Chemistry*, **2014**, 289, 9493-500	5.4	77
57	Dynamic cyanobacterial response to hydration and dehydration in a desert biological soil crust. *ISME Journal*, **2013**, 7, 2178-91	11.9	156
56	Two new high-resolution crystal structures of carboxysome pentamer proteins reveal high structural conservation of CcmL orthologs among distantly related cyanobacterial species. *Photosynthesis Research*, **2013**, 118, 9-16	3.7	37

55	Biogenesis of a bacterial organelle: the carboxysome assembly pathway. *Cell*, **2013**, 155, 1131-40	56.2	192
54	Carotenoid-protein interaction alters the S(1) energy of hydroxyechinenone in the Orange Carotenoid Protein. *Biochimica Et Biophysica Acta - Bioenergetics*, **2013**, 1827, 248-54	4.6	45
53	Structural, Mechanistic and Genomic Insights into OCP-Mediated Photoprotection. *Advances in Botanical Research*, **2013**, 65, 1-26	2.2	12
52	Cyanobacterial-based approaches to improving photosynthesis in plants. *Journal of Experimental Botany*, **2013**, 64, 787-98	7	101
51	Genome mining expands the chemical diversity of the cyanobactin family to include highly modified linear peptides. *Chemistry and Biology*, **2013**, 20, 1033-43		71
50	The Orange Carotenoid Protein: a blue-green light photoactive protein. *Photochemical and Photobiological Sciences*, **2013**, 12, 1135-43	4.2	120
49	Comparative analysis of 126 cyanobacterial genomes reveals evidence of functional diversity among homologs of the redox-regulated CP12 protein. *Plant Physiology*, **2013**, 161, 824-35	6.6	36
48	Evidence for the widespread distribution of CRISPR-Cas system in the Phylum Cyanobacteria. *RNA Biology*, **2013**, 10, 687-93	4.8	61
47	Frontiers, opportunities, and challenges in biochemical and chemical catalysis of CO2 fixation. *Chemical Reviews*, **2013**, 113, 6621-58	68.1	1415
46	Improving the coverage of the cyanobacterial phylum using diversity-driven genome sequencing. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 1053-8	11.5	566
45	The crystal structures of the tri-functional Chloroflexus aurantiacus and bi-functional Rhodobacter sphaeroides malyl-CoA lyases and comparison with CitE-like superfamily enzymes and malate synthases. *BMC Structural Biology*, **2013**, 13, 28	2.7	10
44	The structure of CcmP, a tandem bacterial microcompartment domain protein from the carboxysome, forms a subcompartment within a microcompartment. *Journal of Biological Chemistry*, **2013**, 288, 16055-63	5.4	82
43	Crystal structure of the FRP and identification of the active site for modulation of OCP-mediated photoprotection in cyanobacteria. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 10022-7	11.5	79
42	The orange carotenoid protein in photoprotection of photosystem II in cyanobacteria. *Biochimica Et Biophysica Acta - Bioenergetics*, **2012**, 1817, 158-66	4.6	140
41	Elucidating essential role of conserved carboxysomal protein CcmN reveals common feature of bacterial microcompartment assembly. *Journal of Biological Chemistry*, **2012**, 287, 17729-17736	5.4	119
40	The essential role of the N-terminal domain of the orange carotenoid protein in cyanobacterial photoprotection: importance of a positive charge for phycobilisome binding. *Plant Cell*, **2012**, 24, 1972-83	11.6	61
39	Isolation and characterization of the Prochlorococcus carboxysome reveal the presence of the novel shell protein CsoS1D. *Journal of Bacteriology*, **2012**, 194, 787-95	3.5	58
38	Bioinformatic Identification and Structural Characterization of a New Carboxysome Shell Protein. *Advances in Photosynthesis and Respiration*, **2012**, 345-356	1.7	5

37	Photoprotection in Cyanobacteria: The Orange Carotenoid Protein and Energy Dissipation **2011**, 395-421		4
36	Excited-state properties of the 16kDa red carotenoid protein from Arthrospira maxima. *Biochimica Et Biophysica Acta - Bioenergetics*, **2011**, 1807, 30-5	4.6	29
35	Comparative analysis of carboxysome shell proteins. *Photosynthesis Research*, **2011**, 109, 21-32	3.7	97
34	Using BLAST to teach "E-value-tionary" concepts. *PLoS Biology*, **2011**, 9, e1001014	9.7	37
33	Incorporating genomics and bioinformatics across the life sciences curriculum. *PLoS Biology*, **2010**, 8, e1000448	9.7	42
32	Bacterial microcompartments. *Annual Review of Microbiology*, **2010**, 64, 391-408	17.5	255
31	Structural determinants underlying photoprotection in the photoactive orange carotenoid protein of cyanobacteria. *Journal of Biological Chemistry*, **2010**, 285, 18364-75	5.4	114
30	Carboxysomal carbonic anhydrases: Structure and role in microbial CO2 fixation. *Biochimica Et Biophysica Acta - Proteins and Proteomics*, **2010**, 1804, 382-92	4	94
29	Identification and structural analysis of a novel carboxysome shell protein with implications for metabolite transport. *Journal of Molecular Biology*, **2009**, 392, 319-33	6.5	161
28	Protein-based organelles in bacteria: carboxysomes and related microcompartments. *Nature Reviews Microbiology*, **2008**, 6, 681-91	22.2	338
27	Atomic-level models of the bacterial carboxysome shell. *Science*, **2008**, 319, 1083-6	33.3	310
26	A photoactive carotenoid protein acting as light intensity sensor. *Proceedings of the National Academy of Sciences of the United States of America*, **2008**, 105, 12075-80	11.5	255
25	Structure of the RuBisCO chaperone RbcX from Synechocystis sp. PCC6803. *Acta Crystallographica Section D: Biological Crystallography*, **2007**, 63, 1109-12		16
24	Structural analysis of CsoS1A and the protein shell of the Halothiobacillus neapolitanus carboxysome. *PLoS Biology*, **2007**, 5, e144	9.7	118
23	The undergraduate genomics research initiative. *PLoS Biology*, **2007**, 5, e141	9.7	21
22	Light-induced energy dissipation in iron-starved cyanobacteria: roles of OCP and IsiA proteins. *Plant Cell*, **2007**, 19, 656-72	11.6	119
21	The genome of deep-sea vent chemolithoautotroph Thiomicrospira crunogena XCL-2. *PLoS Biology*, **2006**, 4, e383	9.7	112
20	The structure of beta-carbonic anhydrase from the carboxysomal shell reveals a distinct subclass with one active site for the price of two. *Journal of Biological Chemistry*, **2006**, 281, 7546-55	5.4	133

19	A soluble carotenoid protein involved in phycobilisome-related energy dissipation in cyanobacteria. *Plant Cell*, **2006**, 18, 992-1007	11.6	342
18	Spectroscopic properties of the carotenoid 3'-hydroxyechinenone in the orange carotenoid protein from the cyanobacterium Arthrospira maxima. *Biochemistry*, **2005**, 44, 3994-4003	3.2	116
17	Protein structures forming the shell of primitive bacterial organelles. *Science*, **2005**, 309, 936-8	33.3	354
16	Structure and function of the water-soluble carotenoid-binding proteins of cyanobacteria. *Photosynthesis Research*, **2004**, 81, 215-25	3.7	64
15	Water-soluble carotenoid proteins of cyanobacteria. *Archives of Biochemistry and Biophysics*, **2004**, 430, 2-9	4.1	64
14	Structural and EPR characterization of the soluble form of cytochrome c-550 and of the psbV2 gene product from the cyanobacterium Thermosynechococcus elongatus. *Plant and Cell Physiology*, **2003** , 44, 697-706	4.9	34
13	The 1.6 A resolution structure of Fe-superoxide dismutase from the thermophilic cyanobacterium Thermosynechococcus elongatus. *Journal of Biological Inorganic Chemistry*, **2003**, 8, 707-14	3.7	23
12	The crystal structure of a cyanobacterial water-soluble carotenoid binding protein. *Structure*, **2003**, 11, 55-65	5.2	191
11	Structure of cytochrome c6 from Arthrospira maxima: an assembly of 24 subunits in a nearly symmetric shell. *Acta Crystallographica Section D: Biological Crystallography*, **2002**, 58, 1104-10		4
10	Structures of cytochrome c-549 and cytochrome c6 from the cyanobacterium Arthrospira maxima. *Biochemistry*, **2001**, 40, 9215-25	3.2	61
9	Crystal structure and possible dimerization of the high-potential iron-sulfur protein from Chromatium purpuratum. *Biochemistry*, **1998**, 37, 13911-7	3.2	26
8	PHOTOSYNTHETIC CYTOCHROMES c IN CYANOBACTERIA, ALGAE, AND PLANTS. *Annual Review of Plant Biology*, **1998**, 49, 397-425		82
7	Structural comparison of cytochrome c2and cytochrome c6. *Photosynthesis Research*, **1997**, 54, 81-98	3.7	6
6	Crystals of the carotenoid protein from Arthrospira maxima containing uniformly oriented pigment molecules. *Acta Crystallographica Section D: Biological Crystallography*, **1997**, 53, 720-3		12
5	Light harvesting in photosystems I and II. *Biochemical Society Transactions*, **1993**, 21, 15-8	5.1	39
4	Crystallization of two integral membrane pigment-protein complexes from the purple-sulfur bacterium Chromatium purpuratum. *Protein Science*, **1993**, 2, 1352-5	6.3	3
3	The use of non-denaturing Deriphat-polyacrylamide gel electrophoresis to fractionate pigment-protein complexes of purple bacteria. *Photosynthesis Research*, **1991**, 30, 139-43	3.7	8
2	Structures of the Cyanobacterial Phycobilisome		1

1 A Catalog of the Diversity and Ubiquity of Metabolic Organelles in Bacteria 2