

Directed evolution of aldolases for exploitation in synth

Archives of Biochemistry and Biophysics

474, 318-330

DOI: [10.1016/j.abb.2008.01.005](https://doi.org/10.1016/j.abb.2008.01.005)

Citation Report

#	ARTICLE	IF	CITATIONS
1	Improving low-temperature activity of <i>Sulfolobus acidocaldarius</i> 2-keto-3-deoxygluconate aldolase. <i>Archaea</i> , 2009, 2, 233-239.	2.3	10
2	Directed enzyme evolution: climbing fitness peaks one amino acid at a time. <i>Current Opinion in Chemical Biology</i> , 2009, 13, 3-9.	2.8	285
3	Directed Evolution of an Enantioselective Epoxide Hydrolase: Uncovering the Source of Enantioselectivity at Each Evolutionary Stage. <i>Journal of the American Chemical Society</i> , 2009, 131, 7334-7343.	6.6	141
4	Improvement of an Acid Phosphatase/DHAP-Dependent Aldolase Cascade Reaction by Using Directed Evolution. <i>ChemBioChem</i> , 2009, 10, 2230-2235.	1.3	25
5	Engineering of Enzymes for Selective Catalysis. <i>Current Organic Chemistry</i> , 2010, 14, 1870-1882.	0.9	32
6	Structure-Guided Minimalist Redesign of the <i>ScpL</i> Fucose-1-Phosphate Aldolase Active Site: Expedient Synthesis of Novel Polyhydroxylated Pyrrolizidines and their Inhibitory Properties Against Glycosidases and Intestinal Disaccharidases. <i>Chemistry - A European Journal</i> , 2010, 16, 10691-10706.	1.7	39
7	Recent progress in stereoselective synthesis with aldolases. <i>Current Opinion in Chemical Biology</i> , 2010, 14, 154-167.	2.8	192
8	<i>Chemical Glycobiology</i> , 2010, , 175-224.		1
9	Structurally Informed Site-Directed Mutagenesis of a Stereochemically Promiscuous Aldolase To Afford Stereochemically Complementary Biocatalysts. <i>Journal of the American Chemical Society</i> , 2010, 132, 11753-11758.	6.6	44
10	Protein engineering of microbial enzymes. <i>Current Opinion in Microbiology</i> , 2010, 13, 274-282.	2.3	112
11	Directed Evolution of Enzymes. , 2010, , 723-749.		3
12	Gram scale synthesis of 3-fluoro-1-hydroxyacetone phosphate: a novel donor substrate in rabbit muscle aldolase-catalyzed aldol reactions. <i>Chemical Communications</i> , 2011, 47, 6647.	2.2	4
13	Probing the Molecular Basis of Substrate Specificity, Stereospecificity, and Catalysis in the Class II Pyruvate Aldolase, <i>Bphl</i> . <i>Biochemistry</i> , 2011, 50, 3559-3569.	1.2	25
14	Synthesis of non-natural carbohydrates from glycerol and aldehydes in a one-pot four-enzyme cascade reaction. <i>Green Chemistry</i> , 2011, 13, 2895.	4.6	49
15	C-C Bond-Forming Lyases in Organic Synthesis. <i>Chemical Reviews</i> , 2011, 111, 4346-4403.	23.0	194
16	Stereoselective C-C bond formation catalysed by engineered carboxymethylproline synthases. <i>Nature Chemistry</i> , 2011, 3, 365-371.	6.6	29
17	Modern methods for shortening and extending the carbon chain in carbohydrates at the anomeric center. <i>Tetrahedron</i> , 2011, 67, 8825-8850.	1.0	38
18	Directed evolution of a pyruvate aldolase to recognize a long chain acyl substrate. <i>Bioorganic and Medicinal Chemistry</i> , 2011, 19, 6447-6453.	1.4	21

#	ARTICLE	IF	CITATIONS
19	Application of Designed Enzymes in Organic Synthesis. <i>Chemical Reviews</i> , 2011, 111, 4141-4164.	23.0	144
20	Stable and efficient immobilization technique of aldolase under consecutive microwave irradiation at low temperature. <i>Bioresource Technology</i> , 2011, 102, 469-474.	4.8	31
21	Current Trends in Asymmetric Synthesis with Aldolases. <i>Advanced Synthesis and Catalysis</i> , 2011, 353, 2263-2283.	2.1	117
23	Laboratory Evolution of Stereoselective Enzymes: A Prolific Source of Catalysts for Asymmetric Reactions. <i>Angewandte Chemie - International Edition</i> , 2011, 50, 138-174.	7.2	484
24	Molecular Characterization of a Novel <i>N</i> -Acetylneuraminatase Lyase from <i>Lactobacillus plantarum</i> WCFS1. <i>Applied and Environmental Microbiology</i> , 2011, 77, 2471-2478.	1.4	39
25	COMPUTATIONAL TOOLS FOR RATIONAL PROTEIN ENGINEERING OF ALDOLASES. <i>Computational and Structural Biotechnology Journal</i> , 2012, 2, e201209016.	1.9	12
26	7.3 Directed Evolution and (Semi-) Rational Design Strategies for the Creation of Synthetically useful, Stereoselective Biocatalysts. , 2012, , 21-45.		1
27	7.23 New Emerging Reactions. , 2012, , 481-515.		1
28	Recent Developments in Enzymatic Asymmetric C-C Bond Formation. <i>Advanced Synthesis and Catalysis</i> , 2012, 354, 3161-3174.	2.1	76
30	Crotonase Catalysis Enables Flexible Production of Functionalized Prolines and Carbapenams. <i>Journal of the American Chemical Society</i> , 2012, 134, 471-479.	6.6	32
31	RATIONAL APPROACHES FOR ENGINEERING NOVEL FUNCTIONALITIES IN CARBON-CARBON BOND FORMING ENZYMES. <i>Computational and Structural Biotechnology Journal</i> , 2012, 2, e201204003.	1.9	5
32	Laboratory evolution of stereoselective enzymes as a means to expand the toolbox of organic chemists. <i>Tetrahedron</i> , 2012, 68, 7530-7548.	1.0	32
33	Improving upon Nature: Active Site Remodeling Produces Highly Efficient Aldolase Activity toward Hydrophobic Electrophilic Substrates. <i>Biochemistry</i> , 2012, 51, 1658-1668.	1.2	22
34	Rational Design of Stereoselectivity in the Class II Pyruvate Aldolase BphI. <i>Journal of the American Chemical Society</i> , 2012, 134, 507-513.	6.6	37
35	Biocatalysis in Organic Chemistry and Biotechnology: Past, Present, and Future. <i>Journal of the American Chemical Society</i> , 2013, 135, 12480-12496.	6.6	646
36	Directed Evolution by Using Iterative Saturation Mutagenesis Based on Multiresidue Sites. <i>ChemBioChem</i> , 2013, 14, 2301-2309.	1.3	47
37	Stereoselective preparation of lipidated carboxymethyl-proline/pipecolic acid derivatives via coupling of engineered crotonases with an alkylmalonyl-CoA synthetase. <i>Organic and Biomolecular Chemistry</i> , 2013, 11, 8191.	1.5	10
38	Laboratory Evolution of Enantiocomplementary <i>Candida antarctica</i> Lipase B Mutants with Broad Substrate Scope. <i>Journal of the American Chemical Society</i> , 2013, 135, 1872-1881.	6.6	134

#	ARTICLE	IF	CITATIONS
40	The Importance of Additive and Non-Additive Mutational Effects in Protein Engineering. <i>Angewandte Chemie - International Edition</i> , 2013, 52, 2658-2666.	7.2	155
41	Stereo- and regioselectivity in the P450-catalyzed oxidative tandem difunctionalization of 1-methylcyclohexene. <i>Tetrahedron</i> , 2013, 69, 5306-5311.	1.0	17
42	A Highly Productive, Whole-Cell DERA Chemoenzymatic Process for Production of Key Lactonized Side-Chain Intermediates in Statin Synthesis. <i>PLoS ONE</i> , 2013, 8, e62250.	1.1	42
43	Structural Insights into the Recovery of Aldolase Activity in <i>N-Acetylneuraminic Acid Lyase</i> by Replacement of the Catalytically Active Lysine with β -Thialysine by Using a Chemical Mutagenesis Strategy. <i>ChemBioChem</i> , 2013, 14, 474-481.	1.3	26
45	Unraveling the Metabolic Pathway in <i>Leucosceptrum canum</i> by Isolation of New Defensive Leucosceptroid Degradation Products and Biomimetic Model Synthesis. <i>Organic Letters</i> , 2014, 16, 6416-6419.	2.4	27
46	DHAP-dependent aldolases from (hyper)thermophiles: biochemistry and applications. <i>Extremophiles</i> , 2014, 18, 1-13.	0.9	22
47	Reaction Mechanism of <i>N-Acetylneuraminic Acid Lyase</i> Revealed by a Combination of Crystallography, QM/MM Simulation, and Mutagenesis. <i>ACS Chemical Biology</i> , 2014, 9, 1025-1032.	1.6	41
48	Engineering aldolases as biocatalysts. <i>Current Opinion in Chemical Biology</i> , 2014, 19, 25-33.	2.8	84
49	9.15 Synthetic Biology Approaches for Organic Synthesis. , 2014, , 390-420.		3
51	Versatile and Efficient Immobilization of 2-Deoxyribose-5-phosphate Aldolase (DERA) on Multiwalled Carbon Nanotubes. <i>ACS Catalysis</i> , 2014, 4, 3059-3068.	5.5	26
52	2.11 Aldolase-Catalyzed CC Bond Formation of Carbohydrate Synthesis. , 2014, , 512-522.		0
53	Improvement of the thermal stability and aldehyde tolerance of deoxyriboaldolase via immobilization on nano-magnet material. <i>Journal of Molecular Catalysis B: Enzymatic</i> , 2014, 101, 87-91.	1.8	18
54	An improved fluorogenic probe for high-throughput screening of 2-deoxyribose aldolases. <i>Biochemical and Biophysical Research Communications</i> , 2015, 460, 826-830.	1.0	2
55	Synthetic biology for the directed evolution of protein biocatalysts: navigating sequence space intelligently. <i>Chemical Society Reviews</i> , 2015, 44, 1172-1239.	18.7	316
56	Panoramic view of a superfamily of phosphatases through substrate profiling. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2015, 112, E1974-83.	3.3	118
57	Asymmetric assembly of aldose carbohydrates from formaldehyde and glycolaldehyde by tandem biocatalytic aldol reactions. <i>Nature Chemistry</i> , 2015, 7, 724-729.	6.6	63
60	Linking coupled motions and entropic effects to the catalytic activity of 2-deoxyribose-5-phosphate aldolase (DERA). <i>Chemical Science</i> , 2016, 7, 1415-1421.	3.7	15
61	Inter- and intramolecular aldol reactions promiscuously catalyzed by a proline-based tautomerase. <i>Organic and Biomolecular Chemistry</i> , 2017, 15, 2809-2816.	1.5	14

#	ARTICLE	IF	CITATIONS
62	An industrially applied biocatalyst: 2-Deoxy-d-ribose-5- phosphate aldolase. <i>Process Biochemistry</i> , 2017, 63, 55-59.	1.8	19
63	Aldol Reactions by Lipase From <i>Rhizopus niveus</i> , an Example of Unspecific Protein Catalysis. <i>Catalysis Letters</i> , 2017, 147, 1977-1987.	1.4	11
64	Expanding the reaction space of aldolases using hydroxypyruvate as a nucleophilic substrate. <i>Green Chemistry</i> , 2017, 19, 519-526.	4.6	30
65	Exploring the Conversion of a <i>Sialic Acid Aldolase</i> into a <i>KDO Aldolase</i> . <i>European Journal of Organic Chemistry</i> , 2018, 2018, 2603-2608.	1.2	4
66	Catalytic enantioselective aldol reactions. <i>Chemical Society Reviews</i> , 2018, 47, 4388-4480.	18.7	229
67	Engineering a short, aldolase-based pathway for (R)-1,3-butanediol production in <i>Escherichia coli</i> . <i>Metabolic Engineering</i> , 2018, 48, 13-24.	3.6	49
68	Exploring Chemical Biosynthetic Design Space with Transform-MinER. <i>ACS Synthetic Biology</i> , 2019, 8, 2494-2506.	1.9	16
69	CH ₂ Interactions Promote the Conversion of Hydroxypyruvate in a Class II Pyruvate Aldolase. <i>Advanced Synthesis and Catalysis</i> , 2019, 361, 2649-2658.	2.1	13
70	Efficient synthesis of (3R,5S)-6-chloro-2,4,6-trideoxyhexapyranose by using new 2-deoxy-d-ribose-5-phosphate aldolase from <i>Streptococcus suis</i> with moderate activity and aldehyde tolerance. <i>Process Biochemistry</i> , 2020, 92, 113-119.	1.8	5
71	Amino Acylguanidines as Bioinspired Catalysts for the Asymmetric Aldol Reaction. <i>Molecules</i> , 2021, 26, 826.	1.7	6
73	Current state of and need for enzyme engineering of 2-deoxy-D-ribose 5-phosphate aldolases and its impact. <i>Applied Microbiology and Biotechnology</i> , 2021, 105, 6215-6228.	1.7	7
74	Directed Evolution of Enzymes. , 2010, , 654-673.		1