Yi-Heng Percival Zhang

List of Publications by Year
in descending order

127 papers	12,241 citations	26630 56 h-index	25787 108 g-index
133 all docs	133 docs citations	133 times ranked	9524 citing authors

#	Article	IF	Citations
1	Engineering of a thermophilic dihydroxy-acid dehydratase toward glycerate dehydration for in vitro biosystems. Applied Microbiology and Biotechnology, 2022, 106, 3625-3637.	3.6	1
2	A facile and robust T7-promoter-based high-expression of heterologous proteins in Bacillus subtilis. Bioresources and Bioprocessing, 2022, 9, .	4.2	8
3	Highâ€efficiency transformation of archaea by direct PCR products with its application to directed evolution of a thermostable enzyme. Microbial Biotechnology, 2021, 14, 453-464.	4.2	5
4	Enzymatic regeneration and conservation of ATP: challenges and opportunities. Critical Reviews in Biotechnology, 2021, 41, 16-33.	9.0	40
5	Efficient secretory production of largeâ€size heterologous enzymes in <i>Bacillus subtilis</i>: A secretory partner and directed evolution. Biotechnology and Bioengineering, 2020, 117, 2957-2968.	3.3	7
6	CO2 fixation for malate synthesis energized by starch via in vitro metabolic engineering. Metabolic Engineering, 2019, 55, 152-160.	7.0	25
7	A High-Throughput Method for Directed Evolution of NAD(P)+-Dependent Dehydrogenases for the Reduction of Biomimetic Nicotinamide Analogues. ACS Catalysis, 2019, 9, 11709-11719.	11.2	30
8	Composition and distribution of internal resistance in an enzymatic fuel cell and its dependence on cell design and operating conditions. RSC Advances, 2019, 9, 7292-7300.	3.6	5
9	A shriveled rectangular carbon tube with the concave surface for high-performance enzymatic glucose/O2 biofuel cells. Biosensors and Bioelectronics, 2019, 132, 76-83.	10.1	39
10	Upgrade of wood sugar d-xylose to a value-added nutraceutical by in vitro metabolic engineering. Metabolic Engineering, 2019, 52, 1-8.	7.0	34
11	A Recombinant 12â€His Tagged <i>Pyrococcus furiosus</i> Soluble [NiFe]â€Hydrogenase I Overexpressed in <i>Thermococcus kodakarensis</i> KOD1 Facilitates Hydrogenâ€Powered in vitro NADH Regeneration. Biotechnology Journal, 2019, 14, e1800301.	3.5	10
12	Engineering a thermostable highly active glucose 6-phosphate dehydrogenase and its application to hydrogen production in vitro. Applied Microbiology and Biotechnology, 2018, 102, 3203-3215.	3.6	28
13	Complete Oxidation of Xylose for Bioelectricity Generation by Reconstructing a Bacterial Xylose Utilization Pathway inâ€...vitro. ChemCatChem, 2018, 10, 2030-2035.	3.7	18
14	Co-utilization of mixed sugars in an enzymatic fuel cell based on an inÂvitro enzymatic pathway. Electrochimica Acta, 2018, 263, 184-191.	5.2	29
15	Construction of Enzyme-Cofactor/Mediator Conjugates for Enhanced in Vitro Bioelectricity Generation. Bioconjugate Chemistry, 2018, 29, 3993-3998.	3.6	7
16	Insights into Cell-Free Conversion of CO₂ to Chemicals by a Multienzyme Cascade Reaction. ACS Catalysis, 2018, 8, 11085-11093.	11.2	87
17	Stoichiometric Conversion of Cellulosic Biomass by in Vitro Synthetic Enzymatic Biosystems for Biomanufacturing. ACS Catalysis, 2018, 8, 9550-9559.	11.2	51
18	Building a Thermostable Metabolon for Facilitating Coenzyme Transport and Inâ€...Vitro Hydrogen Production at Elevated Temperature. ChemSusChem, 2018, 11, 3120-3130.	6.8	17

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19	In vitro synthetic enzymatic biosystems at the interface of the food-energy-water nexus: A conceptual framework and recent advances. Process Biochemistry, 2018, 74, 43-49.	3.7	2
20	Ultra-rapid rates of water splitting for biohydrogen gas production through<i>in vitro</i>artificial enzymatic pathways. Energy and Environmental Science, 2018, 11, 2064-2072.	30.8	36
21	An inÂvitro synthetic biology platform for emerging industrial biomanufacturing: Bottom-up pathway design. Synthetic and Systems Biotechnology, 2018, 3, 186-195.	3.7	42
22	Conversion of d-glucose to l-lactate via pyruvate by an optimized cell-free enzymatic biosystem containing minimized reactions. Synthetic and Systems Biotechnology, 2018, 3, 204-210.	3.7	21
23	Coevolution of both Thermostability and Activity of Polyphosphate Glucokinase from Thermobifida fusca YX. Applied and Environmental Microbiology, 2018, 84, .	3.1	29
24	Systematic comparison of co-expression of multiple recombinant thermophilic enzymes in Escherichia coli BL21(DE3). Applied Microbiology and Biotechnology, 2017, 101, 4481-4493.	3.6	47
25	An in vitro synthetic biology platform for the industrial biomanufacturing of myoâ€inositol from starch. Biotechnology and Bioengineering, 2017, 114, 1855-1864.	3.3	121
26	ATP-free biosynthesis of a high-energy phosphate metabolite fructose 1,6-diphosphate by in vitro metabolic engineering. Metabolic Engineering, 2017, 42, 168-174.	7.0	63
27	A kinetic model of one-pot rapid biotransformation of cellobiose from sucrose catalyzed by three thermophilic enzymes. Chemical Engineering Science, 2017, 161, 159-166.	3.8	29
28	Enhancing functional expression of codonâ€optimized heterologous enzymes in <i>Escherichia coli</i> BL21(DE3) by selective introduction of synonymous rare codons. Biotechnology and Bioengineering, 2017, 114, 1054-1064.	3.3	31
29	Advanced water splitting for green hydrogen gas production through complete oxidation of starch by in vitro metabolic engineering. Metabolic Engineering, 2017, 44, 246-252.	7.0	36
30	Protein engineering of oxidoreductases utilizing nicotinamide-based coenzymes, with applications in synthetic biology. Synthetic and Systems Biotechnology, 2017, 2, 208-218.	3.7	35
31	Thermal Cycling Cascade Biocatalysis of <i>myo</i>-Inositol Synthesis from Sucrose. ACS Catalysis, 2017, 7, 5992-5999.	11.2	39
32	Biochemical properties of GH94 cellodextrin phosphorylase THA_1941 from a thermophilic eubacterium Thermosipho africanus TCF52B with cellobiose phosphorylase activity. Scientific Reports, 2017, 7, 4849.	3.3	22
33	Biomanufacturing: history and perspective. Journal of Industrial Microbiology and Biotechnology, 2017, 44, 773-784.	3.0	104
34	Simple Cloning by Prolonged Overlap Extension-PCR with Application to the Preparation of Large-Size Random Gene Mutagenesis Library in Escherichia coli. Methods in Molecular Biology, 2017, 1472, 49-61.	0.9	5
35	Biomanufacturing by in vitro biosystems containing complex enzyme mixtures. Process Biochemistry, 2017, 52, 106-114.	3.7	32
36	In vitro metabolic engineering of bioelectricity generation by the complete oxidation of glucose. Metabolic Engineering, 2017, 39, 110-116.	7.0	69

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37	A Hidden Transhydrogen Activity of a FMN-Bound Diaphorase under Anaerobic Conditions. PLoS ONE, 2016, 11, e0154865.	2.5	10
38	High-Throughput Screening of Coenzyme Preference Change of Thermophilic 6-Phosphogluconate Dehydrogenase from NADP+ to NAD+. Scientific Reports, 2016, 6, 32644.	3.3	28
39	Production of Succinate from Acetate by Metabolically Engineered <i>Escherichia coli</i>. ACS Synthetic Biology, 2016, 5, 1299-1307.	3.8	76
40	Exceptionally High Rates of Biological Hydrogen Production by Biomimetic In Vitro Synthetic Enzymatic Pathways. Chemistry - A European Journal, 2016, 22, 16047-16051.	3.3	25
41	Water Splitting for Highâ€Yield Hydrogen Production Energized by Biomass Xylooligosaccharides Catalyzed by an Enzyme Cocktail. ChemCatChem, 2016, 8, 2898-2902.	3.7	23
42	Facile Construction of Random Gene Mutagenesis Library for Directed Evolution Without the Use of Restriction Enzyme in Escherichia coli. Biotechnology Journal, 2016, 11, 1142-1150.	3.5	5
43	Coenzyme Engineering of a Hyperthermophilic 6-Phosphogluconate Dehydrogenase from NADP+ to NAD+ with Its Application to Biobatteries. Scientific Reports, 2016, 6, 36311.	3.3	30
44	Biosynthesis of Dâ€xylulose 5â€phosphate from Dâ€xylose and polyphosphate through a minimized twoâ€enzyme cascade. Biotechnology and Bioengineering, 2016, 113, 275-282.	3.3	29
45	A simple assay for determining activities of phosphopentomutase from a hyperthermophilic bacterium Thermotoga maritima. Analytical Biochemistry, 2016, 501, 75-81.	2.4	4
46	One-Pot Biosynthesis of High-Concentration Î±-Glucose 1-Phosphate from Starch by Sequential Addition of Three Hyperthermophilic Enzymes. Journal of Agricultural and Food Chemistry, 2016, 64, 1777-1783.	5.2	38
47	Use of nonimmobilized enzymes and mediators achieved high power densities in closed biobatteries. Energy Science and Engineering, 2015, 3, 490-497.	4.0	14
48	Doubling Power Output of Starch Biobattery Treated by the Most Thermostable Isoamylase from an Archaeon Sulfolobus tokodaii. Scientific Reports, 2015, 5, 13184.	3.3	28
49	New biorefineries and sustainable agriculture: Increased food, biofuels, and ecosystem security. Renewable and Sustainable Energy Reviews, 2015, 47, 117-132.	16.4	93
50	High-yield hydrogen production from biomass by in vitro metabolic engineering: Mixed sugars coutilization and kinetic modeling. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 4964-4969.	7.1	200
51	Production of biofuels and biochemicals by in vitro synthetic biosystems: Opportunities and challenges. Biotechnology Advances, 2015, 33, 1467-1483.	11.7	152
52	Directed Evolution of Clostridium phytofermentans Glycoside Hydrolase Family 9 Endoglucanase for Enhanced Specific Activity on Solid Cellulosic Substrate. Bioenergy Research, 2014, 7, 381-388.	3.9	9
53	A high-energy-density sugar biobattery based on a synthetic enzymatic pathway. Nature Communications, 2014, 5, 3026.	12.8	232
54	Simple Cloning and DNA Assembly in Escherichia coli by Prolonged Overlap Extension PCR. Methods in Molecular Biology, 2014, 1116, 183-192.	0.9	20

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55	Novel Hydrogen Bioreactor and Detection Apparatus. Advances in Biochemical Engineering/Biotechnology, 2014, 152, 35-51.	1.1	3
56	Annexation of a High-Activity Enzyme in a Synthetic Three-Enzyme Complex Greatly Decreases the Degree of Substrate Channeling. ACS Synthetic Biology, 2014, 3, 380-386.	3.8	47
57	One-Pot Enzymatic Conversion of Sucrose to Synthetic Amylose by using Enzyme Cascades. ACS Catalysis, 2014, 4, 1311-1317.	11.2	49
58	New insights into enzymatic hydrolysis of heterogeneous cellulose by using carbohydrate-binding module 3 containing GFP and carbohydrate-binding module 17 containing CFP. Biotechnology for Biofuels, 2014, 7, 24.	6.2	46
59	In vitro metabolic engineering of hydrogen production at theoretical yield from sucrose. Metabolic Engineering, 2014, 24, 70-77.	7.0	87
60	A new high-energy density hydrogen carrier-carbohydrate-might be better than methanol. International Journal of Energy Research, 2013, 37, 769-779.	4.5	16
61	Recyclable cellulose-containing magnetic nanoparticles: immobilization of cellulose-binding module-tagged proteins and a synthetic metabolon featuring substrate channeling. Journal of Materials Chemistry B, 2013, 1, 4419-4427.	5.8	19
62	New lignocellulose pretreatments using cellulose solvents: a review. Journal of Chemical Technology and Biotechnology, 2013, 88, 169-180.	3.2	97
63	Highâ€Yield Production of Dihydrogen from Xylose by Using a Synthetic Enzyme Cascade in a Cellâ€Free System. Angewandte Chemie - International Edition, 2013, 52, 4587-4590.	13.8	111
64	New biotechnology paradigm: cell-free biosystems for biomanufacturing. Green Chemistry, 2013, 15, 1708.	9.0	148
65	Enzymatic transformation of nonfood biomass to starch. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 7182-7187.	7.1	144
66	Next generation biorefineries will solve the food, biofuels, and environmental trilemma in the energyâ€"foodâ€"water nexus. Energy Science and Engineering, 2013, 1, 27-41.	4.0	90
67	Non-Complexed Four Cascade Enzyme Mixture: Simple Purification and Synergetic Co-stabilization. PLoS ONE, 2013, 8, e61500.	2.5	27
68	Cell-Free Biosystems for Biomanufacturing. Advances in Biochemical Engineering/Biotechnology, 2012, 131, 89-119.	1.1	22
69	Simple Cloning via Direct Transformation of PCR Product (DNA Multimer) to Escherichia coli and Bacillus subtilis. Applied and Environmental Microbiology, 2012, 78, 1593-1595.	3.1	152
70	Thermophilic Thermotoga maritima ribose-5-phosphate isomerase RpiB: Optimized heat treatment purification and basic characterization. Protein Expression and Purification, 2012, 82, 302-307.	1.3	30
71	Easy preparation of a large-size random gene mutagenesis library in Escherichia coli. Analytical Biochemistry, 2012, 428, 7-12.	2.4	16
72	Deep oxidation of glucose in enzymatic fuel cells through a synthetic enzymatic pathway containing a cascade of two thermostable dehydrogenases. Biosensors and Bioelectronics, 2012, 36, 110-115.	10.1	64

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73	Engineering a large protein by combined rational and random approaches: stabilizing the Clostridium thermocellum cellobiose phosphorylase. Molecular BioSystems, 2012, 8, 1815.	2.9	30
74	Facilitated Substrate Channeling in a Selfâ€Assembled Trifunctional Enzyme Complex. Angewandte Chemie - International Edition, 2012, 51, 8787-8790.	13.8	171
75	Cellulose solvent-based pretreatment for corn stover and avicel: concentrated phosphoric acid versus ionic liquid [BMIM]Cl. Cellulose, 2012, 19, 1161-1172.	4.9	56
76	Mini-scaffoldin enhanced mini-cellulosome hydrolysis performance on low-accessibility cellulose (Avicel) more than on high-accessibility amorphous cellulose. Biochemical Engineering Journal, 2012, 63, 57-65.	3.6	17
77	Cellulose solvent- and organic solvent-based lignocellulose fractionation enabled efficient sugar release from a variety of lignocellulosic feedstocks. Bioresource Technology, 2012, 117, 228-233.	9.6	59
78	Constructing the electricityâ€“carbohydrateâ€“hydrogen cycle for a sustainability revolution. Trends in Biotechnology, 2012, 30, 301-306.	9.3	49
79	One-step purification and immobilization of thermophilic polyphosphate glucokinase from Thermobifida fusca YX: glucose-6-phosphate generation without ATP. Applied Microbiology and Biotechnology, 2012, 93, 1109-1117.	3.6	51
80	Simpler Is Better: High-Yield and Potential Low-Cost Biofuels Production through Cell-Free Synthetic Pathway Biotransformation (SyPaB). ACS Catalysis, 2011, 1, 998-1009.	11.2	74
81	Toward low-cost biomanufacturing through in vitro synthetic biology: bottom-up design. Journal of Materials Chemistry, 2011, 21, 18877.	6.7	65
82	Analysis of biofuels production from sugar based on three criteria: Thermodynamics, bioenergetics, and product separation. Energy and Environmental Science, 2011, 4, 784-792.	30.8	97
83	Simple, fast and highâ€efficiency transformation system for directed evolution of cellulase in <i>Bacillus subtilis</i>. Microbial Biotechnology, 2011, 4, 98-105.	4.2	130
84	What is vital (and not vital) to advance economically-competitive biofuels production. Process Biochemistry, 2011, 46, 2091-2110.	3.7	99
85	Substrate channeling and enzyme complexes for biotechnological applications. Biotechnology Advances, 2011, 29, 715-725.	11.7	264
86	Hydrogen Production from Carbohydrates: A Mini-Review. ACS Symposium Series, 2011, , 203-216.	0.5	12
87	Fusion of a family 9 cellulose-binding module improves catalytic potential of Clostridium thermocellum cellodextrin phosphorylase on insoluble cellulose. Applied Microbiology and Biotechnology, 2011, 92, 551-560.	3.6	32
88	Ultraâ€stable phosphoglucose isomerase through immobilization of celluloseâ€binding moduleâ€tagged thermophilic enzyme on lowâ€cost highâ€capacity cellulosic adsorbent. Biotechnology Progress, 2011, 27, 969-975.	2.6	59
89	Increasing cellulose accessibility is more important than removing lignin: A comparison of cellulose solventâ€based lignocellulose fractionation and soaking in aqueous ammonia. Biotechnology and Bioengineering, 2011, 108, 22-30.	3.3	292
90	Cellulose solventâ€based biomass pretreatment breaks highly ordered hydrogen bonds in cellulose fibers of switchgrass. Biotechnology and Bioengineering, 2011, 108, 521-529.	3.3	114

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91	A minimal set of bacterial cellulases for consolidated bioprocessing of lignocellulose. Biotechnology Journal, 2011, 6, 1409-1418.	3.5	34
92	Biohydrogenation from Biomass Sugar Mediated by InÂVitro Synthetic Enzymatic Pathways. Chemistry and Biology, 2011, 18, 372-380.	6.0	97
93	Maltodextrin-powered enzymatic fuel cell through a non-natural enzymatic pathway. Journal of Power Sources, 2011, 196, 7505-7509.	7.8	42
94	One-step production of lactate from cellulose as the sole carbon source without any other organic nutrient by recombinant cellulolytic Bacillus subtilis. Metabolic Engineering, 2011, 13, 364-372.	7.0	84
95	Renewable Hydrogen Carrier â€” Carbohydrate: Constructing the Carbon-Neutral Carbohydrate Economy. Energies, 2011, 4, 254-275.	3.1	28
96	Energy Efficiency Analysis: Biomass-to-Wheel Efficiency Related with Biofuels Production, Fuel Distribution, and Powertrain Systems. PLoS ONE, 2011, 6, e22113.	2.5	55
97	The noncellulosomal family 48 cellobiohydrolase from Clostridium phytofermentans ISDg: heterologous expression, characterization, and processivity. Applied Microbiology and Biotechnology, 2010, 86, 525-533.	3.6	39
98	The Family 1 Glycoside Hydrolase from Clostridium cellulolyticum H10 is a Cellodextrin Glucohydrolase. Applied Biochemistry and Biotechnology, 2010, 161, 264-273.	2.9	8
99	Production of biocommodities and bioelectricity by cellâ€free synthetic enzymatic pathway biotransformations: Challenges and opportunities. Biotechnology and Bioengineering, 2010, 105, 663-677.	3.3	148
100	Fructose-1,6-bisphosphatase from a hyper-thermophilic bacterium Thermotoga maritima: Characterization, metabolite stability, and its implications. Process Biochemistry, 2010, 45, 1882-1887.	3.7	65
101	Renewable carbohydrates are a potential high-density hydrogen carrier. International Journal of Hydrogen Energy, 2010, 35, 10334-10342.	7.1	63
102	Biofuel production by in vitro synthetic enzymatic pathway biotransformation. Current Opinion in Biotechnology, 2010, 21, 663-669.	6.6	76
103	Engineering of <i>Clostridium phytofermentans</i> Endoglucanase Cel5A for Improved Thermostability. Applied and Environmental Microbiology, 2010, 76, 4914-4917.	3.1	65
104	Spontaneous Highâ€Yield Production of Hydrogen from Cellulosic Materials and Water Catalyzed by Enzyme Cocktails. ChemSusChem, 2009, 2, 149-152.	6.8	153
105	Comparative study of corn stover pretreated by dilute acid and cellulose solventâ€based lignocellulose fractionation: Enzymatic hydrolysis, supramolecular structure, and substrate accessibility. Biotechnology and Bioengineering, 2009, 103, 715-724.	3.3	191
106	Fast identification of thermostable betaâ€glucosidase mutants on cellobiose by a novel combinatorial selection/screening approach. Biotechnology and Bioengineering, 2009, 103, 1087-1094.	3.3	68
107	Sessions 3 and 8: Pretreatment and Biomass Recalcitrance: Fundamentals and Progress. Applied Biochemistry and Biotechnology, 2009, 153, 80-83.	2.9	46
108	Cell-free protein synthesis energized by slowly-metabolized maltodextrin. BMC Biotechnology, 2009, 9, 58.	3.3	74

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109	A sweet out-of-the-box solution to the hydrogen economy: is the sugar-powered car science fiction?. Energy and Environmental Science, 2009, 2, 272.	30.8	109
110	Overexpression and simple purification of the Thermotoga maritima 6-phosphogluconate dehydrogenase in Escherichia coli and its application for NADPH regeneration. Microbial Cell Factories, 2009, 8, 30.	4.0	65
111	Reviving the carbohydrate economy via multi-product lignocellulose biorefineries. Journal of Industrial Microbiology and Biotechnology, 2008, 35, 367-375.	3.0	494
112	Bioseparation of recombinant cellulose-binding module-proteins by affinity adsorption on an ultra-high-capacity cellulosic adsorbent. Analytica Chimica Acta, 2008, 621, 193-199.	5.4	92
113	Simple protein purification through affinity adsorption on regenerated amorphous cellulose followed by intein self-cleavage. Journal of Chromatography A, 2008, 1194, 150-154.	3.7	77
114	More Accurate Determination of Acid-Labile Carbohydrates in Lignocellulose by Modified Quantitative Saccharification. Energy & Fuels, 2007, 21, 3684-3688.	5.1	102
115	Methodological analysis for determination of enzymatic digestibility of cellulosic materials. Biotechnology and Bioengineering, 2007, 96, 188-194.	3.3	27
116	Fractionating recalcitrant lignocellulose at modest reaction conditions. Biotechnology and Bioengineering, 2007, 97, 214-223.	3.3	519
117	High-Yield Hydrogen Production from Starch and Water by a Synthetic Enzymatic Pathway. PLoS ONE, 2007, 2, e456.	2.5	224
118	A Transition from Cellulose Swelling to Cellulose Dissolution byo-Phosphoric Acid:Â Evidence from Enzymatic Hydrolysis and Supramolecular Structure. Biomacromolecules, 2006, 7, 644-648.	5.4	478
119	Outlook for cellulase improvement: Screening and selection strategies. Biotechnology Advances, 2006, 24, 452-481.	11.7	1,126
120	A functionally based model for hydrolysis of cellulose by fungal cellulase. Biotechnology and Bioengineering, 2006, 94, 888-898.	3.3	201
121	Regulation of Cellulase Synthesis in Batch and Continuous Cultures of Clostridium thermocellum. Journal of Bacteriology, 2005, 187, 99-106.	2.2	115
122	Determination of the Number-Average Degree of Polymerization of Cellodextrins and Cellulose with Application to Enzymatic Hydrolysis. Biomacromolecules, 2005, 6, 1510-1515.	5.4	245
123	Cellulose utilization by Clostridium thermocellum: Bioenergetics and hydrolysis product assimilation. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 7321-7325.	7.1	212
124	Toward an aggregated understanding of enzymatic hydrolysis of cellulose: Noncomplexed cellulase systems. Biotechnology and Bioengineering, 2004, 88, 797-824.	3.3	1,537
125	Kinetics and Relative Importance of Phosphorolytic and Hydrolytic Cleavage of Cellodextrins and Cellobiose in Cell Extracts of Clostridium thermocellum. Applied and Environmental Microbiology, 2004, 70, 1563-1569.	3.1	89
126	Toward an aggregated understanding of enzymatic hydrolysis of cellulose: Noncomplexed cellulase systems. , 2004, 88, 797.		1

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127	Cellodextrin preparation by mixed-acid hydrolysis and chromatographic separation. Analytical Biochemistry, 2003, 322, 225-232.	2.4	85