

Joris Messens

List of Publications by Year in descending order

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120
papers

6,395
citations

61857

43
h-index

74018

75
g-index

129
all docs

129
docs citations

129
times ranked

7489
citing authors

#	ARTICLE	IF	CITATIONS
1	Structure, Function, and Mechanism of Thioredoxin Proteins. <i>Antioxidants and Redox Signaling</i> , 2010, 13, 1205-1216.	2.5	324
2	Anticoagulant repertoire of the hookworm <i>Ancylostoma caninum</i> . <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 1996, 93, 2149-2154.	3.3	251
3	European contribution to the study of ROS: A summary of the findings and prospects for the future from the COST action BM1203 (EU-ROS). <i>Redox Biology</i> , 2017, 13, 94-162.	3.9	242
4	Protein sulfenic acid formation: From cellular damage to redox regulation. <i>Free Radical Biology and Medicine</i> , 2011, 51, 314-326.	1.3	234
5	Understanding the p <i>K</i> _a of Redox Cysteines: The Key Role of Hydrogen Bonding. <i>Antioxidants and Redox Signaling</i> , 2013, 18, 94-127.	2.5	203
6	Ultrasensitive Genetically Encoded Indicator for Hydrogen Peroxide Identifies Roles for the Oxidant in Cell Migration and Mitochondrial Function. <i>Cell Metabolism</i> , 2020, 31, 642-653.e6.	7.2	202
7	Sulfenome mining in <i>Arabidopsis thaliana</i> . <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 11545-11550.	3.3	163
8	Oxidative post-translational modifications of cysteine residues in plant signal transduction. <i>Journal of Experimental Botany</i> , 2015, 66, 2923-2934.	2.4	163
9	High-Level Secretion and Very Efficient Isotopic Labeling of Tick Anticoagulant Peptide (TAP) Expressed in the Methylophilic Yeast, <i>Pichia pastoris</i> . <i>Bio/technology</i> , 1994, 12, 1119-1124.	1.9	161
10	How Proteins Form Disulfide Bonds. <i>Antioxidants and Redox Signaling</i> , 2011, 15, 49-66.	2.5	160
11	A Periplasmic Reducing System Protects Single Cysteine Residues from Oxidation. <i>Science</i> , 2009, 326, 1109-1111.	6.0	158
12	Surface Expression and Ligand-Based Selection of cDNAs Fused to Filamentous Phage Gene VI. <i>Nature Biotechnology</i> , 1995, 13, 378-382.	9.4	141
13	Pathways of disulfide bond formation in <i>Escherichia coli</i> . <i>International Journal of Biochemistry and Cell Biology</i> , 2006, 38, 1050-1062.	1.2	138
14	Arsenate Reduction: Thiol Cascade Chemistry with Convergent Evolution. <i>Journal of Molecular Biology</i> , 2006, 362, 1-17.	2.0	137
15	Low-Molecular-Weight Thiols in Thiol-Disulfide Exchange. <i>Antioxidants and Redox Signaling</i> , 2013, 18, 1642-1653.	2.5	133
16	Mining for protein S-sulfenylation in <i>Arabidopsis</i> uncovers redox-sensitive sites. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019, 116, 21256-21261.	3.3	107
17	Interactions of CcdB with DNA Gyrase. <i>Journal of Biological Chemistry</i> , 1999, 274, 10936-10944.	1.6	103
18	Cysteines under ROS attack in plants: a proteomics view. <i>Journal of Experimental Botany</i> , 2015, 66, 2935-2944.	2.4	103

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19	Arsenate reductase from <i>S. aureus</i> plasmid pI258 is a phosphatase drafted for redox duty. <i>Nature Structural Biology</i> , 2001, 8, 843-847.	9.7	93
20	Arsenate Reductase, Mycothiol, and Mycoredoxin Concert Thiol/Disulfide Exchange. <i>Journal of Biological Chemistry</i> , 2009, 284, 15107-15116.	1.6	93
21	The fimbrial adhesin F17-G of enterotoxigenic <i>Escherichia coli</i> has an immunoglobulin-like lectin domain that binds N-acetylglucosamine. <i>Molecular Microbiology</i> , 2004, 49, 705-715.	1.2	89
22	Protein Methionine Sulfoxide Dynamics in <i>Arabidopsis thaliana</i> under Oxidative Stress. <i>Molecular and Cellular Proteomics</i> , 2015, 14, 1217-1229.	2.5	88
23	Mycoredoxin is one of the missing links in the oxidative stress defence mechanism of <i>Mycobacteria</i> . <i>Molecular Microbiology</i> , 2012, 86, 787-804.	1.2	86
24	Lack of GLYCOLATE OXIDASE1, but Not GLYCOLATE OXIDASE2, Attenuates the Photorespiratory Phenotype of CATALASE2-Deficient <i>Arabidopsis</i> . <i>Plant Physiology</i> , 2016, 171, 1704-1719.	2.3	84
25	Oxidative stress-triggered interactions between the succinyl- and acetyl-proteomes of rice leaves. <i>Plant, Cell and Environment</i> , 2018, 41, 1139-1153.	2.8	79
26	Enzymatic Catalysis: The Emerging Role of Conceptual Density Functional Theory. <i>Journal of Physical Chemistry B</i> , 2009, 113, 13465-13475.	1.2	77
27	All intermediates of the arsenate reductase mechanism, including an intramolecular dynamic disulfide cascade. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2002, 99, 8506-8511.	3.3	75
28	The Conserved Active Site Proline Determines the Reducing Power of <i>Staphylococcus aureus</i> Thioredoxin. <i>Journal of Molecular Biology</i> , 2007, 368, 800-811.	2.0	73
29	The Oxidase DsbA Folds a Protein with a Nonconsecutive Disulfide. <i>Journal of Biological Chemistry</i> , 2007, 282, 31302-31307.	1.6	71
30	DYN-2 Based Identification of <i>Arabidopsis</i> Sulfenomes*. <i>Molecular and Cellular Proteomics</i> , 2015, 14, 1183-1200.	2.5	70
31	Intricate Interactions within the ccd Plasmid Addiction System. <i>Journal of Biological Chemistry</i> , 2002, 277, 3733-3742.	1.6	69
32	The disulphide isomerase DsbC cooperates with the oxidase DsbA in a DsbD-independent manner. <i>Molecular Microbiology</i> , 2008, 67, 336-349.	1.2	68
33	Protein <i>S</i> -Mycothiolation Functions as Redox-Switch and Thiol Protection Mechanism in <i>Corynebacterium glutamicum</i> Under Hypochlorite Stress. <i>Antioxidants and Redox Signaling</i> , 2014, 20, 589-605.	2.5	68
34	How Thioredoxin Dissociates Its Mixed Disulfide. <i>PLoS Computational Biology</i> , 2009, 5, e1000461.	1.5	67
35	The Essential Catalytic Redox Couple in Arsenate Reductase from <i>Staphylococcus aureus</i> . <i>Biochemistry</i> , 1999, 38, 16857-16865.	1.2	63
36	Structural basis of carbohydrate recognition by lectin II from <i>Ulex europaeus</i> , a protein with a promiscuous carbohydrate-binding site 1 Edited by R. Huber. <i>Journal of Molecular Biology</i> , 2000, 301, 987-1002.	2.0	59

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37	New structural insights into the molecular deciphering of mycobacterial lipoglycan binding to C-type lectins: lipoarabinomannan glycoform characterization and quantification by capillary electrophoresis at the subnanomole level. <i>Journal of Molecular Biology</i> , 2000, 299, 1353-1362.	2.0	55
38	Revisiting sulfur H-bonds in proteins: The example of peroxiredoxin AhpE. <i>Scientific Reports</i> , 2016, 6, 30369.	1.6	52
39	Kinetics and active site dynamics of <i>Staphylococcus aureus</i> arsenate reductase. <i>Journal of Biological Inorganic Chemistry</i> , 2002, 7, 146-156.	1.1	48
40	Mycothioli/Mycoredoxin 1-dependent Reduction of the Peroxiredoxin AhpE from <i>Mycobacterium tuberculosis</i> . <i>Journal of Biological Chemistry</i> , 2014, 289, 5228-5239.	1.6	48
41	The Arsenic Detoxification System in <i>Corynebacteria</i> . <i>Advances in Applied Microbiology</i> , 2017, 99, 103-137.	1.3	48
42	Self-protection of cytosolic malate dehydrogenase against oxidative stress in <i>Arabidopsis</i> . <i>Journal of Experimental Botany</i> , 2018, 69, 3491-3505.	2.4	48
43	A bacterial-two-hybrid selection system for one-step isolation of intracellularly functional Nanobodies. <i>Archives of Biochemistry and Biophysics</i> , 2012, 526, 114-123.	1.4	46
44	<i>In vivo</i> detection of protein cysteine sulfenylation in plastids. <i>Plant Journal</i> , 2019, 97, 765-778.	2.8	46
45	Dissecting the Machinery That Introduces Disulfide Bonds in <i>Pseudomonas aeruginosa</i> . <i>MBio</i> , 2013, 4, e00912-13.	1.8	45
46	The <i>Corynebacterium glutamicum</i> mycothiol peroxidase is a reactive oxygen species-scavenging enzyme that shows promiscuity in thiol redox control. <i>Molecular Microbiology</i> , 2015, 96, 1176-1191.	1.2	45
47	Chemistry and Redox Biology of Mycothiol. <i>Antioxidants and Redox Signaling</i> , 2018, 28, 487-504.	2.5	45
48	Synthesis of Glial Fibrillary Acidic Protein in Rat C6Glioma in Chemically Defined Medium: Cyclic AMP-Dependent Transcriptional and Translational Regulation. <i>Journal of Neurochemistry</i> , 1992, 58, 2071-2080.	2.1	42
49	Engineered coryneform bacteria as a bio-tool for arsenic remediation. <i>Applied Microbiology and Biotechnology</i> , 2014, 98, 10143-10152.	1.7	42
50	SHORT-ROOT Deficiency Alleviates the Cell Death Phenotype of the <i>Arabidopsis catalase2</i> Mutant under Photorespiration-Promoting Conditions. <i>Plant Cell</i> , 2016, 28, 1844-1859.	3.1	42
51	Structural snapshots of OxyR reveal the peroxidatic mechanism of H ₂ O ₂ sensing. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, E11623-E11632.	3.3	42
52	How Thioredoxin can Reduce a Buried Disulphide Bond. <i>Journal of Molecular Biology</i> , 2004, 339, 527-537.	2.0	41
53	<i>Corynebacterium glutamicum</i> survives arsenic stress with arsenate reductases coupled to two distinct redox mechanisms. <i>Molecular Microbiology</i> , 2011, 82, 998-1014.	1.2	40
54	Peroxiredoxins wear many hats: Factors that fashion their peroxide sensing personalities. <i>Redox Biology</i> , 2021, 42, 101959.	3.9	40

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55	Thiol-Disulfide Exchange in Signaling: Disulfide Bonds As a Switch. <i>Antioxidants and Redox Signaling</i> , 2013, 18, 1594-1596.	2.5	37
56	The Activation of Electrophile, Nucleophile and Leaving Group during the Reaction Catalysed by pI258 Arsenate Reductase. <i>ChemBioChem</i> , 2006, 7, 981-989.	1.3	36
57	Efflux Permease CgAcr3-1 of <i>Corynebacterium glutamicum</i> Is an Arsenite-specific Antiporter. <i>Journal of Biological Chemistry</i> , 2012, 287, 723-735.	1.6	35
58	Redox Modification of the Iron-Sulfur Glutaredoxin GRXS17 Activates Holdase Activity and Protects Plants from Heat Stress. <i>Plant Physiology</i> , 2020, 184, 676-692.	2.3	33
59	The thermodynamic stability of the proteins of the ccd plasmid addiction system. <i>Journal of Molecular Biology</i> , 2000, 299, 1373-1386.	2.0	32
60	Pathways crossing mammalian and plant sulfenomic landscapes. <i>Free Radical Biology and Medicine</i> , 2018, 122, 193-201.	1.3	31
61	Identification of Sulfenylated Cysteines in <i>Arabidopsis thaliana</i> Proteins Using a Disulfide-Linked Peptide Reporter. <i>Frontiers in Plant Science</i> , 2020, 11, 777.	1.7	31
62	The Zinc Center Influences the Redox and Thermodynamic Properties of <i>Escherichia coli</i> Thioredoxin 2. <i>Journal of Molecular Biology</i> , 2009, 386, 60-71.	2.0	29
63	Efficiency of the four proteasome subtypes to degrade ubiquitinated or oxidized proteins. <i>Scientific Reports</i> , 2020, 10, 15765.	1.6	29
64	A role for annexin A2 in scaffolding the peroxiredoxin 2-STAT3 redox relay complex. <i>Nature Communications</i> , 2020, 11, 4512.	5.8	29
65	A Computational and Conceptual DFT Study on the Michaelis Complex of pI258 Arsenate Reductase. Structural Aspects and Activation of the Electrophile and Nucleophile. <i>Journal of Physical Chemistry B</i> , 2004, 108, 17216-17225.	1.2	28
66	A New Role for <i>Escherichia coli</i> DsbC Protein in Protection against Oxidative Stress. <i>Journal of Biological Chemistry</i> , 2014, 289, 12356-12364.	1.6	28
67	Dehydrin ERD14 activates glutathione transferase Phi9 in <i>Arabidopsis thaliana</i> under osmotic stress. <i>Biochimica Et Biophysica Acta - General Subjects</i> , 2020, 1864, 129506.	1.1	28
68	Heterologous expression, purification and characterisation of the extracellular domain of trypanosome invariant surface glycoprotein ISG75. <i>Journal of Biotechnology</i> , 2008, 135, 247-254.	1.9	27
69	The antibacterial prodrug activator Rv2466c is a mycothiol-dependent reductase in the oxidative stress response of <i>Mycobacterium tuberculosis</i> . <i>Journal of Biological Chemistry</i> , 2017, 292, 13097-13110.	1.6	27
70	Protein Promiscuity in H ₂ O ₂ Signaling. <i>Antioxidants and Redox Signaling</i> , 2019, 30, 1285-1324.	2.5	26
71	<i>Corynebacterium diphtheriae</i> Methionine Sulfoxide Reductase A Exploits a Unique Mycothiol Redox Relay Mechanism. <i>Journal of Biological Chemistry</i> , 2015, 290, 11365-11375.	1.6	25
72	The glyceraldehyde-3-phosphate dehydrogenase GapDH of <i>Corynebacterium diphtheriae</i> is redox-controlled by protein S-mycothiolation under oxidative stress. <i>Scientific Reports</i> , 2017, 7, 5020.	1.6	24

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73	Coupling of Domain Swapping to Kinetic Stability in a Thioredoxin Mutant. <i>Journal of Molecular Biology</i> , 2009, 385, 1590-1599.	2.0	23
74	Thiol Redox and pK _a Properties of Mycothiol, the Predominant Low-Molecular-Weight Thiol Cofactor in the Actinomycetes. <i>ChemBioChem</i> , 2016, 17, 1689-1692.	1.3	23
75	A novel expression system for production of soluble prion proteins in <i>E. coli</i> . <i>Microbial Cell Factories</i> , 2012, 11, 6.	1.9	22
76	The thermodynamics of thiol sulfenylation. <i>Free Radical Biology and Medicine</i> , 2012, 52, 1473-1485.	1.3	22
77	Redox Strategies for Crop Improvement. <i>Antioxidants and Redox Signaling</i> , 2015, 23, 1186-1205.	2.5	22
78	Solving the phase problem for carbohydrate-binding proteins using selenium derivatives of their ligands: a case study involving the bacterial F17-G adhesin. <i>Acta Crystallographica Section D: Biological Crystallography</i> , 2003, 59, 1012-1015.	2.5	21
79	Specific Potassium Binding Stabilizes pI258 Arsenate Reductase from <i>Staphylococcus aureus</i> . <i>Journal of Biological Chemistry</i> , 2003, 278, 24673-24679.	1.6	21
80	Identification of dimedone-trapped sulfenylated proteins in plants under stress. <i>Biochemistry and Biophysics Reports</i> , 2017, 9, 106-113.	0.7	21
81	Structural and biochemical analysis of <i>Escherichia coli</i> ObgE, a central regulator of bacterial persistence. <i>Journal of Biological Chemistry</i> , 2017, 292, 5871-5883.	1.6	20
82	Disulfide bond formation protects <i>Arabidopsis thaliana</i> glutathione transferase tau 23 from oxidative damage. <i>Biochimica Et Biophysica Acta - General Subjects</i> , 2018, 1862, 775-789.	1.1	20
83	Oxidative Stress-Induced STIM2 Cysteine Modifications Suppress Store-Operated Calcium Entry. <i>Cell Reports</i> , 2020, 33, 108292.	2.9	19
84	An essential thioredoxin is involved in the control of the cell cycle in the bacterium <i>Caulobacter crescentus</i> . <i>Journal of Biological Chemistry</i> , 2018, 293, 3839-3848.	1.6	18
85	Bifunctional Chloroplastic DJ-1B from <i>Arabidopsis thaliana</i> is an Oxidation-Robust Holdase and a Glyoxalase Sensitive to H ₂ O ₂ . <i>Antioxidants</i> , 2019, 8, 8.	2.2	17
86	The active site architecture in peroxiredoxins: a case study on <i>Mycobacterium tuberculosis</i> AhpE. <i>Chemical Communications</i> , 2016, 52, 10293-10296.	2.2	16
87	Redox-regulated methionine oxidation of <i>Arabidopsis thaliana</i> glutathione transferase Phi9 induces H ₂ S site flexibility. <i>Protein Science</i> , 2019, 28, 56-67.	3.1	16
88	Interplay Between Ion Binding and Catalysis in the Thioredoxin-coupled Arsenate Reductase Family. <i>Journal of Molecular Biology</i> , 2006, 360, 826-838.	2.0	15
89	The concerted action of a positive charge and hydrogen bonds dynamically regulates the pK _a of the nucleophilic cysteine in the NrdH-redoxin family. <i>Protein Science</i> , 2014, 23, 238-242.	3.1	15
90	Interrogating the Lactate Dehydrogenase Tetramerization Site Using (Stapled) Peptides. <i>Journal of Medicinal Chemistry</i> , 2020, 63, 4628-4643.	2.9	15

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91	Charge Interactions in a Highly Charge-Depleted Protein. <i>Journal of the American Chemical Society</i> , 2021, 143, 2500-2508.	6.6	15
92	NrdH-redoxin of <i>Mycobacterium tuberculosis</i> and <i>Corynebacterium glutamicum</i> Dimerizes at High Protein Concentration and Exclusively Receives Electrons from Thioredoxin Reductase. <i>Journal of Biological Chemistry</i> , 2013, 288, 7942-7955.	1.6	14
93	<i>Arabidopsis thaliana</i> dehydroascorbate reductase 2: Conformational flexibility during catalysis. <i>Scientific Reports</i> , 2017, 7, 42494.	1.6	13
94	The conserved active site tryptophan of thioredoxin has no effect on its redox properties. <i>Protein Science</i> , 2010, 19, 190-194.	3.1	11
95	The structure of a triple mutant of pI258 arsenate reductase from <i>Staphylococcus aureus</i> and its 5-thio-2-nitrobenzoic acid adduct. <i>Acta Crystallographica Section D: Biological Crystallography</i> , 2004, 60, 1180-1184.	2.5	10
96	Nonspecific base recognition mediated by water bridges and hydrophobic stacking in ribonuclease I from <i>Escherichia coli</i> . <i>Protein Science</i> , 2008, 17, 681-690.	3.1	10
97	<i>Arabidopsis</i> APx-R Is a Plastidial Ascorbate-Independent Peroxidase Regulated by Photomorphogenesis. <i>Antioxidants</i> , 2021, 10, 65.	2.2	9
98	Hypocrates is a genetically encoded fluorescent biosensor for (pseudo)hypohalous acids and their derivatives. <i>Nature Communications</i> , 2022, 13, 171.	5.8	9
99	¹ H, ¹³ C and ¹⁵ N backbone resonance assignment of the arsenate reductase from <i>Staphylococcus aureus</i> in its reduced state. <i>Journal of Biomolecular NMR</i> , 2001, 20, 95-96.	1.6	8
100	Bioplastic hydroxyl radical trapping. <i>Nature Chemical Biology</i> , 2016, 12, 307-308.	3.9	8
101	<i>Mycobacterium smegmatis</i> Resists the Bactericidal Activity of Hypochlorous Acid Produced in Neutrophil Phagosomes. <i>Journal of Immunology</i> , 2021, 206, 1901-1912.	0.4	8
102	Purification of an oxidation-sensitive enzyme, pI258 arsenate reductase from <i>Staphylococcus aureus</i> . <i>Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences</i> , 2003, 790, 217-227.	1.2	7
103	The Quiescin Sulfhydryl Oxidase (hQSOX1b) Tunes the Expression of Resistin-Like Molecule Alpha (RELMA or mFIZZ1) in a Wheat Germ Cell-Free Extract. <i>PLoS ONE</i> , 2013, 8, e55621.	1.1	7
104	Methionine sulfoxide reductase B from <i>Corynebacterium diphtheriae</i> catalyzes sulfoxide reduction via an intramolecular disulfide cascade. <i>Journal of Biological Chemistry</i> , 2020, 295, 3664-3677.	1.6	7
105	Discovery of a novel lactate dehydrogenase tetramerization domain using epitope mapping and peptides. <i>Journal of Biological Chemistry</i> , 2021, 296, 100422.	1.6	7
106	Combining site-specific mutagenesis and seeding as a strategy to crystallize 'difficult' proteins: the case of <i>Staphylococcus aureus</i> thioredoxin. <i>Acta Crystallographica Section F: Structural Biology Communications</i> , 2006, 62, 1255-1258.	0.7	6
107	Prdx1 Interacts with ASK1 upon Exposure to H ₂ O ₂ and Independently of a Scaffolding Protein. <i>Antioxidants</i> , 2021, 10, 1060.	2.2	6
108	Thiol-disulphide independent in-cell trapping for the identification of peroxiredoxin 2 interactors. <i>Redox Biology</i> , 2021, 46, 102066.	3.9	6

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109	Development of a downstream process for the isolation of Staphylococcus aureus arsenate reductase overproduced in Escherichia coli. Biomedical Applications, 2000, 737, 167-178.	1.7	4
110	Investigating the Molecular Mechanisms Behind Uncharacterized Cysteine Losses from Prediction of Their Oxidation State. Human Mutation, 2017, 38, 86-94.	1.1	4
111	Synthesis of l-xylo-hexos-2-ulose (l-sorbosone) and its characterisation by chromatographic and spectroscopic techniques. Journal of Chromatography A, 1998, 811, 261-268.	1.8	3
112	Redox Homeostasis. , 2013, , 59-84.		3
113	Sulfur Denitrosylation by an Engineered Trx-like DsbG Enzyme Identifies Nucleophilic Cysteine Hydrogen Bonds as Key Functional Determinant. Journal of Biological Chemistry, 2016, 291, 15020-15028.	1.6	3
114	Wheat germ inÂvitro translation to produce one of the most toxic sodium channel specific toxins. Bioscience Reports, 2014, 34, .	1.1	2
115	Inhibition of basal and glucagon-induced hepatic glucose production by 991 and other pharmacological AMPK activators. Biochemical Journal, 2022, 479, 1317-1336.	1.7	2
116	Redox regulation of the mitochondrial calcium transport machinery. Current Opinion in Physiology, 2020, 17, 138-148.	0.9	1
117	Sugar-based cysteine thiols recruited for oxidative stress defense and redox regulation. , 2022, , 533-554.		1
118	Diagonal chromatography to study plant protein modifications. Biochimica Et Biophysica Acta - Proteins and Proteomics, 2016, 1864, 945-951.	1.1	0
119	The Enzymatic Nature of Ascorbate Recycling. Free Radical Biology and Medicine, 2017, 108, S21.	1.3	0
120	Mycothiols, a Low-Molecular-Weight Thiol Drafted for Oxidative Stress Defense Duty. , 2018, , 331-356.		0