Matthias Boll

List of Publications by Year in descending order

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93 papers	5,171 citations	94433 37 h-index	91884 69 g-index
94 all docs	94 docs citations	94 times ranked	4326 citing authors

#	Article	IF	Citations
1	Microbial degradation of aromatic compounds â€" from one strategy to four. Nature Reviews Microbiology, 2011, 9, 803-816.	28.6	952
2	Anaerobic Microbial Degradation of Hydrocarbons: From Enzymatic Reactions to the Environment. Journal of Molecular Microbiology and Biotechnology, 2016, 26, 5-28.	1.0	615
3	Anaerobic Degradation of Benzene and Polycyclic Aromatic Hydrocarbons. Journal of Molecular Microbiology and Biotechnology, 2016, 26, 92-118.	1.0	218
4	Benzoylâ€Coenzyme A Reductase (Dearomatizing), a Key Enzyme of Anaerobic Aromatic Metabolism. FEBS Journal, 1995, 234, 921-933.	0.2	205
5	Anaerobic degradation of homocyclic aromatic compounds via arylcarboxylâ€coenzyme <scp>A</scp> esters: organisms, strategies and key enzymes. Environmental Microbiology, 2014, 16, 612-627.	3.8	156
6	Gene clusters involved in anaerobic benzoate degradation of Geobacter metallireducens. Molecular Microbiology, 2005, 58, 1238-1252.	2.5	147
7	Identification and characterization of the tungsten-containing class of benzoyl-coenzyme A reductases. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 17687-17692.	7.1	112
8	ThebzdGene Cluster, Coding for Anaerobic Benzoate Catabolism, inAzoarcussp. Strain CIB. Journal of Bacteriology, 2004, 186, 5762-5774.	2.2	111
9	6â€Oxocyclohexâ€1â€eneâ€1â€carbonylâ€coenzyme A hydrolases from obligately anaerobic bacteria: characterization and identification of its gene as a functional marker for aromatic compounds degrading anaerobes. Environmental Microbiology, 2008, 10, 1547-1556.	3.8	99
10	Microbial degradation of phthalates: biochemistry and environmental implications. Environmental Microbiology Reports, 2020, 12, 3-15.	2.4	98
11	Dearomatizing Benzene Ring Reductases. Journal of Molecular Microbiology and Biotechnology, 2005, 10, 132-142.	1.0	92
12	Benzoylâ€CoA Reductase (Dearomatizing), A Key Enzyme of Anaerobic Aromatic Metabolism. FEBS Journal, 1997, 244, 840-851.	0.2	88
13	Reversible Biological Birch Reduction at an Extremely Low Redox Potential. Journal of the American Chemical Society, 2010, 132, 9850-9856.	13.7	85
14	Genes coding for the benzoylâ€CoA pathway of anaerobic aromatic metabolism in the bacterium Thauera aromatica. FEBS Journal, 1998, 256, 148-154.	0.2	81
15	Key enzymes in the anaerobic aromatic metabolism catalysing Birch-like reductions. Biochimica Et Biophysica Acta - Bioenergetics, 2005, 1707, 34-50.	1.0	76
16	Selenocysteine-Containing Proteins in Anaerobic Benzoate Metabolism of Desulfococcus multivorans. Journal of Bacteriology, 2004, 186, 2156-2163.	2.2	69
17	Occurrence, genes and expression of the W/Seâ€containing class II benzoylâ€coenzyme A reductases in anaerobic bacteria. Environmental Microbiology, 2011, 13, 696-709.	3.8	65
18	Cyclohexa-1,5-Diene-1-Carbonyl-Coenzyme A (CoA) Hydratases of Geobacter metallireducens and Syntrophus aciditrophicus : Evidence for a Common Benzoyl-CoA Degradation Pathway in Facultative and Strict Anaerobes. Journal of Bacteriology, 2007, 189, 1055-1060.	2.2	64

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19	Structure of a Xanthine Oxidase-Related 4-Hydroxybenzoyl-CoA Reductase with an Additional [4Fe-4S] Cluster and an Inverted Electron Flow. Structure, 2004, 12, 2249-2256.	3.3	62
20	An unusual strategy for the anoxic biodegradation of phthalate. ISME Journal, 2017, 11, 224-236.	9.8	61
21	Identification and characterization of the natural electron donor ferredoxin and of FAD as a possible prosthetic group of benzoylâ€CoA reductase (dearomatizing), a key enzyme of anaerobic aromatic metabolism. FEBS Journal, 1998, 251, 946-954.	0.2	58
22	A Birch-like Mechanism in Enzymatic Benzoyl-CoA Reduction:â€‰ A Kinetic Study of Substrate Analogues Combined with an ab Initio Model. Biochemistry, 2002, 41, 1752-1758.	2.5	57
23	Nonaromatic Products from Anoxic Conversion of Benzoyl-CoA with Benzoyl-CoA Reductase and Cyclohexa-1,5-diene-1-carbonyl-CoA Hydratase. Journal of Biological Chemistry, 2000, 275, 21889-21895.	3.4	56
24	Combined Application of PCR-Based Functional Assays for the Detection of Aromatic-Compound-Degrading Anaerobes. Applied and Environmental Microbiology, 2011, 77, 5056-5061.	3.1	55
25	Identification and characterization of 2â€naphthoylâ€coenzyme A reductase, the prototype of a novel class of dearomatizing reductases. Molecular Microbiology, 2013, 88, 1032-1039.	2.5	52
26	Structural basis of enzymatic benzene ring reduction. Nature Chemical Biology, 2015, 11, 586-591.	8.0	52
27	Functional Gene Markers for Fumarate-Adding and Dearomatizing Key Enzymes in Anaerobic Aromatic Hydrocarbon Degradation in Terrestrial Environments. Journal of Molecular Microbiology and Biotechnology, 2016, 26, 180-194.	1.0	52
28	Properties of 2-Oxoglutarate:Ferredoxin Oxidoreductase from Thauera aromatica and Its Role in Enzymatic Reduction of the Aromatic Ring. Journal of Bacteriology, 2002, 184, 3975-3983.	2.2	51
29	Ethylbenzene Dehydrogenase and Related Molybdenum Enzymes Involved in Oxygen-Independent Alkyl Chain Hydroxylation. Journal of Molecular Microbiology and Biotechnology, 2016, 26, 45-62.	1.0	50
30	Mechanism of Enzymatic Birch Reduction: Stereochemical Course and Exchange Reactions of Benzoyl-CoA Reductase. Journal of the American Chemical Society, 2008, 130, 14050-14051.	13.7	46
31	Unusual reactions involved in anaerobic metabolism of phenolic compounds. Biological Chemistry, 2005, 386, 989-997.	2.5	45
32	Mechanism of ATP-driven electron transfer catalyzed by the benzene ring-reducing enzyme benzoyl-CoA reductase. Proceedings of the National Academy of Sciences of the United States of America, 2001, 98, 13619-13624.	7.1	44
33	Decarboxylating and Nondecarboxylating Glutaryl-Coenzyme A Dehydrogenases in the Aromatic Metabolism of Obligately Anaerobic Bacteria. Journal of Bacteriology, 2009, 191, 4401-4409.	2.2	40
34	The Benzoylâ€Coenzyme A Reductase and 2â€Hydroxyacylâ€Coenzyme A Dehydratase Radical Enzyme Family. ChemBioChem, 2014, 15, 2188-2194.	2.6	40
35	Enzymes involved in the anaerobic degradation of metaâ€substituted halobenzoates. Molecular Microbiology, 2011, 82, 758-769.	2.5	39
36	Two distinct old yellow enzymes are involved in naphthyl ring reduction during anaerobic naphthalene degradation. Molecular Microbiology, 2015, 95, 162-172.	2.5	39

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37	EPR and MÃ¶ssbauer Studies of Benzoyl-CoA Reductase. Journal of Biological Chemistry, 2000, 275, 31857-31868.	3.4	38
38	Redox Centers of 4-Hydroxybenzoyl-CoA Reductase, a Member of the Xanthine Oxidase Family of Molybdenum-containing Enzymes. Journal of Biological Chemistry, 2001, 276, 47853-47862.	3.4	37
39	Characterization of the mbd cluster encoding the anaerobic 3â€methylbenzoylâ€CoA central pathway. Environmental Microbiology, 2013, 15, 148-166.	3.8	37
40	<scp>ATP</scp>â€dependent/â€independent enzymatic ring reductions involved in the anaerobic catabolism of naphthalene. Environmental Microbiology, 2013, 15, 1832-1841.	3.8	35
41	ATP-Dependent Câ€“F Bond Cleavage Allows the Complete Degradation of 4-Fluoroaromatics without Oxygen. MBio, 2016, 7, .	4.1	35
42	One-megadalton metalloenzyme complex in Geobacter metallireducens involved in benzene ring reduction beyond the biological redox window. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 2259-2264.	7.1	32
43	Aromatizing Cyclohexa-1,5-diene-1-carbonyl-Coenzyme A Oxidase. Journal of Biological Chemistry, 2008, 283, 20713-20721.	3.4	30
44	Structure and Function of the Unusual Tungsten Enzymes Acetylene Hydratase and Class II Benzoyl-Coenzyme A Reductase. Journal of Molecular Microbiology and Biotechnology, 2016, 26, 119-137.	1.0	29
45	Tungstoenzymes: Occurrence, Catalytic Diversity and Cofactor Synthesis. Inorganics, 2020, 8, 44.	2.7	29
46	A patchwork pathway for oxygenaseâ€independent degradation of side chain containing steroids. Environmental Microbiology, 2017, 19, 4684-4699.	3.8	28
47	Anaerobic degradation of 4â€methylbenzoate via a specific 4â€methylbenzoylâ€CoA pathway. Environmental Microbiology, 2012, 14, 1118-1132.	3.8	27
48	Cyclohexanecarboxyl-Coenzyme A (CoA) and Cyclohex-1-ene-1-Carboxyl-CoA Dehydrogenases, Two Enzymes Involved in the Fermentation of Benzoate and Crotonate in Syntrophus aciditrophicus. Journal of Bacteriology, 2013, 195, 3193-3200.	2.2	27
49	Phthaloylâ€coenzyme A decarboxylase from Thauera chlorobenzoica: the prenylated flavinâ€, K⁺â€and Fe²⁺â€dependent key enzyme of anaerobic phthalate degradation. Environmental Microbiology, 2017, 19, 3734-3744.	3.8	27
50	Enzymes Involved in a Novel Anaerobic Cyclohexane Carboxylic Acid Degradation Pathway. Journal of Bacteriology, 2014, 196, 3667-3674.	2.2	26
51	Purification and Characterization of Active-Site Components of the Putative p -Cresol Methylhydroxylase Membrane Complex from Geobacter metallireducens. Journal of Bacteriology, 2008, 190, 6493-6500.	2.2	25
52	Differential Membrane Proteome Analysis Reveals Novel Proteins Involved in the Degradation of Aromatic Compounds in Geobacter metallireducens. Molecular and Cellular Proteomics, 2009, 8, 2159-2169.	3.8	25
53	Identification and Characterization of a Succinyl-Coenzyme A (CoA):Benzoate CoA Transferase in Geobacter metallireducens. Journal of Bacteriology, 2012, 194, 2501-2508.	2.2	25
54	Single Turnover EPR Studies of Benzoyl-CoA Reductaseâ€,â€¡. Biochemistry, 2001, 40, 7612-7620.	2.5	24

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55	A catalytically versatile benzoyl-CoA reductase, key enzyme in the degradation of methyl- and halobenzoates in denitrifying bacteria. Journal of Biological Chemistry, 2018, 293, 10264-10274.	3.4	22
56	Enzymes involved in phthalate degradation in sulphateâ€reducing bacteria. Environmental Microbiology, 2019, 21, 3601-3612.	3.8	22
57	Promiscuous Defluorinating Enoyl-CoA Hydratases/Hydrolases Allow for Complete Anaerobic Degradation of 2-Fluorobenzoate. Frontiers in Microbiology, 2017, 8, 2579.	3.5	21
58	Substrate Binding and Reduction of Benzoyl-CoA Reductase:Â Evidence for Nucleotide-Dependent Conformational Changesâ€. Biochemistry, 2004, 43, 1376-1385.	2.5	20
59	25â€Hydroxyvitaminâ€…D₃ Synthesis by Enzymatic Steroid Sideâ€Chain Hydroxylation with Water. Angewandte Chemie - International Edition, 2016, 55, 1881-1884.	13.8	20
60	Breaking Benzene Aromaticityâ€”Computational Insights into the Mechanism of the Tungsten-Containing Benzoyl-CoA Reductase. Journal of the American Chemical Society, 2017, 139, 14488-14500.	13.7	19
61	A PCR-based assay for the detection of anaerobic naphthalene degradation. FEMS Microbiology Letters, 2014, 354, 55-59.	1.8	18
62	Enzymes of the benzoylâ€coenzyme <scp>A</scp> degradation pathway in the hyperthermophilic archaeon <scp>F</scp>erroglobus placidus. Environmental Microbiology, 2015, 17, 3289-3300.	3.8	18
63	Functional diversity of prokaryotic HdrA(BC) modules: Role in flavin-based electron bifurcation processes and beyond. Biochimica Et Biophysica Acta - Bioenergetics, 2021, 1862, 148379.	1.0	18
64	Four Molybdenum-Dependent Steroid C-25 Hydroxylases: Heterologous Overproduction, Role in Steroid Degradation, and Application for 25-Hydroxyvitamin D ₃ Synthesis. MBio, 2018, 9, .	4.1	16
65	Evolution of a xenobiotic degradation pathway: formation and capture of the labile phthaloylâ€CoA intermediate during anaerobic phthalate degradation. Molecular Microbiology, 2018, 108, 614-626.	2.5	15
66	Enantioselective Enzymatic Naphthoyl Ring Reduction. Chemistry - A European Journal, 2018, 24, 12505-12508.	3.3	15
67	Structural Evidence for a [4Feâ€5S] Intermediate in the Nonâ€Redox Desulfuration of Thiouracil. Angewandte Chemie - International Edition, 2021, 60, 424-431.	13.8	15
68	Structural Basis for Promoting and Preventing Decarboxylation in Glutaryl-Coenzyme A Dehydrogenases. Biochemistry, 2010, 49, 5350-5357.	2.5	14
69	Low potential enzymatic hydride transfer via highly cooperative and inversely functionalized flavin cofactors. Nature Communications, 2019, 10, 2074.	12.8	14
70	Unraveling the Specific Regulation of the Central Pathway for Anaerobic Degradation of 3-Methylbenzoate. Journal of Biological Chemistry, 2015, 290, 12165-12183.	3.4	13
71	Conversion of a decarboxylating to a non-decarboxylating glutaryl-coenzyme A dehydrogenase by site-directed mutagenesis. FEBS Letters, 2011, 585, 1317-1321.	2.8	11
72	ATP-Dependent Electron Activation Module of Benzoyl-Coenzyme A Reductase from the Hyperthermophilic Archaeon Ferroglobus placidus. Biochemistry, 2016, 55, 5578-5586.	2.5	11

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73	Fermentative Cyclohexane Carboxylate Formation in <i>Syntrophus aciditrophicus</i>. Journal of Molecular Microbiology and Biotechnology, 2016, 26, 165-179.	1.0	11
74	Functional Characterization of Three Specific Acyl-Coenzyme A Synthetases Involved in Anaerobic Cholesterol Degradation in Sterolibacterium denitrificans Chol1S. Applied and Environmental Microbiology, 2018, 84, .	3.1	11
75	The class II benzoylâ€coenzyme A reductase complex from the sulfateâ€reducing Desulfosarcina cetonica. Environmental Microbiology, 2019, 21, 4241-4252.	3.8	10
76	ATP-dependent hydroxylation of an unactivated primary carbon with water. Nature Communications, 2020, 11, 3906.	12.8	10
77	Degradation of dibutyl phthalate by Paenarthrobacter sp. Shss isolated from Saravan landfill, Hyrcanian Forests, Iran. Biodegradation, 2022, 33, 59-70.	3.0	9
78	Channeling C1 Metabolism toward S -Adenosylmethionine-Dependent Conversion of Estrogens to Androgens in Estrogen-Degrading Bacteria. MBio, 2020, 11, .	4.1	8
79	The missing enzymatic link in syntrophic methane formation from fatty acids. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	7
80	Glutarylâ€coenzyme A dehydrogenase from GeobacterÂmetallireducensÂâ€“Âinteraction with electron transferring flavoprotein and kinetic basis of unidirectional catalysis. FEBS Journal, 2014, 281, 5120-5131.	4.7	6
81	A fully reversible 25-hydroxy steroid kinase involved in oxygen-independent cholesterol side-chain oxidation. Journal of Biological Chemistry, 2021, 297, 101105.	3.4	6
82	An Aerobic Hybrid Phthalate Degradation Pathway via Phthaloyl-Coenzyme A in Denitrifying Bacteria. Applied and Environmental Microbiology, 2020, 86, .	3.1	5
83	Catabolic Pathways and Enzymes Involved in the Anaerobic Degradation of Monocyclic Aromatic Compounds. , 2020, , 85-133.		5
84	25â€Hydroxyvitaminâ€…D₃ Synthesis by Enzymatic Steroid Sideâ€Chain Hydroxylation with Water. Angewandte Chemie, 2016, 128, 1913-1916.	2.0	2
85	Activation of short-chain ketones and isopropanol in sulfate-reducing bacteria. BMC Microbiology, 2021, 21, 50.	3.3	2
86	Structural Basis of Cyclic 1,3â€Diene Forming Acylâ€Coenzyme A Dehydrogenases. ChemBioChem, 2021, 22, 3173-3177.	2.6	2
87	Catabolic Pathways and Enzymes Involved in the Anaerobic Degradation of Polycyclic Aromatic Hydrocarbons. , 2018, , 1-17.		2
88	Catabolic Pathways and Enzymes Involved in the Anaerobic Degradation of Monocyclic Aromatic Compounds. , 2018, , 1-50.		2
89	Enoyl-Coenzyme A Respiration via Formate Cycling in Syntrophic Bacteria. MBio, 2022, 13, e0374021.	4.1	2
90	Oxygen detoxification by dienoylâ€CoA oxidase involving flavin/disulfide cofactors. Molecular Microbiology, 2020, 114, 17-30.	2.5	1

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91	Structural Evidence for a [4Feâ€5S] Intermediate in the Nonâ€Redox Desulfuration of Thiouracil. Angewandte Chemie, 2021, 133, 428-435.	2.0	0
92	Catabolic Pathways and Enzymes Involved in the Anaerobic Degradation of Polycyclic Aromatic Hydrocarbons. , 2020, , 135-150.		0
93	Genes and enzymes involved in the biodegradation of the quaternary carbon compound pivalate in the denitrifying Thauera humireducens strain <scp>PIV</scp> â€¦. Environmental Microbiology, 2022, , .	3.8	0