Karl Forchhammer

List of Publications by Year
in descending order

118 papers	5,535 citations	61984 43 h-index	98798 67 g-index
134 all docs	134 docs citations	134 times ranked	3577 citing authors

#	Article	IF	Citations
1	Acclimation of unicellular cyanobacteria to macronutrient deficiency: emergence of a complex network of cellular responses. Microbiology (United Kingdom), 2005, 151, 2503-2514.	1.8	217
2	PII signal transducers: novel functional and structural insights. Trends in Microbiology, 2008, 16, 65-72.	7.7	192
3	Regulatory links between carbon and nitrogen metabolism. Current Opinion in Microbiology, 2006, 9, 167-172.	5.1	171
4	Nitrogen Starvation-Induced Chlorosis inSynechococcus PCC 7942. Low-Level Photosynthesis As a Mechanism of Long-Term Survival. Plant Physiology, 2001, 126, 233-243.	4.8	160
5	Interaction network in cyanobacterial nitrogen regulation: PipX, a protein that interacts in a 2-oxoglutarate dependent manner with PII and NtcA. Molecular Microbiology, 2006, 61, 457-469.	2.5	149
6	Awakening of a Dormant Cyanobacterium from Nitrogen Chlorosis Reveals a Genetically Determined Program. Current Biology, 2016, 26, 2862-2872.	3.9	149
7	Nitrogen-starvation-induced chlorosis in Synechococcus PCC 7942: adaptation to long-term survival. Microbiology (United Kingdom), 1998, 144, 2449-2458.	1.8	135
8	Carbon/nitrogen homeostasis control in cyanobacteria. FEMS Microbiology Reviews, 2020, 44, 33-53.	8.6	130
9	A Widespread Glutamine-Sensing Mechanism in the Plant Kingdom. Cell, 2014, 159, 1188-1199.	28.9	127
10	The Synechococcus elongatus PII signal transduction protein controls arginine synthesis by complex formation with N-acetyl-l-glutamate kinase. Molecular Microbiology, 2004, 52, 1303-1314.	2.5	126
11	Structural basis for the regulation of NtcA-dependent transcription by proteins PipX and PII. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 15397-15402.	7.1	116
12	The crystal structure of the complex of PII and acetylglutamate kinase reveals how PII controls the storage of nitrogen as arginine. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 17644-17649.	7.1	113
13	Sensory properties of the <scp>P_{II}</scp> signalling protein family. FEBS Journal, 2016, 283, 425-437.	4.7	109
14	Mechanism of 2-oxoglutarate signaling by the <i>Synechococcus elongatus</i> P _{II} signal transduction protein. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 19760-19765.	7.1	106
15	Requirement of the Nitrogen Starvation-Induced Protein Sll0783 for Polyhydroxybutyrate Accumulation in <i>Synechocystis</i> sp. Strain PCC 6803. Applied and Environmental Microbiology, 2010, 76, 6101-6107.	3.1	104
16	Complex Formation and Catalytic Activation by the PII Signaling Protein of N-Acetyl-l-glutamate Kinase from Synechococcus elongatus Strain PCC 7942. Journal of Biological Chemistry, 2004, 279, 55202-55210.	3.4	93
17	PHB is Produced from Glycogen Turn-over during Nitrogen Starvation in Synechocystis sp. PCC 6803. International Journal of Molecular Sciences, 2019, 20, 1942.	4.1	88
18	Metabolic Changes in Synechocystis PCC6803 upon Nitrogen-Starvation: Excess NADPH Sustains Polyhydroxybutyrate Accumulation. Metabolites, 2013, 3, 101-118.	2.9	87

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19	Metabolic and Transcriptomic Phenotyping of Inorganic Carbon Acclimation in the Cyanobacterium <i>Synechococcus elongatus</i> PCC 7942 Â. Plant Physiology, 2011, 155, 1640-1655.	4.8	81
20	Phosphoproteome of the cyanobacterium Synechocystis sp. PCC 6803 and its dynamics during nitrogen starvation. Frontiers in Microbiology, 2015, 6, 248.	3.5	79
21	Structure and Function of a Bacterial Gap Junction Analog. Cell, 2019, 178, 374-384.e15.	28.9	78
22	Interaction of the Membrane-bound GlnK-AmtB Complex with the Master Regulator of Nitrogen Metabolism TnrA in Bacillus subtilis. Journal of Biological Chemistry, 2006, 281, 34909-34917.	3.4	74
23	Phosphorylation of the signal transducer PII protein and an additional effector are required for the PII-mediated regulation of nitrate and nitrite uptake in the cyanobacterium Synechococcus sp. PCC 7942. FEBS Journal, 2000, 267, 591-600.	0.2	70
24	Non-classical Protein Excretion Is Boosted by PSMÎ±-Induced Cell Leakage. Cell Reports, 2017, 20, 1278-1286.	6.4	68
25	Role of the Synechococcus PCC 7942 nitrogen regulator protein PipX in NtcA-controlled processes. Microbiology (United Kingdom), 2007, 153, 711-718.	1.8	66
26	P _{II} -like signaling protein SbtB links cAMP sensing with cyanobacterial inorganic carbon response. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E4861-E4869.	7.1	65
27	Nitrogen chlorosis in unicellular cyanobacteria â€“ a developmental program for surviving nitrogen deprivation. Environmental Microbiology, 2019, 21, 1173-1184.	3.8	62
28	Prokaryotic multicellularity: a nanopore array for bacterial cell communication. FASEB Journal, 2013, 27, 2293-2300.	0.5	61
29	Maximizing PHB content in Synechocystis sp. PCC 6803: a new metabolic engineering strategy based on the regulator PirC. Microbial Cell Factories, 2020, 19, 231.	4.0	61
30	Magnetic Bead-Based Immunoassay Allows Rapid, Inexpensive, and Quantitative Detection of Human SARS-CoV-2 Antibodies. ACS Sensors, 2021, 6, 703-708.	7.8	61
31	Ammonium tolerance in the cyanobacterium <i><scp>S</scp>ynechocystis</i> sp. strain <scp>PCC</scp> 6803 and the role of the <scp><i>psbA</i></scp> multigene family. Plant, Cell and Environment, 2014, 37, 840-851.	5.7	59
32	The Signal Transduction Protein PII Controls Ammonium, Nitrate and Urea Uptake in Cyanobacteria. Frontiers in Microbiology, 2019, 10, 1428.	3.5	59
33	From cyanobacteria to plants: conservation of PII functions during plastid evolution. Planta, 2013, 237, 451-462.	3.2	58
34	Cyanophycin Synthesis Optimizes Nitrogen Utilization in the Unicellular Cyanobacterium Synechocystis sp. Strain PCC 6803. Applied and Environmental Microbiology, 2018, 84, .	3.1	58
35	P II -Regulated Arginine Synthesis Controls Accumulation of Cyanophycin in Synechocystis sp. Strain PCC 6803. Journal of Bacteriology, 2006, 188, 2730-2734.	2.2	57
36	Structural Basis and Target-specific Modulation of ADP Sensing by the Synechococcus elongatus PII Signaling Protein. Journal of Biological Chemistry, 2014, 289, 8960-8972.	3.4	57

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37	A Specific Glycogen Mobilization Strategy Enables Rapid Awakening of Dormant Cyanobacteria from Chlorosis. Plant Physiology, 2018, 177, 594-603.	4.8	57
38	The Bacterial signal transduction protein <scp>GlnB</scp> regulates the committed step in fatty acid biosynthesis by acting as a dissociable regulatory subunit of acetylâ€<scp>CoA</scp> carboxylase. Molecular Microbiology, 2015, 95, 1025-1035.	2.5	54
39	Unique mechanistic features of post-translational regulation of glutamine synthetase activity inMethanosarcina mazeistrain GÃ¶1 in response to nitrogen availability. Molecular Microbiology, 2005, 55, 1841-1854.	2.5	53
40	Cyanobacterial antimetabolite 7-deoxy-sedoheptulose blocks the shikimate pathway to inhibit the growth of prototrophic organisms. Nature Communications, 2019, 10, 545.	12.8	53
41	Glycolytic Shunts Replenish the Calvinâ€“Bensonâ€“Bassham Cycle as Anaplerotic Reactions in Cyanobacteria. Molecular Plant, 2020, 13, 471-482.	8.3	53
42	The novel P _{II} -interactor PirC identifies phosphoglycerate mutase as key control point of carbon storage metabolism in cyanobacteria. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	52
43	Septal Junctions in Filamentous Heterocyst-Forming Cyanobacteria. Trends in Microbiology, 2016, 24, 79-82.	7.7	48
44	Metabolic pathway engineering using the central signal processor PII. Microbial Cell Factories, 2015, 14, 192.	4.0	47
45	Chlorosis as a Developmental Program in Cyanobacteria: The Proteomic Fundament for Survival and Awakening. Molecular and Cellular Proteomics, 2018, 17, 1650-1669.	3.8	47
46	Photoautotrophic Polyhydroxybutyrate Granule Formation Is Regulated by Cyanobacterial Phasin PhaP in Synechocystis sp. Strain PCC 6803. Applied and Environmental Microbiology, 2015, 81, 4411-4422.	3.1	45
47	Interaction of the Nitrogen Regulatory Protein GlnB (PII) with Biotin Carboxyl Carrier Protein (BCCP) Controls Acetyl-CoA Levels in the Cyanobacterium Synechocystis sp. PCC 6803. Frontiers in Microbiology, 2016, 7, 1700.	3.5	45
48	A Novel Signal Transduction Protein PII Variant from Synechococcus elongatus PCC 7942 Indicates a Two-Step Process for NAGKâ€“PII Complex Formation. Journal of Molecular Biology, 2010, 399, 410-421.	4.2	42
49	From cyanobacteria to Archaeplastida: new evolutionary insights into PII signalling in the plant kingdom. New Phytologist, 2020, 227, 722-731.	7.3	42
50	The Synechococcus Strain PCC 7942glnN Product (Glutamine Synthetase III) Helps Recovery from Prolonged Nitrogen Chlorosis. Journal of Bacteriology, 2000, 182, 5615-5619.	2.2	41
51	N-Acetyl-l-Glutamate Kinase (NAGK) from Oxygenic Phototrophs: PII Signal Transduction across Domains of Life Reveals Novel Insights in NAGK Control. Journal of Molecular Biology, 2009, 389, 748-758.	4.2	41
52	On the Role and Production of Polyhydroxybutyrate (PHB) in the Cyanobacterium Synechocystis sp. PCC 6803. Life, 2020, 10, 47.	2.4	39
53	Clear differences in metabolic and morphological adaptations of akinetes of two Nostocales living in different habitats. Microbiology (United Kingdom), 2016, 162, 214-223.	1.8	39
54	Glycogen, a major player for bacterial survival and awakening from dormancy. Future Microbiology, 2017, 12, 101-104.	2.0	38

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55	New views on PII signaling: from nitrogen sensing to global metabolic control. Trends in Microbiology, 2022, 30, 722-735.	7.7	38
56	Characterization of the glnB gene product of Nostoc punctiforme strain ATCC 29133: glnB or the PII protein may be essential. Microbiology (United Kingdom), 1998, 144, 1537-1547.	1.8	37
57	Signal-transduction protein PII from <i>Synechococcus elongatus</i> PCC 7942 senses low adenylate energy charge <i>in vitro</i>. Biochemical Journal, 2011, 440, 147-156.	3.7	35
58	SPR analysis of promoter binding of <i>Synechocystis</i> PCC6803 transcription factors NtcA and CRP suggests crossâ€talk and sheds light on regulation by effector molecules. FEBS Letters, 2014, 588, 2270-2276.	2.8	35
59	Role of Two Cell Wall Amidases in Septal Junction and Nanopore Formation in the Multicellular Cyanobacterium Anabaena sp. PCC 7120. Frontiers in Cellular and Infection Microbiology, 2017, 7, 386.	3.9	35
60	Interaction of the general transcription factor TnrA with the PII-like protein GlnK and glutamine synthetase in Bacillusâ€ƒsubtilis. FEBS Journal, 2011, 278, 1779-1789.	4.7	34
61	Nitrogen Starvation Acclimation in Synechococcus elongatus: Redox-Control and the Role of Nitrate Reduction as an Electron Sink. Life, 2015, 5, 888-904.	2.4	34
62	Signal Transduction Protein P II Phosphatase PphA Is Required for Light-Dependent Control of Nitrate Utilization in Synechocystis sp. Strain PCC 6803. Journal of Bacteriology, 2005, 187, 6683-6690.	2.2	33
63	Novel ATP-driven Pathway of Glycolipid Export Involving TolC Protein. Journal of Biological Chemistry, 2011, 286, 38202-38210.	3.4	31
64	Transcription factor TnrA inhibits the biosynthetic activity of glutamine synthetase in <i>Bacillus subtilis</i>. FEBS Letters, 2013, 587, 1293-1298.	2.8	31
65	Phosphoenolpyruvate carboxylase from the cyanobacterium <i>Synechocystis</i> sp. PCC 6803 is under global metabolic control by P_{II} signaling. Molecular Microbiology, 2020, 114, 292-307.	2.5	30
66	PII Protein-Derived FRET Sensors for Quantification and Live-Cell Imaging of 2-Oxoglutarate. Scientific Reports, 2017, 7, 1437.	3.3	29
67	Interaction of Nâ€acetylâ€•l â€glutamate kinase with the PII signal transducer in the nonâ€photosynthetic alga Polytomella parva : Coâ€evolution towards a heteroâ€oligomeric enzyme. FEBS Journal, 2020, 287, 465-482.	4.7	29
68	Reduction of PII signaling protein enhances lipid body production in Chlamydomonas reinhardtii. Plant Science, 2015, 240, 1-9.	3.6	28
69	How glyphosate and its associated acidity affect early development in zebrafish (<i>Danio rerio</i>). PeerJ, 2019, 7, e7094.	2.0	28
70	PII Signal Transduction Protein in Chlamydomonas reinhardtii: Localization and Expression Pattern. Protist, 2013, 164, 49-59.	1.5	27
71	The Molecular Basis of TnrA Control by Glutamine Synthetase in Bacillus subtilis. Journal of Biological Chemistry, 2016, 291, 3483-3495.	3.4	27
72	The PII signaling protein from red algae represents an evolutionary link between cyanobacterial and Chloroplastida PII proteins. Scientific Reports, 2018, 8, 790.	3.3	27

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73	Diurnal metabolic control in cyanobacteria requires perception of second messenger signaling molecule c-di-AMP by the carbon control protein SbtB. Science Advances, 2021, 7, eabk0568.	10.3	26
74	Inactivation of the general transcription factor TnrA in Bacillus subtilis by proteolysis. Microbiology (United Kingdom), 2008, 154, 2348-2355.	1.8	24
75	Structure of a thylakoid-anchored contractile injection system in multicellular cyanobacteria. Nature Microbiology, 2022, 7, 386-396.	13.3	23
76	From PII Signaling to Metabolite Sensing: A Novel 2-Oxoglutarate Sensor That Details PII - NAGK Complex Formation. PLoS ONE, 2013, 8, e83181.	2.5	22
77	Down-Regulation of the Alternative Sigma Factor SigJ Confers a Photoprotective Phenotype to<i>Anabaena</i>PCC 7120. Plant and Cell Physiology, 2017, 58, pcw188.	3.1	22
78	LytM factor Alr3353 affects filament morphology and cellâ€“cell communication in the multicellular cyanobacterium <i>Anabaena</i> sp. PCC 7120. Molecular Microbiology, 2018, 108, 187-203.	2.5	22
79	Enabling cellâ€“cell communication via nanopore formation: structure, function and localization of the unique cell wall amidase AmiC2 of <i>Nostoc punctiforme</i>. FEBS Journal, 2016, 283, 1336-1350.	4.7	21
80	Bacterial Predation on Cyanobacteria. Microbial Physiology, 2021, 31, 99-108.	2.4	21
81	Recovery of Unicellular Cyanobacteria from Nitrogen Chlorosis: A Model for Resuscitation of Dormant Bacteria. Microbial Physiology, 2021, 31, 78-87.	2.4	20
82	An engineered PII protein variant that senses a novel ligand: atomic resolution structure of the complex with citrate. Acta Crystallographica Section D: Biological Crystallography, 2012, 68, 901-908.	2.5	19
83	Structureâ€“function analysis of the ATPâ€driven glycolipid efflux pump DevBCA reveals complex organization with TolC/HgdD. FEBS Letters, 2014, 588, 395-400.	2.8	19
84	Energy Sensing versus 2-Oxoglutarate Dependent ATPase Switch in the Control of Synechococcus PII Interaction with Its Targets NAGK and PipX. PLoS ONE, 2015, 10, e0137114.	2.5	19
85	Polyhydroxybutyrate: A Useful Product of Chlorotic Cyanobacteria. Microbial Physiology, 2021, 31, 67-77.	2.4	18
86	The Novel P _{II} -Interacting Protein PirA Controls Flux into the Cyanobacterial Ornithine-Ammonia Cycle. MBio, 2021, 12, .	4.1	17
87	Split NanoLuc technology allows quantitation of interactions between PII protein and its receptors with unprecedented sensitivity and reveals transient interactions. Scientific Reports, 2021, 11, 12535.	3.3	16
88	Glutamine synthetase stabilizes the binding of GlnR to nitrogen fixation gene operators. FEBS Journal, 2017, 284, 903-918.	4.7	15
89	A nanopore array in the septal peptidoglycan hosts gated septal junctions for cell-cell communication in multicellular cyanobacteria. International Journal of Medical Microbiology, 2019, 309, 151303.	3.6	15
90	Tuning the in vitro sensing and signaling properties of cyanobacterial PII protein by mutation of key residues. Scientific Reports, 2019, 9, 18985.	3.3	15

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91	The impact of the cyanobacterial carbonâ€regulator protein SbtBÂand of the second messengers cAMP and câ€diâ€AMP on CO₂â€dependent gene expression. New Phytologist, 2022, 234, 1801-1816.	7.3	15
92	The Slr0058 Protein From Synechocystis sp. PCC 6803 Is a Novel Regulatory Protein Involved in PHB Granule Formation. Frontiers in Microbiology, 2020, 11, 809.	3.5	14
93	Functional and structural characterization of PIIâ€like protein CutA does not support involvement in heavy metal tolerance and hints at a smallâ€molecule carrying/signaling role. FEBS Journal, 2021, 288, 1142-1162.	4.7	14
94	Glutamine Assimilation and Feedback Regulation of L-acetyl-N-glutamate Kinase Activity in Chlorella variabilis NC64A Results in Changes in Arginine Pools. Protist, 2015, 166, 493-505.	1.5	12
95	A novel Ca2+-binding protein influences photosynthetic electron transport in Anabaena sp. PCC 7120. Biochimica Et Biophysica Acta - Bioenergetics, 2019, 1860, 519-532.	1.0	12
96	NAD+ biosynthesis in bacteria is controlled by global carbon/nitrogen levels via PII signaling. Journal of Biological Chemistry, 2020, 295, 6165-6176.	3.4	12
97	The essential role of sodium bioenergetics and ATP homeostasis in the developmental transitions of a cyanobacterium. Current Biology, 2021, 31, 1606-1615.e2.	3.9	12
98	DNA affinity capturing identifies new regulators of the heterologously expressed novobiocin gene cluster in Streptomyces coelicolor M512. Applied Microbiology and Biotechnology, 2016, 100, 4495-4509.	3.6	11
99	Kinetic Analysis of a Protein-protein Complex to Determine its Dissociation Constant (KD) and the Effective Concentration (EC50) of an Interplaying Effector Molecule Using Bio-layer Interferometry. Bio-protocol, 2021, 11, e4152.	0.4	10
100	Cyanophycin: A Nitrogen-Rich Reserve Polymer. , 0, , .		9
101	Complete Genome Sequence of Lactobacillus hilgardii LMG 7934, Carrying the Gene Encoding for the Novel PII-Like Protein PotN. Current Microbiology, 2020, 77, 3538-3545.	2.2	9
102	Microbiology Comment. Microbiology (United Kingdom), 2016, 162, 727-729.	1.8	9
103	The Protein-Protein Interaction Network Reveals a Novel Role of the Signal Transduction Protein PII in the Control of c-di-GMP Homeostasis in Azospirillum brasilense. MSystems, 2020, 5, .	3.8	8
104	Characterization of DNA Binding Sites of RokB, a ROK-Family Regulator from Streptomyces coelicolor Reveals the RokB Regulon. PLoS ONE, 2016, 11, e0153249.	2.5	8
105	DevT (Alr4674), resembling a Ser/Thr protein phosphatase, is essential for heterocyst function in the cyanobacterium Anabaena sp. PCC 7120. Microbiology (United Kingdom), 2010, 156, 3544-3555.	1.8	7
106	A bioactive molecule made by unusual salvage of radical SAM enzyme byproduct 5-deoxyadenosine blurs the boundary of primary and secondary metabolism. Journal of Biological Chemistry, 2021, 296, 100621.	3.4	7
107	Arabidopsis PII Proteins Form Characteristic Foci in Chloroplasts Indicating Novel Properties in Protein Interaction and Degradation. International Journal of Molecular Sciences, 2021, 22, 12666.	4.1	6
108	Regulatory phosphorylation event of phosphoglucomutase 1 tunes its activity to regulate glycogen metabolism. FEBS Journal, 2022, 289, 6005-6020.	4.7	6

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109	In vivo Inhibition of the 3-Dehydroquinate Synthase by 7-Deoxysedoheptulose Depends on Promiscuous Uptake by Sugar Transporters in Cyanobacteria. Frontiers in Microbiology, 2021, 12, 692986.	3.5	5
110	The NADP-dependent malic enzyme MaeB is a central metabolic hub controlled by the acetyl-CoA to CoASH ratio. Biochimica Et Biophysica Acta - Proteins and Proteomics, 2020, 1868, 140462.	2.3	4
111	Effects of arginine on Polytomella parva growth, PII protein levels and lipid body formation. Planta, 2019, 250, 1379-1385.	3.2	3
112	5-Deoxyadenosine Metabolism: More than â€œWaste Disposalâ€. Microbial Physiology, 2021, 31, 248-259.	2.4	3
113	Strong coupling between an optical microcavity and photosystems in single living cyanobacteria. Journal of Biophotonics, 2021, , e202100136.	2.3	3
114	Hybrid Chemoenzymatic Synthesis of C7â€Sugars for Molecular Evidence of in vivo Shikimate Pathway Inhibition. ChemBioChem, 2022, , .	2.6	3
115	PotN represents a novel energyâ€state sensing PII subfamily, occurring in firmicutes. FEBS Journal, 2022, 289, 5305-5321.	4.7	2
116	Construction of Antisense RNA-mediated Gene Knock-down Strains in the Cyanobacterium Anabaena sp. PCC 7120. Bio-protocol, 2020, 10, e3528.	0.4	1
117	Changes in Envelope Structure and Cellâ€"Cell Communication during Akinete Differentiation and Germination in Filamentous Cyanobacterium Trichormus variabilis ATCC 29413. Life, 2022, 12, 429.	2.4	1
118	Editorial for Article Collection on â€œBacterial Survival Strategiesâ€. Microbial Physiology, 2021, 31, 1-3.	2.4	0