Shelley D Copley

List of Publications by Year
in descending order

43 papers	3,142 citations	201674 27 h-index	265206 42 g-index
65 all docs	65 docs citations	65 times ranked	3846 citing authors

#	Article	IF	Citations
1	Enzymes with extra talents: moonlighting functions and catalytic promiscuity. Current Opinion in Chemical Biology, 2003, 7, 265-272.	6.1	487
2	Evolution of efficient pathways for degradation of anthropogenic chemicals. Nature Chemical Biology, 2009, 5, 559-566.	8.0	176
3	Evolution of a metabolic pathway for degradation of a toxic xenobiotic: the patchwork approach. Trends in Biochemical Sciences, 2000, 25, 261-265.	7.5	173
4	Moonlighting is mainstream: Paradigm adjustment required. BioEssays, 2012, 34, 578-588.	2.5	171
5	Genome Shuffling Improves Degradation of the Anthropogenic Pesticide Pentachlorophenol by Sphingobium chlorophenolicum ATCC 39723. Applied and Environmental Microbiology, 2004, 70, 2391-2397.	3.1	151
6	Divergence of Function in the Thioredoxin Fold Suprafamily:Â Evidence for Evolution of Peroxiredoxins from a Thioredoxin-like Ancestorâ€. Biochemistry, 2004, 43, 13981-13995.	2.5	141
7	Shining a light on enzyme promiscuity. Current Opinion in Structural Biology, 2017, 47, 167-175.	5.7	133
8	An evolutionary biochemist's perspective on promiscuity. Trends in Biochemical Sciences, 2015, 40, 72-78.	7.5	132
9	Lateral gene transfer and parallel evolution in the history of glutathione biosynthesis genes. Genome Biology, 2002, 3, research0025.1.	9.6	128
10	A mechanism for the association of amino acids with their codons and the origin of the genetic code. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 4442-4447.	7.1	107
11	Three serendipitous pathways in <i>E. coli</i> can bypass a block in pyridoxalâ€5â€²â€phosphate synthesis. Molecular Systems Biology, 2010, 6, 436.	7.2	102
12	Recruitment of a Double Bond Isomerase To Serve as a Reductive Dehalogenase during Biodegradation of Pentachlorophenolâ€. Biochemistry, 2000, 39, 5303-5311.	2.5	101
13	Evolution of new enzymes by gene duplication and divergence. FEBS Journal, 2020, 287, 1262-1283.	4.7	85
14	The possibility of alternative microbial life on Earth. International Journal of Astrobiology, 2005, 4, 165-173.	1.6	82
15	Evidence ThatpcpAEncodes 2,6-Dichlorohydroquinone Dioxygenase, the Ring Cleavage Enzyme Required for Pentachlorophenol Degradation inSphingomonas chlorophenolicaStrain ATCC 39723â€. Biochemistry, 1999, 38, 7659-7669.	2.5	81
16	Synonymous mutations make dramatic contributions to fitness when growth is limited by a weak-link enzyme. PLoS Genetics, 2018, 14, e1007615.	3.5	77
17	The Whole Genome Sequence of Sphingobium chlorophenolicum L-1: Insights into the Evolution of the Pentachlorophenol Degradation Pathway. Genome Biology and Evolution, 2012, 4, 184-198.	2.5	73
18	A Previously Unrecognized Step in Pentachlorophenol Degradation in Sphingobium chlorophenolicum Is Catalyzed by Tetrachlorobenzoquinone Reductase (PcpD). Journal of Bacteriology, 2003, 185, 302-310.	2.2	69

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19	Differential Effects of a Mutation on the Normal and Promiscuous Activities of Orthologs: Implications for Natural and Directed Evolution. Molecular Biology and Evolution, 2015, 32, 100-108.	8.9	64
20	Toward a Systems Biology Perspective on Enzyme Evolution. Journal of Biological Chemistry, 2012, 287, 3-10.	3.4	62
21	An evolutionary perspective on protein moonlighting. Biochemical Society Transactions, 2014, 42, 1684-1691.	3.4	62
22	A compromise required by gene sharing enables survival: Implications for evolution of new enzyme activities. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 13497-13502.	7.1	61
23	A versatile and highly efficient method for scarless genome editing in Escherichia coli and Salmonella enterica. BMC Biotechnology, 2014, 14, 84.	3.3	45
24	Pentachlorophenol Hydroxylase, a Poorly Functioning Enzyme Required for Degradation of Pentachlorophenol by <i>Sphingobium chlorophenolicum</i>. Biochemistry, 2012, 51, 3848-3860.	2.5	41
25	Sequestration of a highly reactive intermediate in an evolving pathway for degradation of pentachlorophenol. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, E2182-90.	7.1	40
26	Pre-Steady-State Kinetic Studies of the Reductive Dehalogenation Catalyzed by Tetrachlorohydroquinone Dehalogenase. Biochemistry, 2007, 46, 13211-13222.	2.5	37
27	Characterization of the Initial Steps in the Reductive Dehalogenation Catalyzed by Tetrachlorohydroquinone Dehalogenase. Biochemistry, 2002, 41, 1315-1322.	2.5	31
28	Successful aerobic bioremediation of groundwater contaminated with higher chlorinated phenols by indigenous degrader bacteria. Water Research, 2018, 138, 118-128.	11.3	30
29	A Mechanistic Investigation of the Thiolâˆ’Disulfide Exchange Step in the Reductive Dehalogenation Catalyzed by Tetrachlorohydroquinone Dehalogenase. Biochemistry, 2005, 44, 10360-10368.	2.5	25
30	A Synonymous Mutation Upstream of the Gene Encoding a Weak-Link Enzyme Causes an Ultrasensitive Response in Growth Rate. Journal of Bacteriology, 2016, 198, 2853-2863.	2.2	23
31	Hidden resources in the <i>Escherichia coli</i> genome restore PLP synthesis and robust growth after deletion of the essential gene <i>pdxB</i>. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 24164-24173.	7.1	23
32	The physical basis and practical consequences of biological promiscuity. Physical Biology, 2020, 17, 051001.	1.8	21
33	Setting the stage for evolution of a new enzyme. Current Opinion in Structural Biology, 2021, 69, 41-49.	5.7	18
34	Mutations that improve efficiency of a weak-link enzyme are rare compared to adaptive mutations elsewhere in the genome. ELife, 2019, 8, .	6.0	17
35	Mechanism of the Severe Inhibition of Tetrachlorohydroquinone Dehalogenase by Its Aromatic Substrates. Biochemistry, 2007, 46, 4438-4447.	2.5	16
36	Determinants for Efficient Editing with Cas9-Mediated Recombineering in <i>Escherichia coli</i>. ACS Synthetic Biology, 2020, 9, 1083-1099.	3.8	15

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37	A Radical Intermediate in the Conversion of Pentachlorophenol to Tetrachlorohydroquinone by <i>Sphingobium chlorophenolicum</i>. Biochemistry, 2014, 53, 6539-6549.	2.5	13
38	Members of a Novel Kinase Family (DUF1537) Can Recycle Toxic Intermediates into an Essential Metabolite. ACS Chemical Biology, 2016, 11, 2304-2311.	3.4	12
39	Genome-Wide Analysis of Transcriptional Changes and Genes That Contribute to Fitness during Degradation of the Anthropogenic Pollutant Pentachlorophenol by Sphingobium chlorophenolicum. MSystems, 2018, 3, .	3.8	4
40	Prediction of function in protein superfamilies. F1000 Biology Reports, 2009, 1, 91.	4.0	4
41	How to Recruit a Promiscuous Enzyme to Serve a New Function. Biochemistry, 2023, 62, 300-308.	2.5	4
42	CodaChrome: a tool for the visualization of proteome conservation across all fully sequenced bacterial genomes. BMC Genomics, 2014, 15, 65.	2.8	3
43	Amplicon remodeling and genomic mutations drive population dynamics after segmental amplification. Molecular Biology and Evolution, 2021, , .	8.9	1