

Ranjan K Dash

List of Publications by Year in descending order

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105
papers

1,519
citations

236612

25
h-index

377514

34
g-index

108
all docs

108
docs citations

108
times ranked

1597
citing authors

#	ARTICLE	IF	CITATIONS
1	Analysis of cardiac mitochondrial Na ⁺ -Ca ²⁺ exchanger kinetics with a biophysical model of mitochondrial Ca ²⁺ handling suggests a 3: 1 stoichiometry. <i>Journal of Physiology</i> , 2008, 586, 3267-3285.	1.3	89
2	Simultaneous Blood-Tissue Exchange of Oxygen, Carbon Dioxide, Bicarbonate, and Hydrogen Ion. <i>Annals of Biomedical Engineering</i> , 2006, 34, 1129-1148.	1.3	64
3	Blood HbO ₂ and HbCO ₂ Dissociation Curves at Varied O ₂ , CO ₂ , pH, 2,3-DPG and Temperature Levels. <i>Annals of Biomedical Engineering</i> , 2004, 32, 1676-1693.	1.3	56
4	Mechanistic characterization of the thioredoxin system in the removal of hydrogen peroxide. <i>Free Radical Biology and Medicine</i> , 2015, 78, 42-55.	1.3	52
5	Simple accurate mathematical models of blood HbO ₂ and HbCO ₂ dissociation curves at varied physiological conditions: evaluation and comparison with other models. <i>European Journal of Applied Physiology</i> , 2016, 116, 97-113.	1.2	45
6	A Biophysically Based Mathematical Model for the Kinetics of Mitochondrial Calcium Uniporter. <i>Biophysical Journal</i> , 2009, 96, 1318-1332.	0.2	44
7	A Biophysically Based Mathematical Model for the Kinetics of Mitochondrial Na ⁺ -Ca ²⁺ Antiporter. <i>Biophysical Journal</i> , 2010, 98, 218-230.	0.2	39
8	Role of NADH/NAD ⁺ transport activity and glycogen store on skeletal muscle energy metabolism during exercise: in silico studies. <i>American Journal of Physiology - Cell Physiology</i> , 2009, 296, C25-C46.	2.1	37
9	Dynamic buffering of mitochondrial Ca ²⁺ during Ca ²⁺ uptake and Na ⁺ -induced Ca ²⁺ release. <i>Journal of Bioenergetics and Biomembranes</i> , 2013, 45, 189-202.	1.0	37
10	Detailed kinetics and regulation of mammalian 2-oxoglutarate dehydrogenase. <i>BMC Biochemistry</i> , 2011, 12, 53.	4.4	35
11	Generating rate equations for complex enzyme systems by a computer-assisted systematic method. <i>BMC Bioinformatics</i> , 2009, 10, 238.	1.2	34
12	A biophysically based mathematical model for the catalytic mechanism of glutathione reductase. <i>Free Radical Biology and Medicine</i> , 2013, 65, 1385-1397.	1.3	33
13	Effect of P2X ₄ and P2X ₇ receptor antagonism on the pressure diuresis relationship in rats. <i>Frontiers in Physiology</i> , 2013, 4, 305.	1.3	33
14	Determining the origins of superoxide and hydrogen peroxide in the mammalian NADH:ubiquinone oxidoreductase. <i>Free Radical Biology and Medicine</i> , 2014, 77, 121-129.	1.3	33
15	Modeling the calcium sequestration system in isolated guinea pig cardiac mitochondria. <i>Journal of Bioenergetics and Biomembranes</i> , 2013, 45, 177-188.	1.0	31
16	miR-21-5p regulates mitochondrial respiration and lipid content in H9C2 cells. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2019, 316, H710-H721.	1.5	31
17	Modeling Cellular Metabolism and Energetics in Skeletal Muscle: Large-Scale Parameter Estimation and Sensitivity Analysis. <i>IEEE Transactions on Biomedical Engineering</i> , 2008, 55, 1298-1318.	2.5	30
18	Mitochondrial Free [Ca ²⁺] Increases during ATP/ADP Antiport and ADP Phosphorylation: Exploration of Mechanisms. <i>Biophysical Journal</i> , 2010, 99, 997-1006.	0.2	30

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19	Isoflurane modulates cardiac mitochondrial bioenergetics by selectively attenuating respiratory complexes. <i>Biochimica Et Biophysica Acta - Bioenergetics</i> , 2014, 1837, 354-365.	0.5	30
20	Characterization of Mg ²⁺ Inhibition of Mitochondrial Ca ²⁺ Uptake by a Mechanistic Model of Mitochondrial Ca ²⁺ Uniporter. <i>Biophysical Journal</i> , 2011, 101, 2071-2081.	0.2	29
21	Mitochondrial targets for volatile anesthetics against cardiac ischemia-reperfusion injury. <i>Frontiers in Physiology</i> , 2014, 5, 341.	1.3	28
22	A class of model equations for bi-directional propagation of capillary "gravity waves. <i>International Journal of Engineering Science</i> , 2003, 41, 201-218.	2.7	26
23	A mechanistic mathematical model for the catalytic action of glutathione peroxidase. <i>Free Radical Research</i> , 2014, 48, 487-502.	1.5	26
24	Mg ²⁺ differentially regulates two modes of mitochondrial Ca ²⁺ uptake in isolated cardiac mitochondria: implications for mitochondrial Ca ²⁺ sequestration. <i>Journal of Bioenergetics and Biomembranes</i> , 2016, 48, 175-188.	1.0	26
25	Crosstalk between Plk1, p53, cell cycle, and G2/M DNA damage checkpoint regulation in cancer: computational modeling and analysis. <i>Npj Systems Biology and Applications</i> , 2021, 7, 46.	1.4	26
26	A computational model of skeletal muscle metabolism linking cellular adaptations induced by altered loading states to metabolic responses during exercise. <i>BioMedical Engineering OnLine</i> , 2007, 6, 14.	1.3	25
27	Mitochondrial handling of excess Ca ²⁺ is substrate-dependent with implications for reactive oxygen species generation. <i>Free Radical Biology and Medicine</i> , 2013, 56, 193-203.	1.3	25
28	Title is missing!. <i>Journal of Engineering Mathematics</i> , 2002, 42, 1-22.	0.6	24
29	Extra-matrix Mg ²⁺ limits Ca ²⁺ uptake and modulates Ca ²⁺ uptake-independent respiration and redox state in cardiac isolated mitochondria. <i>Journal of Bioenergetics and Biomembranes</i> , 2013, 45, 203-218.	1.0	24
30	Metabolic Dynamics in Skeletal Muscle during Acute Reduction in Blood Flow and Oxygen Supply to Mitochondria: In-Silico Studies Using a Multi-Scale, Top-Down Integrated Model. <i>PLoS ONE</i> , 2008, 3, e3168.	1.1	23
31	Stimulatory Effects of Calcium on Respiration and NAD(P)H Synthesis in Intact Rat Heart Mitochondria Utilizing Physiological Substrates Cannot Explain Respiratory Control in Vivo. <i>Journal of Biological Chemistry</i> , 2011, 286, 30816-30822.	1.6	22
32	Computational analysis of Ca ²⁺ dynamics in isolated cardiac mitochondria predicts two distinct modes of Ca ²⁺ uptake. <i>Journal of Physiology</i> , 2014, 592, 1917-1930.	1.3	22
33	Linking Pulmonary Oxygen Uptake, Muscle Oxygen Utilization and Cellular Metabolism during Exercise. <i>Annals of Biomedical Engineering</i> , 2007, 35, 956-969.	1.3	21
34	Characterization of Membrane Potential Dependency of Mitochondrial Ca ²⁺ Uptake by an Improved Biophysical Model of Mitochondrial Ca ²⁺ Uniporter. <i>PLoS ONE</i> , 2010, 5, e13278.	1.1	21
35	Modeling the detailed kinetics of mitochondrial cytochrome c oxidase: Catalytic mechanism and nitric oxide inhibition. <i>Journal of Applied Physiology</i> , 2016, 121, 1196-1207.	1.2	21
36	Kinetics and Regulation of Mammalian NADH-Ubiquinone Oxidoreductase (Complex I). <i>Biophysical Journal</i> , 2010, 99, 1426-1436.	0.2	19

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37	Influence of a Hyperglycemic Microenvironment on a Diabetic Versus Healthy Rat Vascular Endothelium Reveals Distinguishable Mechanistic and Phenotypic Responses. <i>Frontiers in Physiology</i> , 2019, 10, 558.	1.3	19
38	Analytical and numerical studies of a singularly perturbed Boussinesq equation. <i>Applied Mathematics and Computation</i> , 2002, 126, 1-30.	1.4	18
39	A Minimal Model for the Mitochondrial Rapid Mode of Ca ²⁺ Uptake Mechanism. <i>PLoS ONE</i> , 2011, 6, e21324.	1.1	18
40	Enhanced charge-independent mitochondrial free Ca ²⁺ and attenuated ADP-induced NADH oxidation by isoflurane: Implications for cardioprotection. <i>Biochimica Et Biophysica Acta - Bioenergetics</i> , 2012, 1817, 453-465.	0.5	16
41	Modeling of Cellular Metabolism and Microcirculatory Transport. <i>Microcirculation</i> , 2008, 15, 777-793.	1.0	15
42	Integrated computational model of the bioenergetics of isolated lung mitochondria. <i>PLoS ONE</i> , 2018, 13, e0197921.	1.1	14
43	Slow Ca ²⁺ Efflux by Ca ²⁺ /H ⁺ Exchange in Cardiac Mitochondria Is Modulated by Ca ²⁺ Re-uptake via MCU, Extra-Mitochondrial pH, and H ⁺ Pumping by FOF1-ATPase. <i>Frontiers in Physiology</i> , 2018, 9, 1914.	1.3	14
44	Modeling to Link Regional Myocardial Work, Metabolism and Blood Flows. <i>Annals of Biomedical Engineering</i> , 2012, 40, 2379-2398.	1.3	13
45	A thermodynamically-constrained mathematical model for the kinetics and regulation of NADPH oxidase 2 complex-mediated electron transfer and superoxide production. <i>Free Radical Biology and Medicine</i> , 2019, 134, 581-597.	1.3	13
46	Substrate- and Calcium-Dependent Differential Regulation of Mitochondrial Oxidative Phosphorylation and Energy Production in the Heart and Kidney. <i>Cells</i> , 2022, 11, 131.	1.8	13
47	Weakly non-local solitary wave solutions of a singularly perturbed Boussinesq equation. <i>Mathematics and Computers in Simulation</i> , 2001, 55, 393-405.	2.4	12
48	Quantification of mitochondrial membrane potential in the isolated rat lung using rhodamine 6G. <i>Journal of Applied Physiology</i> , 2020, 128, 892-906.	1.2	12
49	A Biophysical Model of the Mitochondrial ATP-Mg/Pi Carrier. <i>Biophysical Journal</i> , 2012, 103, 1616-1625.	0.2	11
50	Detection of hydrogen peroxide production in the isolated rat lung using Amplex red. <i>Free Radical Research</i> , 2018, 52, 1052-1062.	1.5	11
51	Mechanistic computational modeling of the kinetics and regulation of NADPH oxidase 2 assembly and activation facilitating superoxide production. <i>Free Radical Research</i> , 2020, 54, 695-721.	1.5	10
52	Substrate-dependent differential regulation of mitochondrial bioenergetics in the heart and kidney cortex and outer medulla. <i>Biochimica Et Biophysica Acta - Bioenergetics</i> , 2022, 1863, 148518.	0.5	10
53	A size-modified poisson-boltzmann ion channel model in a solvent of multiple ionic species: Application to voltage-dependent anion channel. <i>Journal of Computational Chemistry</i> , 2020, 41, 218-230.	1.5	9
54	Letter to the Editor: Mitochondrial cytochrome <i>c</i> oxidase: mechanism of action and role in regulating oxidative phosphorylation. <i>Journal of Applied Physiology</i> , 2015, 119, 157-157.	1.2	7

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55	Network mechanisms and dysfunction within an integrated computational model of progression through mitosis in the human cell cycle. <i>PLoS Computational Biology</i> , 2020, 16, e1007733.	1.5	7
56	Can Mathematical Modeling Explain the Measured Magnitude of the Second Gas Effect?. <i>Anesthesiology</i> , 2018, 128, 1075-1083.	1.3	6
57	Estimating in Vitro Mitochondrial Oxygen Consumption During Muscle Contraction and Recovery: A Novel Approach that Accounts for Diffusion. <i>Annals of Biomedical Engineering</i> , 2005, 33, 343-355.	1.3	4
58	Depolarized mitochondrial membrane potential and protection with duroquinone in isolated perfused lungs from rats exposed to hyperoxia. <i>Journal of Applied Physiology</i> , 2022, 132, 346-356.	1.2	4
59	An efficient deconvolution algorithm for estimating oxygen consumption during muscle activities. <i>Computer Methods and Programs in Biomedicine</i> , 2007, 85, 247-256.	2.6	3
60	An improved algorithm and its parallel implementation for solving a general blood-tissue transport and metabolism model. <i>Journal of Computational Physics</i> , 2009, 228, 7850-7861.	1.9	3
61	Effect of net gas volume changes on alveolar and arterial gas partial pressures in the presence of ventilation-perfusion mismatch. <i>Journal of Applied Physiology</i> , 2019, 126, 558-568.	1.2	3
62	Integrated Computational Model of Lung Tissue Bioenergetics. <i>Frontiers in Physiology</i> , 2019, 10, 191.	1.3	2
63	Elucidating the roles of solubility and ventilation-perfusion mismatch in the second gas effect using a two-step model of gas exchange. <i>Journal of Applied Physiology</i> , 2020, 128, 1587-1593.	1.2	2
64	The Pathway for Oxygen: Tutorial Modelling on Oxygen Transport from Air to Mitochondrion. <i>Advances in Experimental Medicine and Biology</i> , 2016, 876, 103-110.	0.8	2
65	Carrier-Mediated Transport Through Biomembranes. , 2013, , 181-212.		1
66	Mathematical Modeling of Protracted HCMV Replication using Genome Substrates and Protein Temporal Profiles. <i>FASEB Journal</i> , 2022, 36, .	0.2	1
67	Fluorescein Clearance Kinetics in Blood and Bile Indicates Hepatic Ischemia-Reperfusion Injury in Rats. <i>American Journal of Physiology - Renal Physiology</i> , 0, , .	1.6	1
68	Characterizing The Calcium Uniporter: Effect Of Partial Depolarization On Calcium Flux. <i>Biophysical Journal</i> , 2009, 96, 244a.	0.2	0
69	Buffer Magnesium Limits Mitochondrial Calcium Uptake but not Matrix Calcium Buffering in Response to ADP. <i>Biophysical Journal</i> , 2010, 98, 736a.	0.2	0
70	Markov Chain Monte Carlo Model Analysis of Cardiac Mitochondrial VDAC1 Kinetics. <i>Biophysical Journal</i> , 2014, 106, 761a.	0.2	0
71	Modeling Mechanisms of Cardiac L-Type Ca ²⁺ Channel Regulation: Interactions of Voltage, Ca ²⁺ , and Isoflurane. <i>Biophysical Journal</i> , 2018, 114, 304a.	0.2	0
72	High Salt Diet Increases Renal Oxygen Consumption in Spragueâ€Dawley Rats. <i>FASEB Journal</i> , 2021, 35, .	0.2	0

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73	Integration of a Rapid Equilibrium Binding Model of NOX2 Assembly with a Five State Rate Limiting Model of NOX2 Electron Flow facilitating Superoxide Production. FASEB Journal, 2021, 35, .	0.2	0
74	ADP and CCCP induced increases in mitochondrial free Ca ²⁺ : greater contribution of matrix Ca ²⁺ buffering by ATP/ADP. FASEB Journal, 2008, 22, 756.6.	0.2	0
75	A Thermodynamically Balanced Kinetic Model of the Mitochondrial Na ⁺ /Ca ²⁺ Antiporter. FASEB Journal, 2009, 23, 994.1.	0.2	0
76	Mathematical Characterization of the Inhibitory Effect of Mg ²⁺ on the Kinetics of Mitochondrial Ca ²⁺ Uniporter. FASEB Journal, 2010, 24, 1065.6.	0.2	0
77	Ranolazine delays Ca ²⁺ induced mitochondrial permeability transition pore opening and membrane potential depolarization in guinea pig heart mitochondria. FASEB Journal, 2010, 24, 601.9.	0.2	0
78	Isoflurane Increases Mitochondrial Free Ca ²⁺ by Attenuating the Na ⁺ /Ca ²⁺ Exchanger Activity. FASEB Journal, 2012, 26, 888.4.	0.2	0
79	Mitochondrial sensitivity to regulatory signals in muscle energy balance: is it constant during exercise?. FASEB Journal, 2012, 26, 887.13.	0.2	0
80	Mitochondrial handling of excess Ca ²⁺ is substrate dependent with implications on ROS generation. FASEB Journal, 2012, 26, 678.17.	0.2	0
81	Characterization of Different Modes of Ca ²⁺ Uptake under Physiological Conditions in Heart Mitochondria. FASEB Journal, 2013, 27, 1209.20.	0.2	0
82	Post translationally modified cardiac mitochondrial VDAC1 gating kinetics analyzed using continuous time MCMC model. FASEB Journal, 2013, 27, 1209.15.	0.2	0
83	Substrate dependent Action of Isoflurane on Electron Transport Chain Complexes. FASEB Journal, 2013, 27, 1209.9.	0.2	0
84	Differential response of GK and WKY rat microvascular endothelial cells to a hyperglycemic environment. FASEB Journal, 2018, 32, 902.6.	0.2	0
85	Calcium Regulation of Mitochondrial Respiration is Substrate Dependent and Tissue Specific. FASEB Journal, 2018, 32, .	0.2	0
86	Control of Cardiac Mitochondrial Fuel Selection by Calcium. FASEB Journal, 2019, 33, lb313.	0.2	0
87	The Role of Calcium in the Regulation of Mitochondrial Respiration under Various Substrate Combinations in the Heart and Kidney. FASEB Journal, 2019, 33, .	0.2	0
88	Characterizing Substrate Dependent Differential Regulation of Mitochondrial Respiration in the Heart and Kidney Using Computational Modeling. FASEB Journal, 2020, 34, 1-1.	0.2	0
89	Computational/Experimental Interrogation of the Failing Heart "A Perspective on Impaired Myocardial Energetics Causes Mechanical Dysfunction in Decompensated Failing Hearts" Function, 2020, 1, zqaa022.	1.1	0
90	Progressive Alterations of Mitochondrial Function in the Kidney and Heart During the Development of Salt Induced Hypertension. FASEB Journal, 2020, 34, 1-1.	0.2	0

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91	Quantification of Mitochondrial Membrane Potential in the Isolated Rat Lung Using Rhodamine 6G. FASEB Journal, 2020, 34, 1-1.	0.2	0
92	Abstract 16: Progressive Alterations Of Mitochondrial Bioenergetics In The Kidney During The Development Of Salt-induced Hypertension. Hypertension, 2020, 76, .	1.3	0
93	Title is missing!. , 2020, 16, e1007733.		0
94	Title is missing!. , 2020, 16, e1007733.		0
95	Title is missing!. , 2020, 16, e1007733.		0
96	Title is missing!. , 2020, 16, e1007733.		0
97	Title is missing!. , 2020, 16, e1007733.		0
98	Title is missing!. , 2020, 16, e1007733.		0
99	Assessment of Mitochondrial Respiratory Function in Isolated Nephron Segments of Dahl SS Rats in Salt Induced Hypertension. FASEB Journal, 2022, 36, .	0.2	0
100	Substrateâ€Dependent Differential Regulation of Mitochondrial Bioenergetics and ROS emission in the Heart and Kidney Cortex and Outer Medulla. FASEB Journal, 2022, 36, .	0.2	0
101	Metabolomic Kidney Input and Output Analyses in Saltâ€Sensitive Hypertension. FASEB Journal, 2022, 36, .	0.2	0
102	Computational Modeling of Substrateâ€Dependent Differential Regulation of Mitochondrial Bioenergetics in the Heart and Kidney Cortex and Outer Medulla. FASEB Journal, 2022, 36, .	0.2	0
103	Depolarized Mitochondrial Membrane Potential and Protection with Duroquinone in Isolated Perfused Lungs from Rats Exposed to Hyperoxia. FASEB Journal, 2022, 36, .	0.2	0
104	Changes in Oxygen Consumption and Metabolomic Profiles in the Kidney of Spragueâ€Dawley Rat fed a Highâ€Salt Diet. FASEB Journal, 2022, 36, .	0.2	0
105	Reverse Electron Transfer is a More Dominant Source of Mitochondrial ROS Production in the Heart and Kidney Outer Medulla than in the Kidney Cortex. FASEB Journal, 2022, 36, .	0.2	0