

# Shelley D Copley

## List of Publications by Citations

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41  
papers

2,539  
citations

26  
h-index

50  
g-index

65  
ext. papers

2,869  
ext. citations

6.4  
avg, IF

5.96  
L-index

#	Paper	IF	Citations
41	Enzymes with extra talents: moonlighting functions and catalytic promiscuity. <i>Current Opinion in Chemical Biology</i> , <b>2003</b> , 7, 265-72	9.7	434
40	Evolution of a metabolic pathway for degradation of a toxic xenobiotic: the patchwork approach. <i>Trends in Biochemical Sciences</i> , <b>2000</b> , 25, 261-5	10.3	158
39	Moonlighting is mainstream: paradigm adjustment required. <i>BioEssays</i> , <b>2012</b> , 34, 578-88	4.1	150
38	Genome shuffling improves degradation of the anthropogenic pesticide pentachlorophenol by <i>Sphingobium chlorophenolicum</i> ATCC 39723. <i>Applied and Environmental Microbiology</i> , <b>2004</b> , 70, 2391-7	4.8	142
37	Evolution of efficient pathways for degradation of anthropogenic chemicals. <i>Nature Chemical Biology</i> , <b>2009</b> , 5, 559-66	11.7	140
36	Divergence of function in the thioredoxin fold suprafamily: evidence for evolution of peroxiredoxins from a thioredoxin-like ancestor. <i>Biochemistry</i> , <b>2004</b> , 43, 13981-95	3.2	129
35	Lateral gene transfer and parallel evolution in the history of glutathione biosynthesis genes. <i>Genome Biology</i> , <b>2002</b> , 3, research0025	18.3	109
34	An evolutionary biochemist's perspective on promiscuity. <i>Trends in Biochemical Sciences</i> , <b>2015</b> , 40, 72-8	10.3	95
33	Recruitment of a double bond isomerase to serve as a reductive dehalogenase during biodegradation of pentachlorophenol. <i>Biochemistry</i> , <b>2000</b> , 39, 5303-11	3.2	94
32	Shining a light on enzyme promiscuity. <i>Current Opinion in Structural Biology</i> , <b>2017</b> , 47, 167-175	8.1	93
31	Three serendipitous pathways in <i>E. coli</i> can bypass a block in pyridoxal-5-phosphate synthesis. <i>Molecular Systems Biology</i> , <b>2010</b> , 6, 436	12.2	91
30	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> , <b>2005</b> , 102, 4442-7	11.5	84
29	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> , <b>1999</b> , 38, 7659-69	3.2	77
28	The possibility of alternative microbial life on Earth. <i>International Journal of Astrobiology</i> , <b>2005</b> , 4, 165-173	13.4	69
27	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> , <b>2012</b> , 4, 184-98	3.9	68
26	A previously unrecognized step in pentachlorophenol degradation in <i>Sphingobium chlorophenolicum</i> is catalyzed by tetrachlorobenzoquinone reductase (PcpD). <i>Journal of Bacteriology</i> , <b>2003</b> , 185, 302-10	3.5	63
25	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> , <b>2008</b> , 105, 13497-502	11.5	53

24	Toward a systems biology perspective on enzyme evolution. <i>Journal of Biological Chemistry</i> , <b>2012</b> , 287, 3-10	5.4	47
23	An evolutionary perspective on protein moonlighting. <i>Biochemical Society Transactions</i> , <b>2014</b> , 42, 1684-94	5.1	46
22	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> , <b>2015</b> , 32, 100-8	8.3	43
21	Pentachlorophenol hydroxylase, a poorly functioning enzyme required for degradation of pentachlorophenol by <i>Sphingobium chlorophenicum</i> . <i>Biochemistry</i> , <b>2012</b> , 51, 3848-60	3.2	36
20	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> , <b>2013</b> , 110, E2182-90	11.5	35
19	Synonymous mutations make dramatic contributions to fitness when growth is limited by a weak-link enzyme. <i>PLoS Genetics</i> , <b>2018</b> , 14, e1007615	6	35
18	Characterization of the initial steps in the reductive dehalogenation catalyzed by tetrachlorohydroquinone dehalogenase. <i>Biochemistry</i> , <b>2002</b> , 41, 1315-22	3.2	30
17	Pre-steady-state kinetic studies of the reductive dehalogenation catalyzed by tetrachlorohydroquinone dehalogenase. <i>Biochemistry</i> , <b>2007</b> , 46, 13211-22	3.2	29
16	A versatile and highly efficient method for scarless genome editing in <i>Escherichia coli</i> and <i>Salmonella enterica</i> . <i>BMC Biotechnology</i> , <b>2014</b> , 14, 84	3.5	28
15	Successful aerobic bioremediation of groundwater contaminated with higher chlorinated phenols by indigenous degrader bacteria. <i>Water Research</i> , <b>2018</b> , 138, 118-128	12.5	24
14	A mechanistic investigation of the thiol-disulfide exchange step in the reductive dehalogenation catalyzed by tetrachlorohydroquinone dehalogenase. <i>Biochemistry</i> , <b>2005</b> , 44, 10360-8	3.2	24
13	Evolution of new enzymes by gene duplication and divergence. <i>FEBS Journal</i> , <b>2020</b> , 287, 1262-1283	5.7	18
12	A Synonymous Mutation Upstream of the Gene Encoding a Weak-Link Enzyme Causes an Ultrasensitive Response in Growth Rate. <i>Journal of Bacteriology</i> , <b>2016</b> , 198, 2853-63	3.5	14
11	Mechanism of the severe inhibition of tetrachlorohydroquinone dehalogenase by its aromatic substrates. <i>Biochemistry</i> , <b>2007</b> , 46, 4438-47	3.2	14
10	Hidden resources in the genome restore PLP synthesis and robust growth after deletion of the essential gene. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2019</b> , 116, 24164-24173	11.5	12
9	A radical intermediate in the conversion of pentachlorophenol to tetrachlorohydroquinone by <i>Sphingobium chlorophenicum</i> . <i>Biochemistry</i> , <b>2014</b> , 53, 6539-49	3.2	11
8	Members of a Novel Kinase Family (DUF1537) Can Recycle Toxic Intermediates into an Essential Metabolite. <i>ACS Chemical Biology</i> , <b>2016</b> , 11, 2304-11	4.9	10
7	Determinants for Efficient Editing with Cas9-Mediated Recombineering in. <i>ACS Synthetic Biology</i> , <b>2020</b> , 9, 1083-1099	5.7	8

6	Mutations that improve efficiency of a weak-link enzyme are rare compared to adaptive mutations elsewhere in the genome. <i>ELife</i> , <b>2019</b> , 8,	8.9	7
5	The physical basis and practical consequences of biological promiscuity. <i>Physical Biology</i> , <b>2020</b> ,	3	5
4	Setting the stage for evolution of a new enzyme. <i>Current Opinion in Structural Biology</i> , <b>2021</b> , 69, 41-49	8.1	5
3	Prediction of function in protein superfamilies. <i>F1000 Biology Reports</i> , <b>2009</b> , 1, 91		4
2	CodaChrome: a tool for the visualization of proteome conservation across all fully sequenced bacterial genomes. <i>BMC Genomics</i> , <b>2014</b> , 15, 65	4.5	3
1	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> , <b>2018</b> , 3,	7.6	2