

# Shelley D Copley

## List of Publications by Year in descending order

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43  
papers

3,142  
citations

201658

27  
h-index

265191

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. <i>Current Opinion in Chemical Biology</i> , 2003, 7, 265-272.	6.1	487
2	Evolution of efficient pathways for degradation of anthropogenic chemicals. <i>Nature Chemical Biology</i> , 2009, 5, 559-566.	8.0	176
3	Evolution of a metabolic pathway for degradation of a toxic xenobiotic: the patchwork approach. <i>Trends in Biochemical Sciences</i> , 2000, 25, 261-265.	7.5	173
4	Moonlighting is mainstream: Paradigm adjustment required. <i>BioEssays</i> , 2012, 34, 578-588.	2.5	171
5	Genome Shuffling Improves Degradation of the Anthropogenic Pesticide Pentachlorophenol by <i>Sphingobium chlorophenolicum</i> ATCC 39723. <i>Applied and Environmental Microbiology</i> , 2004, 70, 2391-2397.	3.1	151
6	Divergence of Function in the Thioredoxin Fold Suprafamily: Evidence for Evolution of Peroxiredoxins from a Thioredoxin-like Ancestor. <i>Biochemistry</i> , 2004, 43, 13981-13995.	2.5	141
7	Shining a light on enzyme promiscuity. <i>Current Opinion in Structural Biology</i> , 2017, 47, 167-175.	5.7	133
8	An evolutionary biochemist's perspective on promiscuity. <i>Trends in Biochemical Sciences</i> , 2015, 40, 72-78.	7.5	132
9	Lateral gene transfer and parallel evolution in the history of glutathione biosynthesis genes. <i>Genome Biology</i> , 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. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2005, 102, 4442-4447.	7.1	107
11	Three serendipitous pathways in <i>E. coli</i> can bypass a block in pyridoxal phosphate synthesis. <i>Molecular Systems Biology</i> , 2010, 6, 436.	7.2	102
12	Recruitment of a Double Bond Isomerase To Serve as a Reductive Dehalogenase during Biodegradation of Pentachlorophenol. <i>Biochemistry</i> , 2000, 39, 5303-5311.	2.5	101
13	Evolution of new enzymes by gene duplication and divergence. <i>FEBS Journal</i> , 2020, 287, 1262-1283.	4.7	85
14	The possibility of alternative microbial life on Earth. <i>International Journal of Astrobiology</i> , 2005, 4, 165-173.	1.6	82
15	Evidence That <i>pcpA</i> Encodes 2,6-Dichlorohydroquinone Dioxygenase, the Ring Cleavage Enzyme Required for Pentachlorophenol Degradation in <i>Sphingomonas chlorophenolica</i> Strain ATCC 39723. <i>Biochemistry</i> , 1999, 38, 7659-7669.	2.5	81
16	Synonymous mutations make dramatic contributions to fitness when growth is limited by a weak-link enzyme. <i>PLoS Genetics</i> , 2018, 14, e1007615.	3.5	77
17	The Whole Genome Sequence of <i>Sphingobium chlorophenolicum</i> L-1: Insights into the Evolution of the Pentachlorophenol Degradation Pathway. <i>Genome Biology and Evolution</i> , 2012, 4, 184-198.	2.5	73
18	A Previously Unrecognized Step in Pentachlorophenol Degradation in <i>Sphingobium chlorophenolicum</i> Is Catalyzed by Tetrachlorobenzoquinone Reductase ( <i>PcpD</i> ). <i>Journal of Bacteriology</i> , 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. <i>Molecular Biology and Evolution</i> , 2015, 32, 100-108.	8.9	64
20	Toward a Systems Biology Perspective on Enzyme Evolution. <i>Journal of Biological Chemistry</i> , 2012, 287, 3-10.	3.4	62
21	An evolutionary perspective on protein moonlighting. <i>Biochemical Society Transactions</i> , 2014, 42, 1684-1691.	3.4	62
22	A compromise required by gene sharing enables survival: Implications for evolution of new enzyme activities. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008, 105, 13497-13502.	7.1	61
23	A versatile and highly efficient method for scarless genome editing in <i>Escherichia coli</i> and <i>Salmonella enterica</i> . <i>BMC Biotechnology</i> , 2014, 14, 84.	3.3	45
24	Pentachlorophenol Hydroxylase, a Poorly Functioning Enzyme Required for Degradation of Pentachlorophenol by <i>Sphingobium chlorophenolicum</i> . <i>Biochemistry</i> , 2012, 51, 3848-3860.	2.5	41
25	Sequestration of a highly reactive intermediate in an evolving pathway for degradation of pentachlorophenol. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, E2182-90.	7.1	40
26	Pre-Steady-State Kinetic Studies of the Reductive Dehalogenation Catalyzed by Tetrachlorohydroquinone Dehalogenase. <i>Biochemistry</i> , 2007, 46, 13211-13222.	2.5	37
27	Characterization of the Initial Steps in the Reductive Dehalogenation Catalyzed by Tetrachlorohydroquinone Dehalogenase. <i>Biochemistry</i> , 2002, 41, 1315-1322.	2.5	31
28	Successful aerobic bioremediation of groundwater contaminated with higher chlorinated phenols by indigenous degrader bacteria. <i>Water Research</i> , 2018, 138, 118-128.	11.3	30
29	A Mechanistic Investigation of the Thiol-Disulfide Exchange Step in the Reductive Dehalogenation Catalyzed by Tetrachlorohydroquinone Dehalogenase. <i>Biochemistry</i> , 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. <i>Journal of Bacteriology</i> , 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> . <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 24164-24173.	7.1	23
32	The physical basis and practical consequences of biological promiscuity. <i>Physical Biology</i> , 2020, 17, 051001.	1.8	21
33	Setting the stage for evolution of a new enzyme. <i>Current Opinion in Structural Biology</i> , 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. <i>ELife</i> , 2019, 8, .	6.0	17
35	Mechanism of the Severe Inhibition of Tetrachlorohydroquinone Dehalogenase by Its Aromatic Substrates. <i>Biochemistry</i> , 2007, 46, 4438-4447.	2.5	16
36	Determinants for Efficient Editing with Cas9-Mediated Recombineering in <i>Escherichia coli</i> . <i>ACS Synthetic Biology</i> , 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> . <i>Biochemistry</i> , 2014, 53, 6539-6549.	2.5	13
38	Members of a Novel Kinase Family (DUF1537) Can Recycle Toxic Intermediates into an Essential Metabolite. <i>ACS Chemical Biology</i> , 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 <i>Sphingobium chlorophenolicum</i> . <i>MSystems</i> , 2018, 3, .	3.8	4
40	Prediction of function in protein superfamilies. <i>F1000 Biology Reports</i> , 2009, 1, 91.	4.0	4
41	How to Recruit a Promiscuous Enzyme to Serve a New Function. <i>Biochemistry</i> , 2023, 62, 300-308.	2.5	4
42	CodaChrome: a tool for the visualization of proteome conservation across all fully sequenced bacterial genomes. <i>BMC Genomics</i> , 2014, 15, 65.	2.8	3
43	Amplicon remodeling and genomic mutations drive population dynamics after segmental amplification. <i>Molecular Biology and Evolution</i> , 2021, , .	8.9	1