Osamu Shirai

List of Publications by Year
in descending order

124 papers	2,271 citations	186209 28 h-index	265120 42 g-index
129 all docs	129 docs citations	129 times ranked	1221 citing authors

#	Article	IF	Citations
1	Ion transfer through a liquid membrane or a bilayer lipid membrane in the presence of sufficient electrolytes. Journal of Electroanalytical Chemistry, 1995, 389, 61-70.	1.9	100
2	Improvement of a direct electron transfer-type fructose/dioxygen biofuel cell with a substrate-modified biocathode. Physical Chemistry Chemical Physics, 2014, 16, 4823.	1.3	99
3	Evaluation of distribution ratio in ion pair extraction using fundamental thermodynamic quantities. Analytica Chimica Acta, 1998, 373, 213-225.	2.6	84
4	Enhanced direct electron transfer-type bioelectrocatalysis of bilirubin oxidase on negatively charged aromatic compound-modified carbon electrode. Journal of Electroanalytical Chemistry, 2016, 763, 104-109.	1.9	72
5	The electron transfer pathway in direct electrochemical communication of fructose dehydrogenase with electrodes. Electrochemistry Communications, 2014, 38, 28-31.	2.3	69
6	Dual gas-diffusion membrane- and mediatorless dihydrogen/air-breathing biofuel cell operating at room temperature. Journal of Power Sources, 2016, 335, 105-112.	4.0	67
7	Direct electron transfer-type dual gas diffusion H₂/O₂biofuel cells. Journal of Materials Chemistry A, 2016, 4, 8742-8749.	5.2	61
8	Voltammetric Study on the Transport of Ions of Various Hydrophobicity Types through Bilayer Lipid Membranes Composed of Various Lipids. Bulletin of the Chemical Society of Japan, 1996, 69, 3151-3162.	2.0	59
9	Effects of Mesoporous Structures on Direct Electron Transfer-Type Bioelectrocatalysis: Facts and Simulation on a Three-Dimensional Model of Random Orientation of Enzymes. Electrochemistry, 2017, 85, 82-87.	0.6	55
10	Efficient bioelectrocatalytic CO2 reduction on gas-diffusion-type biocathode with tungsten-containing formate dehydrogenase. Electrochemistry Communications, 2016, 73, 85-88.	2.3	54
11	High-Power Formate/Dioxygen Biofuel Cell Based on Mediated Electron Transfer Type Bioelectrocatalysis. ACS Catalysis, 2017, 7, 5668-5673.	5.5	51
12	Electrostatic interaction between an enzyme and electrodes in the electric double layer examined in a view of direct electron transfer-type bioelectrocatalysis. Biosensors and Bioelectronics, 2015, 63, 138-144.	5.3	48
13	Direct electron transfer-type bioelectrocatalytic interconversion of carbon dioxide/formate and NAD+/NADH redox couples with tungsten-containing formate dehydrogenase. Electrochimica Acta, 2017, 228, 537-544.	2.6	43
14	Bioelectrocatalytic formate oxidation and carbon dioxide reduction at high current density and low overpotential with tungsten-containing formate dehydrogenase and mediators. Electrochemistry Communications, 2016, 65, 31-34.	2.3	42
15	Direct electron transfer-type four-way bioelectrocatalysis of CO2/formate and NAD+/NADH redox couples by tungsten-containing formate dehydrogenase adsorbed on gold nanoparticle-embedded mesoporous carbon electrodes modified with 4-mercaptopyridine. Electrochemistry Communications, 2017, 84, 75-79.	2.3	42
16	Selectivity on Ion Transport across Bilayer Lipid Membranes in the Presence of Gramicidin A. Analytical Sciences, 2009, 25, 189-193.	0.8	39
17	Significance of Mesoporous Electrodes for Noncatalytic Faradaic Process of Randomly Oriented Redox Proteins. Journal of Physical Chemistry C, 2016, 120, 26270-26277.	1.5	38
18	Construction of a protein-engineered variant of d -fructose dehydrogenase for direct electron transfer-type bioelectrocatalysis. Electrochemistry Communications, 2017, 77, 112-115.	2.3	38

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19	Improved direct electron transfer-type bioelectrocatalysis of bilirubin oxidase using porous gold electrodes. Journal of Electroanalytical Chemistry, 2019, 843, 47-53.	1.9	37
20	Mutation of heme c axial ligands in d-fructose dehydrogenase for investigation of electron transfer pathways and reduction of overpotential in direct electron transfer-type bioelectrocatalysis. Electrochemistry Communications, 2016, 67, 43-46.	2.3	34
21	Phosphate ion sensor using a cobalt phosphate coated cobalt electrode. Electrochimica Acta, 2018, 282, 242-246.	2.6	33
22	Interconversion between formate and hydrogen carbonate by tungsten-containing formate dehydrogenase-catalyzed mediated bioelectrocatalysis. Sensing and Bio-Sensing Research, 2015, 5, 90-96.	2.2	32
23	Direct Electron Transfer-Type Bioelectrocatalysis of Redox Enzymes at Nanostructured Electrodes. Catalysts, 2020, 10, 236.	1.6	32
24	Voltammetric study on ion transport across a bilayer lipid membrane in the presence of a hydrophobic ion or an ionophore. Analytical and Bioanalytical Chemistry, 2006, 386, 494-505.	1.9	30
25	Interaction between d-fructose dehydrogenase and methoxy-substituent-functionalized carbon surface to increase productive orientations. Electrochimica Acta, 2016, 218, 41-46.	2.6	30
26	Diffusion-controlled Mediated Electron Transfer-type Bioelectrocatalysis Using Microband Electrodes as Ultimate Amperometric Glucose Sensors. Analytical Sciences, 2017, 33, 845-851.	0.8	30
27	Direct Electron Transfer-type Bioelectrocatalysis of Peroxidase at Mesoporous Carbon Electrodes and Its Application for Glucose Determination Based on Bienzyme System. Analytical Sciences, 2017, 33, 839-844.	0.8	30
28	Bioelectrocatalytic performance of d-fructose dehydrogenase. Bioelectrochemistry, 2019, 129, 1-9.	2.4	30
29	Ultimate downsizing of d-fructose dehydrogenase for improving the performance of direct electron transfer-type bioelectrocatalysis. Electrochemistry Communications, 2019, 98, 101-105.	2.3	30
30	VOLTAMMETRY FOR THE ION TRANSFER THROUGH A MEMBRANE. Analytical Sciences, 1991, 7, 607-610.	0.8	29
31	Ion transport across a bilayer lipid membrane facilitated by valinomycin. Journal of Electroanalytical Chemistry, 2004, 570, 219-226.	1.9	29
32	Development Perspective of Bioelectrocatalysis-Based Biosensors. Sensors, 2020, 20, 4826.	2.1	29
33	Significance of the Length of Carbon Nanotubes on the Bioelectrocatalytic Activity of Bilirubin Oxidase for Dioxygen Reduction. Electrochimica Acta, 2016, 192, 133-138.	2.6	27
34	Nanostructured Porous Electrodes by the Anodization of Gold for an Application as Scaffolds in Direct-electron-transfer-type Bioelectrocatalysis. Analytical Sciences, 2018, 34, 1317-1322.	0.8	26
35	Construction of photo-driven bioanodes using thylakoid membranes and multi-walled carbon nanotubes. Bioelectrochemistry, 2018, 122, 158-163.	2.4	24
36	Assembly of direct-electron-transfer-type bioelectrodes with high performance. Electrochimica Acta, 2018, 271, 305-311.	2.6	23

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37	Improved direct electron transfer-type bioelectrocatalysis of bilirubin oxidase using thiol-modified gold nanoparticles on mesoporous carbon electrode. Journal of Electroanalytical Chemistry, 2019, 832, 158-164.	1.9	23
38	Direct electron transfer-type bioelectrocatalysis of FAD-dependent glucose dehydrogenase using porous gold electrodes and enzymatically implanted platinum nanoclusters. Bioelectrochemistry, 2020, 133, 107457.	2.4	23
39	Factors affecting the interaction between carbon nanotubes and redox enzymes in direct electron transfer-type bioelectrocatalysis. Bioelectrochemistry, 2017, 118, 70-74.	2.4	22
40	Reactivation of standard [NiFe]-hydrogenase and bioelectrochemical catalysis of proton reduction and hydrogen oxidation in a mediated-electron-transfer system. Bioelectrochemistry, 2018, 123, 156-161.	2.4	22
41	Ion transport across a bilayer lipid membrane facilitated by gramicidin A â€“ Effect of counter anions on the cation transport. Journal of Electroanalytical Chemistry, 2006, 595, 53-59.	1.9	21
42	Spectroelectrochemistry and Electrochemistry of Europium Ions in Alkali Chloride Melts. Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences, 2007, 62, 191-196.	0.7	20
43	Electrochemical elucidation on the mechanism of uncoupling caused by hydrophobic weak acids. Physical Chemistry Chemical Physics, 2008, 10, 4449.	1.3	19
44	Electrochemical Elucidation of the Facilitated Ion Transport Across a Bilayer Lipid Membrane in the Presence of Neutral Carrier Compounds. Electroanalysis, 2010, 22, 1229-1238.	1.5	19
45	Protein-Engineering Improvement of Direct Electron Transfer-Type Bioelectrocatalytic Properties of d-Fructose Dehydrogenase. Electrochemistry, 2019, 87, 47-51.	0.6	18
46	Improved Performance of Gas-diffusion Biocathode for Oxygen Reduction. Electrochemistry, 2012, 80, 324-326.	0.6	17
47	Kinetic Analysis of Inactivation and Enzyme Reaction of Oxygen-Tolerant [NiFe]-Hydrogenase at Direct Electron-Transfer Bioanode. Bulletin of the Chemical Society of Japan, 2014, 87, 1177-1185.	2.0	16
48	A Bio-solar Cell with Thylakoid Membranes and Bilirubin Oxidase. Chemistry Letters, 2019, 48, 686-689.	0.7	16
49	Redox Equilibria of the U4+/U3+ and U3+/U Couples in Molten LiCl-RbCl Eutectic. Electrochemistry, 2009, 77, 614-616.	0.6	15
50	Binder/surfactant-free biocathode with bilirubin oxidase for gas-diffusion-type system. Electrochemistry Communications, 2016, 66, 58-61.	2.3	15
51	Transmission mechanism of the change in membrane potential by use of organic liquid membrane system. Journal of Electroanalytical Chemistry, 2012, 673, 8-12.	1.9	14
52	Construction of a bioelectrochemical formate generating system from carbon dioxide and dihydrogen. Electrochemistry Communications, 2018, 97, 73-76.	2.3	14
53	Direct electrochemistry of histamine dehydrogenase from Nocardioides simplex. Journal of Electroanalytical Chemistry, 2009, 625, 144-148.	1.9	13
54	Construction of a Multi-stacked Sheet-type Enzymatic Biofuel Cell. Electrochemistry, 2014, 82, 156-161.	0.6	13

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55	Influence of the Circulating Current on the Propagation of the Change in Membrane Potential. Analytical Sciences, 2015, 31, 677-683.	0.8	13
56	Simultaneous Detection of Lactate Enantiomers Based on Diffusion-controlled Bioelectrocatalysis. Analytical Sciences, 2018, 34, 1137-1142.	0.8	13
57	Fabrication of a Phosphate Ion Selective Electrode Based on Modified Molybdenum Metal. Analytical Sciences, 2020, 36, 201-205.	0.8	13
58	Recent Progress in Applications of Enzymatic Bioelectrocatalysis. Catalysts, 2020, 10, 1413.	1.6	13
59	Comprehensive understanding of multiple actions of anticancer drug tamoxifen in isolated mitochondria. Biochimica Et Biophysica Acta - Bioenergetics, 2022, 1863, 148520.	0.5	13
60	Propagation of the Change in Membrane Potential Owing to the Circulating Current within a Membrane System in Analogy with Neurotransmission. Bulletin of the Chemical Society of Japan, 2014, 87, 110-112.	2.0	12
61	Understanding of the Effects of Ionic Strength on the Bimolecular Rate Constant between Structurally Identified Redox Enzymes and Charged Substrates Using Numerical Simulations on the Basis of the Poissonâ€“Boltzmann Equation. Journal of Physical Chemistry B, 2016, 120, 3122-3128.	1.2	12
62	Influence of Charging Current and Potential Drop on the Propagation of the Change in the Membrane Potential. Electroanalysis, 2014, 26, 1858-1865.	1.5	11
63	Electrochemical deposition of uranium oxide in highly concentrated calcium chloride. Journal of Applied Electrochemistry, 2012, 42, 455-461.	1.5	10
64	Propagation of the change in the membrane potential using a biocell-model. Physical Chemistry Chemical Physics, 2016, 18, 12689-12695.	1.3	10
65	Construction of Nitrate-selective Electrodes and Monitoring of Nitrates in Hydroponic Solutions. Analytical Sciences, 2018, 34, 1373-1377.	0.8	10
66	Generating change in membrane potential by external electric stimulation and propagating the change by using nerve model cell systems. Electrochimica Acta, 2018, 282, 89-96.	2.6	10
67	Automatic Management of Nutrient Solution for Hydroponicsâ€"Construction of Multi-ion Statâ€". Analytical Sciences, 2020, 36, 1141-1144.	0.8	10
68	Multiple electron transfer pathways of tungsten-containing formate dehydrogenase in direct electron transfer-type bioelectrocatalysis. Chemical Communications, 2022, 58, 6478-6481.	2.2	10
69	Bioelectrochemical Determination at Histamine Dehydrogenase-based Electrodes. Electrochemistry, 2008, 76, 600-602.	0.6	9
70	Construction of an Automatic Nutrient Solution Management System for Hydroponics-Adjustment of the K+-Concentration and Volume of Water. Analytical Sciences, 2019, 35, 595-598.	0.8	9
71	Effects of Elimination of Î± Helix Regions on Direct Electron Transfer-type Bioelectrocatalytic Properties of Copper Efflux Oxidase. Electrochemistry, 2020, 88, 185-189.	0.6	9
72	Proposal of a new mechanism for the directional propagation of the action potential using a mimicking system. Physical Chemistry Chemical Physics, 2017, 19, 5310-5317.	1.3	8

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73	Electrostatic roles in electron transfer from [NiFe] hydrogenase to cytochrome c 3 from Desulfovibrio vulgaris Miyazaki F. Biochimica Et Biophysica Acta - Proteins and Proteomics, 2017, 1865, 481-487.	1.1	8
74	Discussion on Direct Electron Transfer-Type Bioelectrocatalysis of Downsized and Axial-Ligand Exchanged Variants of d-Fructose Dehydrogenase. Electrochemistry, 2020, 88, 195-199.	0.6	8
75	Analysis of Ion Transport through a Single Channel of Gramicidin A in Bilayer Lipid Membranes. Analytical Sciences, 2016, 32, 189-192.	0.8	7
76	The origin of hyperpolarization based on the directional conduction of action potential using a model nerve cell system. Bioelectrochemistry, 2019, 128, 155-164.	2.4	7
77	Ion Transport across a Bilayer Lipid Membrane in the Presence of a Hydrophobic Ion. Electrochemistry, 2008, 76, 597-599.	0.6	6
78	Ion Transport across a Bilayer Lipid Membrane in the Presence of Hydrophobic Ions. Chemistry Letters, 2009, 38, 1038-1039.	0.7	6
79	Adsorption Behavior of Lanthanide Ions on Nonbiological Phospholipid Membranes: A Model Study Using Liposome. Chemistry Letters, 2013, 42, 819-821.	0.7	6
80	Substituent Effect on the Thermodynamic Solubility of Structural Analogs: Relative Contribution of Crystal Packing and Hydration. Journal of Pharmaceutical Sciences, 2014, 103, 3524-3531.	1.6	6
81	Transport of cesium and potassium ions across bilayer lipid membranes â€" Cesium accumulation in biological cells according to the membrane potential. Journal of Electroanalytical Chemistry, 2016, 779, 131-136.	1.9	6
82	Electrochemical Interpretation of Propagation of the Change in the Membrane Potential Using the Goldmanâ€Hodgkinâ€Katz Equation. Electroanalysis, 2017, 29, 2656-2664.	1.5	6
83	Electrochemical Study on the Extracellular Electron Transfer Pathway from Shewanella Strain Hac319 to Electrodes. Analytical Sciences, 2018, 34, 1177-1182.	0.8	6
84	Carbon-nanotube-caged microbial electrodes for bioelectrocatalysis. Enzyme and Microbial Technology, 2018, 117, 41-44.	1.6	6
85	Significance of Nano-Structures of Carbon Materials for Direct-Electron-Transfer-type Bioelectrocatalysis of Bilirubin Oxidase. Electrochemistry, 2020, 88, 374-379.	0.6	6
86	Electrochemical Study on Facilitated Ion Transport Across a Bilayer Lipid Membrane in the Presence of Nonactin. Bunseki Kagaku, 2007, 56, 965-971.	0.1	5
87	Transport of Cesium Ion Across a Bilayer Lipid Membrane and Its Facilitation in the Presence of Iodide Ion. Electroanalysis, 2013, 25, 1823-1826.	1.5	5
88	Biomimetic Charge Transfer Reactions at the Aqueous/Organic Solution Interface or through Artificial Membrane. Electrochemistry, 2012, 80, 390-400.	0.6	4
89	Relation between Membrane Transport and Transport within Body Fluid on the Expression of Pharmacological Activities of Drugs — Mass Transfer in the Quantitative Structure-activity Relationship (QSAR) —. Bunseki Kagaku, 2016, 65, 249-258.	0.1	4
90	Electrochemical pH sensor based on a hydrogen-storage palladium electrode with Teflon covering to increase stability. Electrochemistry Communications, 2019, 101, 73-77.	2.3	4

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91	Cyanide sensitivity in direct electron transfer-type bioelectrocatalysis by membrane-bound alcohol dehydrogenase from Gluconobacter oxydans. Bioelectrochemistry, 2021, 143, 107992.	2.4	4
92	Influence of Inhalation Anesthetics on Ion Transport across a Planar Bilayer Lipid Membrane. Analytical Sciences, 2012, 28, 45-49.	0.8	3
93	Coupling of Proton Transport across Planar Lipid Bilayer and Electron Transport Catalyzed by Membrane-bound Enzyme D-Fructose Dehydrogenase. Electrochemistry, 2016, 84, 328-333.	0.6	3
94	Inhibition of Ion Transport through Gramicidin A Channels by the Addition of Local Anesthetic Procaine. Electroanalysis, 2018, 30, 304-309.	1.5	3
95	Electrical cell-to-cell communication using aggregates of model cells. Physical Chemistry Chemical Physics, 2020, 22, 21288-21296.	1.3	3
96	Rapid Fabrication of Nanoporous Gold as a Suitable Platform for the Direct Electron Transfer-type Bioelectrocatalysis of Bilirubin Oxidase. Electrochemistry, 2020, 88, 444-446.	0.6	3
97	Re-construction of Pentose Phosphate Pathway Coupled with a Bioelectrocatalytic NADPH Oxidation System for Bioanodes of Biofuel Cells. Electrochemistry, 2013, 81, 981-984.	0.6	2
98	Facilitated Transport of Ions and Glucose by Amphotericin B Across Lipid Bilayers in the Presence or Absence of Cholesterol. Electroanalysis, 2014, 26, 625-631.	1.5	2
99	Propagation of the Change in Membrane Potential. Review of Polarography, 2015, 61, 93-104.	0.0	2
100	Electrochemical interpretation of parabolic relation between the hydrophobicity and the permeability of tetraalkylammonium chlorides. Journal of Electroanalytical Chemistry, 2016, 782, 161-167.	1.9	2
101	Permselectivity of Gramicidin A Channels Based on Singleâ€channel Recordings. Electroanalysis, 2020, 32, 1093-1099.	1.5	2
102	Enhancement of the Direct Electron Transfer-type Bioelectrocatalysis of Bilirubin Oxidase at the Interface between Carbon Particles. Electrochemistry, 2021, 89, 43-48.	0.6	2
103	Pollution Control of Nitrate-selective Membrane by the Inner Solution and On-site Monitoring of Nitrate Concentration in Soil. Analytical Sciences, 2021, 37, 887-891.	0.8	2
104	Improvement in the Power Output of a Reverse Electrodialysis System by the Addition of Poly(sodium) Tj ETQq0 0 0 rgBT /Overlock 10 T	0.6	2
105	Severe Problems of the Voltageâ€Clamp Method in Concurrent Monitoring of Membrane Potentials. Electroanalysis, 2022, 34, 1299-1307.	1.5	2
106	Electrochemical Study on Ion Transports Across a Bilayer Lipid Membrane in the Presence of Hydrophobic Ions and Ionophores. Bunseki Kagaku, 2007, 56, 547-560.	0.1	1
107	Electrochemical Investigation on Permeability of Organic Acid Ions Through Amphotericin B Channels. Electrochemistry, 2012, 80, 315-317.	0.6	1
108	Analytical System Using Lipid Bilayers to Immobilize Biofunctional Compounds. Analytical Sciences, 2018, 34, 753-754.	0.8	1

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109	Spontaneous accumulation of cesium ions based on the membrane potential using a selectively-permeable-polyvinyl chloride capsule containing concentrated potassium ions and zeolites. Journal of Electroanalytical Chemistry, 2020, 871, 114300.	1.9	1
110	The Redox Potential Measurements for Heme Moieties in Variants of D-Fructose Dehydrogenase Based on Mediator-assisted Potentiometric Titration. Electrochemistry, 2021, 89, 337-339.	0.6	1
111	Inhibition of direct-electron-transfer-type bioelectrocatalysis of bilirubin oxidase by silver ions. Analytical Sciences, 2022, , 1.	0.8	1
112	1P354 Electrochemical elucidation on ion transport across a bilayer lipid membrane : The role of hydrophobic ions as carrier of the counter ion(13. Membrane transport,Poster) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 617 Td (Session,Ab	0.6	0
113	Electrochemical redox reactions of chromium and iron ions in molten NaClâ€"2CsCl eutectic for pyro-reprocessing of nuclear fuels. Journal of Applied Electrochemistry, 2009, 39, 827-835.	1.5	0
114	Memorial Party of Prof. Masuzo Shikata. Review of Polarography, 2015, 61, 129-132.	0.0	0
115	Electrochemical Study on Quantitative Structureâ€activity Relationship (QSAR) Analysis under Steadyâ€state Conditions. Electroanalysis, 2018, 30, 2931-2938.	1.5	0
116	Construction of a Liquid Membrane Cell for Power Generation Based on Salinity Gradient Energy Conversion. Chemistry Letters, 2020, 49, 1081-1083.	0.7	0
117	Significance of Nanostructures of an Electrode Surface in Direct Electron Transfer-Type Bioelectrocatalysis of Redox Enzymes. ACS Symposium Series, 2020, , 147-163.	0.5	0
118	Protein-Engineering Approach for Improvement of DET-Type Bioelectrocatalytic Performance. , 2021, , 93-104.		0
119	Development of Electrochemical Sensors for Nutrient Components. Bunseki Kagaku, 2021, 70, 501-510.	0.1	0
120	Kinetic Analysis of Oxygen Dissolution by Bubble-attaching Electrodes. Bunseki Kagaku, 2021, 70, 551-555.	0.1	0
121	Salinity Gradient Energy Conversion Using Permselective Organic Liquid Membranes. ECS Meeting Abstracts, 2020, MA2020-02, 3679-3679.	0.0	0
122	Construction of a Bioelectrochemical Dihydrogen/Formate Interconversion System and a Bio-Solar Cell. ECS Meeting Abstracts, 2020, MA2020-02, 3640-3640.	0.0	0
123	Analysis of Electrical Cell-to-Cell Communication Using the Aggregate of Model Cells. ECS Meeting Abstracts, 2020, MA2020-02, 2787-2787.	0.0	0
124	Ion transport across bilayer lipid membranes in the presence of tetraphenylborate. Analytical Sciences, 2022, , 1.	0.8	0