Judy Hirst

List of Publications by Year
in descending order

120 papers	13,257 citations	24978 57 h-index	23472 111 g-index
133 all docs	133 docs citations	133 times ranked	13290 citing authors

#	Article	IF	Citations
1	An inhibitor of oxidative phosphorylation exploits cancer vulnerability. Nature Medicine, 2018, 24, 1036-1046.	15.2	622
2	The mechanism of superoxide production by NADH:ubiquinone oxidoreductase (complex I) from bovine heart mitochondria. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 7607-7612.	3.3	612
3	Mitochondrial Complex I. Annual Review of Biochemistry, 2013, 82, 551-575.	5.0	529
4	Effects of metformin and other biguanides on oxidative phosphorylation in mitochondria. Biochemical Journal, 2014, 462, 475-487.	1.7	502
5	Structure of mammalian respiratory complex I. Nature, 2016, 536, 354-358.	13.7	477
6	Reversible interconversion of carbon dioxide and formate by an electroactive enzyme. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 10654-10658.	3.3	472
7	Bovine Complex I Is a Complex of 45 Different Subunits. Journal of Biological Chemistry, 2006, 281, 32724-32727.	1.6	412
8	Reaction of complex metalloproteins studied by protein-film voltammetry. Chemical Society Reviews, 1997, 26, 169.	18.7	398
9	Reversible Glutathionylation of Complex I Increases Mitochondrial Superoxide Formation. Journal of Biological Chemistry, 2003, 278, 19603-19610.	1.6	357
10	Architecture of mammalian respiratory complex I. Nature, 2014, 515, 80-84.	13.7	350
11	The nuclear encoded subunits of complex I from bovine heart mitochondria. Biochimica Et Biophysica Acta - Bioenergetics, 2003, 1604, 135-150.	0.5	345
12	Analysis of the Subunit Composition of Complex I from Bovine Heart Mitochondria*S. Molecular and Cellular Proteomics, 2003, 2, 117-126.	2.5	337
13	Reversibility and efficiency in electrocatalytic energy conversion and lessons from enzymes. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 14049-14054.	3.3	310
14	The Enigma of the Respiratory Chain Supercomplex. Cell Metabolism, 2017, 25, 765-776.	7.2	279
15	The production of reactive oxygen species by complex I. Biochemical Society Transactions, 2008, 36, 976-980.	1.6	262
16	Superoxide Is Produced by the Reduced Flavin in Mitochondrial Complex I. Journal of Biological Chemistry, 2011, 286, 18056-18065.	1.6	241
17	GRIM-19, a Cell Death Regulatory Gene Product, Is a Subunit of Bovine Mitochondrial NADH:Ubiquinone Oxidoreductase (Complex I). Journal of Biological Chemistry, 2001, 276, 38345-38348.	1.6	227
18	Interaction of the Mitochondria-targeted Antioxidant MitoQ with Phospholipid Bilayers and Ubiquinone Oxidoreductases*. Journal of Biological Chemistry, 2007, 282, 14708-14718.	1.6	213

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19	Cryo-EM structures of complex I from mouse heart mitochondria in two biochemically defined states. Nature Structural and Molecular Biology, 2018, 25, 548-556.	3.6	202
20	Reversible Interconversion of CO‹sub›2‹/sub› and Formate by a Molybdenum-Containing Formate Dehydrogenase. Journal of the American Chemical Society, 2014, 136, 15473-15476.	6.6	200
21	Interactions between Phospholipids and NADH:Ubiquinone Oxidoreductase (Complex I) from Bovine Mitochondriaâ€. Biochemistry, 2006, 45, 241-248.	1.2	188
22	An iron-sulfur domain of the eukaryotic primase is essential for RNA primer synthesis. Nature Structural and Molecular Biology, 2007, 14, 875-877.	3.6	177
23	Fast-Scan Cyclic Voltammetry of Protein Films on Pyrolytic Graphite Edge Electrodes:Â Characteristics of Electron Exchange. Analytical Chemistry, 1998, 70, 5062-5071.	3.2	174
24	Atomically defined mechanism for proton transfer to a buried redox centre in a protein. Nature, 2000, 405, 814-817.	13.7	161
25	Towards the molecular mechanism of respiratory complex I. Biochemical Journal, 2010, 425, 327-339.	1.7	158
26	Kinetic evidence against partitioning of the ubiquinone pool and the catalytic relevance of respiratory-chain supercomplexes. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 15735-15740.	3.3	149
27	Definition of the Nuclear Encoded Protein Composition of Bovine Heart Mitochondrial Complex I. Journal of Biological Chemistry, 2002, 277, 50311-50317.	1.6	141
28	Interpreting the Catalytic Voltammetry of Electroactive Enzymes Adsorbed on Electrodes. Journal of Physical Chemistry B, 1998, 102, 6889-6902.	1.2	139
29	Reduction Potentials of Rieske Clusters:Â Importance of the Coupling between Oxidation State and Histidine Protonation Stateâ€. Biochemistry, 2003, 42, 12400-12408.	1.2	135
30	A scalable, GFP-based pipeline for membrane protein overexpression screening and purification. Protein Science, 2005, 14, 2011-2017.	3.1	121
31	Direct assignment of EPR spectra to structurally defined iron-sulfur clusters in complex I by double electronâ€“electron resonance. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 1930-1935.	3.3	116
32	Energy conversion, redox catalysis and generation of reactive oxygen species by respiratory complex I. Biochimica Et Biophysica Acta - Bioenergetics, 2016, 1857, 872-883.	0.5	111
33	Mitochondrial Supercomplexes Do Not Enhance Catalysis by Quinone Channeling. Cell Metabolism, 2018, 28, 525-531.e4.	7.2	111
34	Production of Reactive Oxygen Species by Complex I (NADH:Ubiquinone Oxidoreductase) from Escherichia coli and Comparison to the Enzyme from Mitochondria. Biochemistry, 2008, 47, 3964-3971.	1.2	109
35	Structure of the Deactive State of Mammalian Respiratory Complex I. Structure, 2018, 26, 312-319.e3.	1.6	108
36	Electrocatalytic Voltammetry of Succinate Dehydrogenase:Â Direct Quantification of the Catalytic Properties of a Complex Electron-Transport Enzyme. Journal of the American Chemical Society, 1996, 118, 5031-5038.	6.6	105

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37	Kinetics and Mechanism of Redox-Coupled, Long-Range Proton Transfer in an Ironâ"Sulfur Protein. Investigation by Fast-Scan Protein-Film Voltammetry. Journal of the American Chemical Society, 1998, 120, 7085-7094.	6.6	104
38	High-Resolution Structure of the Soluble, Respiratory-Type Rieske Protein from Thermus thermophilus:â€‰ Analysis and Comparison. Biochemistry, 2003, 42, 7303-7317.	1.2	96
39	Correlating kinetic and structural data on ubiquinone binding and reduction by respiratory complex I. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 12737-12742.	3.3	91
40	Reduction of Hydrophilic Ubiquinones by the Flavin in Mitochondrial NADH:Ubiquinone Oxidoreductase (Complex I) and Production of Reactive Oxygen Species. Biochemistry, 2009, 48, 2053-2062.	1.2	89
41	Mitochondrial complex I structure reveals ordered water molecules for catalysis and proton translocation. Nature Structural and Molecular Biology, 2020, 27, 892-900.	3.6	88
42	Fast voltammetric studies of the kinetics and energetics of coupled electron-transfer reactions in proteins. Faraday Discussions, 2000, 116, 191-203.	1.6	87
43	Elucidating the mechanisms of coupled electron transfer and catalytic reactions by protein film voltammetry. Biochimica Et Biophysica Acta - Bioenergetics, 2006, 1757, 225-239.	0.5	86
44	Mammalian Respiratory Complex I Through the Lens of Cryo-EM. Annual Review of Biophysics, 2019, 48, 165-184.	4.5	82
45	The Deactive Form of Respiratory Complex I from Mammalian Mitochondria Is a Na+/H+ Antiporter. Journal of Biological Chemistry, 2012, 287, 34743-34751.	1.6	74
46	Reevaluating the relationship between EPR spectra and enzyme structure for the ironâ€"sulfur clusters in NADH:quinone oxidoreductase. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 12720-12725.	3.3	73
47	Energy transduction by respiratory complex I â€" an evaluation of current knowledge. Biochemical Society Transactions, 2005, 33, 525-529.	1.6	71
48	Structural basis for a complex I mutation that blocks pathological ROS production. Nature Communications, 2021, 12, 707.	5.8	71
49	Respiratory Complex I in Bos taurus and Paracoccus denitrificans Pumps Four Protons across the Membrane for Every NADH Oxidized. Journal of Biological Chemistry, 2017, 292, 4987-4995.	1.6	69
50	Oxidation-State-Dependent Binding Properties of the Active Site in a Mo-Containing Formate Dehydrogenase. Journal of the American Chemical Society, 2017, 139, 9927-9936.	6.6	69
51	Complete Thermodynamic Characterization of Reduction and Protonation of thebc1-type Rieske [2Fe-2S] Center ofThermus thermophilus. Journal of the American Chemical Society, 2001, 123, 9906-9907.	6.6	68
52	Structure of inhibitor-bound mammalian complex I. Nature Communications, 2020, 11, 5261.	5.8	68
53	The Inhibition of Mitochondrial Complex I (NADH:Ubiquinone Oxidoreductase) by Zn2+. Journal of Biological Chemistry, 2006, 281, 34803-34809.	1.6	67
54	The Post-translational Modifications of the Nuclear Encoded Subunits of Complex I from Bovine Heart Mitochondria. Molecular and Cellular Proteomics, 2005, 4, 693-699.	2.5	65

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55	Molecular features of biguanides required for targeting of mitochondrial respiratory complex I and activation of AMP-kinase. BMC Biology, 2016, 14, 65.	1.7	65
56	Reversible, Electrochemical Interconversion of NADH and NAD+ by the Catalytic (ÎĺÎ») Subcomplex of Mitochondrial NADH:Ubiquinone Oxidoreductase (Complex I). Journal of the American Chemical Society, 2003, 125, 6020-6021.	6.6	64
57	Direct Observation of Redox-Linked Histidine Protonation Changes in the Ironâ^'Sulfur Protein of the Cytochromebc1Complex by ATR-FTIR Spectroscopyâ€. Biochemistry, 2005, 44, 4230-4237.	1.2	63
58	Redox Properties of the [2Fe-2S] Center in the 24 kDa (NQO2) Subunit of NADH:Ubiquinone Oxidoreductase (Complex I)â€. Biochemistry, 2002, 41, 10056-10069.	1.2	61
59	Fumarate Hydratase Loss Causes Combined Respiratory Chain Defects. Cell Reports, 2017, 21, 1036-1047.	2.9	61
60	Reactions of the Flavin Mononucleotide in Complex I: A Combined Mechanism Describes NADH Oxidation Coupled to the Reduction of APAD⁺, Ferricyanide, or Molecular Oxygen. Biochemistry, 2009, 48, 12005-12013.	1.2	58
61	Open questions: respiratory chain supercomplexesâ€"why are they there and what do they do?. BMC Biology, 2018, 16, 111.	1.7	58
62	Replacement of the Axial Histidine Ligand with Imidazole in CytochromecPeroxidase. 2. Effects on Heme Coordination and Functionâ€. Biochemistry, 2001, 40, 1274-1283.	1.2	56
63	Structure of subcomplex ÎĺÎ²2 of mammalian respiratory complex I leads to new supernumerary subunit assignments. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 12087-12092.	3.3	50
64	A spectrophotometric coupled enzyme assay to measure the activity of succinate dehydrogenase. Analytical Biochemistry, 2013, 442, 19-23.	1.1	49
65	Characterization of clinically identified mutations in NDUFV1, the flavin-binding subunit of respiratory complex I, using a yeast model system. Human Molecular Genetics, 2015, 24, 6350-6360.	1.4	48
66	Roles of the Disulfide Bond and Adjacent Residues in Determining the Reduction Potentials and Stabilities of Respiratory-Type Rieske Clustersâ€. Biochemistry, 2005, 44, 7048-7058.	1.2	46
67	Modulation of Heme Redox Potential in the Cytochrome c₆ Family. Journal of the American Chemical Society, 2007, 129, 9468-9475.	6.6	45
68	Reduction of the Ironâ^'Sulfur Clusters in Mitochondrial NADH:Ubiquinone Oxidoreductase (Complex) Tj ETQq0 0 0 rgBT /Overlock 10 Tf	1.2	45
69	The mechanism of catalysis by type-II NADH:quinone oxidoreductases. Scientific Reports, 2017, 7, 40165.	1.6	45
70	Formation and characterization of an all-ferrous Rieske cluster and stabilization of the [2Fe-2S]0 core by protonation. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 10913-10918.	3.3	44
71	The Flavoprotein Subcomplex of Complex I (NADH:Ubiquinone Oxidoreductase) from Bovine Heart Mitochondria:Â Insights into the Mechanisms of NADH Oxidation and NAD+Reduction from Protein Film Voltammetryâ€. Biochemistry, 2007, 46, 3454-3464.	1.2	44
72	Exploring Interactions between the 49 kDa and ND1 Subunits in Mitochondrial NADH-Ubiquinone Oxidoreductase (Complex I) by Photoaffinity Labeling. Biochemistry, 2011, 50, 6901-6908.	1.2	44

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73	Investigating the function of [2Feâ€“2S] cluster N1a, the off-pathway cluster in complex I, by manipulating its reduction potential. Biochemical Journal, 2013, 456, 139-146.	1.7	44
74	Voltammetric studies of bidirectional catalytic electron transport in Escherichia coli succinate dehydrogenase: comparison with the enzyme from beef heart mitochondria. Biochimica Et Biophysica Acta - Bioenergetics, 1999, 1412, 262-272.	0.5	43
75	MÃ¶ssbauer Spectroscopy on Respiratory Complex I: The Ironâ€“Sulfur Cluster Ensemble in the NADH-Reduced Enzyme Is Partially Oxidized. Biochemistry, 2012, 51, 149-158.	1.2	43
76	Modelling electrode reactions using the strongly implicit procedure. Journal of Electroanalytical Chemistry, 1995, 383, 13-19.	1.9	42
77	Detection and interpretation of redox potential optima in the catalytic activity of enzymes. Biochimica Et Biophysica Acta - Bioenergetics, 2002, 1555, 54-59.	0.5	41
78	Investigation of the mechanism of proton translocation by NADH:ubiquinone oxidoreductase (complex I) from bovine heart mitochondria: does the enzyme operate by a Q-cycle mechanism?. Biochemical Journal, 2006, 400, 541-550.	1.7	41
79	Bottom-Up Construction of a Minimal System for Cellular Respiration and Energy Regeneration. ACS Synthetic Biology, 2020, 9, 1450-1459.	1.9	40
80	Global Observation of Hydrogen/Deuterium Isotope Effects on Bidirectional Catalytic Electron Transport in an Enzyme:Â Direct Measurement by Protein-Film Voltammetry. Journal of the American Chemical Society, 1997, 119, 7434-7439.	6.6	39
81	Complexome profile of Toxoplasma gondii mitochondria identifies divergent subunits of respiratory chain complexes including new subunits of cytochrome bc1 complex. PLoS Pathogens, 2021, 17, e1009301.	2.1	39
82	The Subunit Composition of Mitochondrial NADH:Ubiquinone Oxidoreductase (Complex I) From Pichia pastoris. Molecular and Cellular Proteomics, 2010, 9, 2318-2326.	2.5	38
83	Why does mitochondrial complex I have so many subunits?. Biochemical Journal, 2011, 437, e1-e3.	1.7	38
84	Cryo-EM structures define ubiquinone-10 binding to mitochondrial complex I and conformational transitions accompanying Q-site occupancy. Nature Communications, 2022, 13, 2758.	5.8	38
85	Very Rapid, Cooperative Two-Electron/Two-Proton Redox Reactions of [3Feâ€“4S] Clusters:Â Detection and Analysis by Protein-Film Voltammetry. Journal of the American Chemical Society, 1998, 120, 11994-11999.	6.6	37
86	Replacement of the Axial Histidine Ligand with Imidazole in CytochromecPeroxidase. 1. Effects on Structureâ€‚â€¡. Biochemistry, 2001, 40, 1265-1273.	1.2	37
87	A Selfâ€Assembled Respiratory Chain that Catalyzes NADH Oxidation by Ubiquinoneâ€10 Cycling between Complexâ€…I and the Alternative Oxidase. Angewandte Chemie - International Edition, 2016, 55, 728-731.	7.2	37
88	Subunit NDUFV3 is present in two distinct isoforms in mammalian complex I. Biochimica Et Biophysica Acta - Bioenergetics, 2017, 1858, 197-207.	0.5	37
89	Truncation of subunit ND2 disrupts the threefold symmetry of the antiporterâ€like subunits in complex I from higher metazoans. FEBS Letters, 2010, 584, 4247-4252.	1.3	36
90	Cork-in-bottle mechanism of inhibitor binding to mammalian complex I. Science Advances, 2021, 7, .	4.7	36

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91	Off-Pathway, Oxygen-Dependent Thiamine Radical in the Krebs Cycle. Journal of the American Chemical Society, 2008, 130, 1662-1668.	6.6	35
92	Interpreting the Catalytic Voltammetry of an Adsorbed Enzyme by Considering Substrate Mass Transfer, Enzyme Turnover, and Interfacial Electron Transport. Journal of Physical Chemistry B, 2006, 110, 1394-1404.	1.2	34
93	Investigation of NADH Binding, Hydride Transfer, and NAD⁺ Dissociation during NADH Oxidation by Mitochondrial Complex I Using Modified Nicotinamide Nucleotides. Biochemistry, 2013, 52, 4048-4055.	1.2	32
94	Using Hyperfine Electron Paramagnetic Resonance Spectroscopy to Define the Proton-Coupled Electron Transfer Reaction at Feâ€“S Cluster N2 in Respiratory Complex I. Journal of the American Chemical Society, 2017, 139, 16319-16326.	6.6	32
95	Reversible and Selective Interconversion of Hydrogen and Carbon Dioxide into Formate by a Semiartificial Formate Hydrogenlyase Mimic. Journal of the American Chemical Society, 2019, 141, 17498-17502.	6.6	32
96	Unusual Oxidative Chemistry ofN Ï‰-Hydroxyarginine and N-Hydroxyguanidine Catalyzed at an Engineered Cavity in a Heme Peroxidase. Journal of Biological Chemistry, 2000, 275, 8582-8591.	1.6	31
97	Mechanisms of Redox-Coupled Proton Transfer in Proteins:Â Role of the Proximal Proline in Reactions of the [3Fe-4S] Cluster inAzotobactervinelandiiFerredoxin Iâ€‚â€¡. Biochemistry, 2003, 42, 10589-10599.	1.2	31
98	Transhydrogenation Reactions Catalyzed by Mitochondrial NADHâ^'Ubiquinone Oxidoreductase (Complex I). Biochemistry, 2007, 46, 14250-14258.	1.2	29
99	Breaking and Re-Forming the Disulfide Bond at the High-Potential, Respiratory-Type Rieske [2Fe-2S] Center of Thermus thermophilus:â€‰ Characterization of the Sulfhydryl State by Protein-Film Voltammetry. Biochemistry, 2002, 41, 14054-14065.	1.2	28
100	The mitochondrial-encoded subunits of respiratory complex I (NADH:ubiquinone oxidoreductase): identifying residues important in mechanism and disease. Biochemical Society Transactions, 2011, 39, 799-806.	1.6	27
101	Antisymmetric Exchange in [2Feâ^'2S]1+Clusters:Â EPR of the Rieske Protein fromThermusthermophilusat pH 14. Journal of the American Chemical Society, 2004, 126, 5338-5339.	6.6	26
102	A ternary mechanism for NADH oxidation by positively charged electron acceptors, catalyzed at the flavin site in respiratory complex I. FEBS Letters, 2011, 585, 2318-2322.	1.3	26
103	The respiratory complexes I from the mitochondria of two Pichia species. Biochemical Journal, 2009, 422, 151-159.	1.7	24
104	ATR-FTIR Redox Difference Spectroscopy of Yarrowia lipolytica and Bovine Complex I. Biochemistry, 2006, 45, 5458-5467.	1.2	23
105	The dichotomy of complex I: A sodium ion pump or a proton pump. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 773-775.	3.3	21
106	Deleting the IF ₁ -like Î¶ subunit from Paracoccus denitrificans ATP synthase is not sufficient to activate ATP hydrolysis. Open Biology, 2018, 8, 170206.	1.5	19
107	Cryo-electron microscopy reveals how acetogenins inhibit mitochondrial respiratory complex I. Journal of Biological Chemistry, 2022, 298, 101602.	1.6	19
108	Small-volume potentiometric titrations: EPR investigations of Fe-S cluster N2 in mitochondrial complex I. Journal of Inorganic Biochemistry, 2016, 162, 201-206.	1.5	17

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109	Using a chimeric respiratory chain and EPR spectroscopy to determine the origin of semiquinone species previously assigned to mitochondrial complex I. BMC Biology, 2020, 18, 54.	1.7	17
110	Understanding How the Rate of Câ€“H Bond Cleavage Affects Formate Oxidation Catalysis by a Mo-Dependent Formate Dehydrogenase. Journal of the American Chemical Society, 2020, 142, 12226-12236.	6.6	16
111	Reverse Electron Transfer by Respiratory Complex I Catalyzed in a Modular Proteoliposome System. Journal of the American Chemical Society, 2022, 144, 6791-6801.	6.6	15
112	Identification of a novel toxicophore in anti-cancer chemotherapeutics that targets mitochondrial respiratory complex I. ELife, 2020, 9, .	2.8	14
113	Photoelectrochemical reduction of meta-halonitrobenzenes and related species. Journal of the Chemical Society Perkin Transactions II, 1995, , 1673.	0.9	13
114	Hydroxylated Rotenoids Selectively Inhibit the Proliferation of Prostate Cancer Cells. Journal of Natural Products, 2020, 83, 1829-1845.	1.5	13
115	Regulation of ATP hydrolysis by the Îµ subunit, Î¶ subunit and Mg-ADP in the ATP synthase of Paracoccus denitrificans. Biochimica Et Biophysica Acta - Bioenergetics, 2021, 1862, 148355.	0.5	13
116	Paracoccus denitrificans: a genetically tractable model system for studying respiratory complex I. Scientific Reports, 2021, 11, 10143.	1.6	12
117	Comment on â€œProtein assemblies ejected directly from native membranes yield complexes for mass spectrometryâ€• Science, 2019, 366, .	6.0	10
118	Mechanistic Study of Photoelectrochemical Reactions: Phototransient Experiments. The Journal of Physical Chemistry, 1994, 98, 10497-10503.	2.9	8
119	A conserved arginine residue is critical for stabilizing the N2 FeS cluster in mitochondrial complex I. Journal of Biological Chemistry, 2021, 296, 100474.	1.6	7
120	Initial characterization of the ferric H175G cytochrome c peroxidase cavity mutant using magnetic circular dichroism spectroscopy: phosphate from the buffer as an axial ligand. International Congress Series, 2002, 1233, 25-35.	0.2	0