Ranjan K Dash

List of Publications by Year in descending order

105 papers	1,519 citations	236925 25 h-index	377865 34 g-index
108 all docs	108 docs citations	108 times ranked	1597 citing authors

#	Article	IF	Citations
1	Analysis of cardiac mitochondrial Na⁺â€“Ca²⁺ exchanger kinetics with a biophysical model of mitochondrial Ca²⁺ handing suggests a 3: 1 stoichiometry. Journal of Physiology, 2008, 586, 3267-3285.	2.9	89
2	Simultaneous Bloodâ€“Tissue Exchange of Oxygen, Carbon Dioxide, Bicarbonate, and Hydrogen Ion. Annals of Biomedical Engineering, 2006, 34, 1129-1148.	2.5	64
3	Blood HbO2 and HbCO2 Dissociation Curves at Varied O2, CO2, pH, 2,3-DPG and Temperature Levels. Annals of Biomedical Engineering, 2004, 32, 1676-1693.	2.5	56
4	Mechanistic characterization of the thioredoxin system in the removal of hydrogen peroxide. Free Radical Biology and Medicine, 2015, 78, 42-55.	2.9	52
5	Simple accurate mathematical models of blood HbO2 and HbCO2 dissociation curves at varied physiological conditions: evaluation and comparison with other models. European Journal of Applied Physiology, 2016, 116, 97-113.	2.5	45
6	A Biophysically Based Mathematical Model for the Kinetics of Mitochondrial Calcium Uniporter. Biophysical Journal, 2009, 96, 1318-1332.	0.5	44
7	A Biophysically Based Mathematical Model for the Kinetics of Mitochondrial Na+-Ca2+ Antiporter. Biophysical Journal, 2010, 98, 218-230.	0.5	39
8	Role of NADH/NAD⁺transport activity and glycogen store on skeletal muscle energy metabolism during exercise: in silico studies. American Journal of Physiology - Cell Physiology, 2009, 296, C25-C46.	4.6	37
9	Dynamic buffering of mitochondrial Ca2+ during Ca2+ uptake and Na+-induced Ca2+ release. Journal of Bioenergetics and Biomembranes, 2013, 45, 189-202.	2.3	37
10	Detailed kinetics and regulation of mammalian 2-oxoglutarate dehydrogenase. BMC Biochemistry, 2011, 12, 53.	4.4	35
11	Generating rate equations for complex enzyme systems by a computer-assisted systematic method. BMC Bioinformatics, 2009, 10, 238.	2.6	34
12	A biophysically based mathematical model for the catalytic mechanism of glutathione reductase. Free Radical Biology and Medicine, 2013, 65, 1385-1397.	2.9	33
13	Effect of P2X4 and P2X7 receptor antagonism on the pressure diuresis relationship in rats. Frontiers in Physiology, 2013, 4, 305.	2.8	33
14	Determining the origins of superoxide and hydrogen peroxide in the mammalian NADH:ubiquinone oxidoreductase. Free Radical Biology and Medicine, 2014, 77, 121-129.	2.9	33
15	Modeling the calcium sequestration system in isolated guinea pig cardiac mitochondria. Journal of Bioenergetics and Biomembranes, 2013, 45, 177-188.	2.3	31
16	miR-21-5p regulates mitochondrial respiration and lipid content in H9C2 cells. American Journal of Physiology - Heart and Circulatory Physiology, 2019, 316, H710-H721.	3.2	31
17	Modeling Cellular Metabolism and Energetics in Skeletal Muscle: Large-Scale Parameter Estimation and Sensitivity Analysis. IEEE Transactions on Biomedical Engineering, 2008, 55, 1298-1318.	4.2	30
18	Mitochondrial Free [Ca2+] Increases during ATP/ADP Antiport and ADP Phosphorylation: Exploration of Mechanisms. Biophysical Journal, 2010, 99, 997-1006.	0.5	30

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19	Isoflurane modulates cardiac mitochondrial bioenergetics by selectively attenuating respiratory complexes. Biochimica Et Biophysica Acta - Bioenergetics, 2014, 1837, 354-365.	1.0	30
20	Characterization of Mg2+ Inhibition of Mitochondrial Ca2+ Uptake by a Mechanistic Model of Mitochondrial Ca2+ Uniporter. Biophysical Journal, 2011, 101, 2071-2081.	0.5	29
21	Mitochondrial targets for volatile anesthetics against cardiac ischemia-reperfusion injury. Frontiers in Physiology, 2014, 5, 341.	2.8	28
22	A class of model equations for bi-directional propagation of capillaryâ€“gravity waves. International Journal of Engineering Science, 2003, 41, 201-218.	5.0	26
23	A mechanistic mathematical model for the catalytic action ofglutathione peroxidase. Free Radical Research, 2014, 48, 487-502.	3.3	26
24	Mg2+ differentially regulates two modes of mitochondrial Ca2+ uptake in isolated cardiac mitochondria: implications for mitochondrial Ca2+ sequestration. Journal of Bioenergetics and Biomembranes, 2016, 48, 175-188.	2.3	26
25	Crosstalk between Plk1, p53, cell cycle, and G2/M DNA damage checkpoint regulation in cancer: computational modeling and analysis. Npj Systems Biology and Applications, 2021, 7, 46.	3.0	26
26	A computational model of skeletal muscle metabolism linking cellular adaptations induced by altered loading states to metabolic responses during exercise. BioMedical Engineering OnLine, 2007, 6, 14.	2.7	25
27	Mitochondrial handling of excess Ca2+ is substrate-dependent with implications for reactive oxygen speciesgeneration. Free Radical Biology and Medicine, 2013, 56, 193-203.	2.9	25
28	Title is missing!. Journal of Engineering Mathematics, 2002, 42, 1-22.	1.2	24
29	Extra-matrix Mg2+ limits Ca2+ uptake and modulates Ca2+ uptakeâ€“independent respiration and redox state in cardiac isolated mitochondria. Journal of Bioenergetics and Biomembranes, 2013, 45, 203-218.	2.3	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. PLoS ONE, 2008, 3, e3168.	2.5	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. Journal of Biological Chemistry, 2011, 286, 30816-30822.	3.4	22
32	Computational analysis of Ca²⁺ dynamics in isolated cardiac mitochondria predicts two distinct modes of Ca²⁺ uptake. Journal of Physiology, 2014, 592, 1917-1930.	2.9	22
33	Linking Pulmonary Oxygen Uptake, Muscle Oxygen Utilization and Cellular Metabolism during Exercise. Annals of Biomedical Engineering, 2007, 35, 956-969.	2.5	21
34	Characterization of Membrane Potential Dependency of Mitochondrial Ca2+ Uptake by an Improved Biophysical Model of Mitochondrial Ca2+ Uniporter. PLoS ONE, 2010, 5, e13278.	2.5	21
35	Modeling the detailed kinetics of mitochondrial cytochrome<i>c</i>oxidase: Catalytic mechanism and nitric oxide inhibition. Journal of Applied Physiology, 2016, 121, 1196-1207.	2.5	21
36	Kinetics and Regulation of Mammalian NADH-Ubiquinone Oxidoreductase (Complex I). Biophysical Journal, 2010, 99, 1426-1436.	0.5	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. Frontiers in Physiology, 2019, 10, 558.	2.8	19
38	Analytical and numerical studies of a singularly perturbed Boussinesq equation. Applied Mathematics and Computation, 2002, 126, 1-30.	2.2	18
39	A Minimal Model for the Mitochondrial Rapid Mode of Ca2+ Uptake Mechanism. PLoS ONE, 2011, 6, e21324.	2.5	18
40	Enhanced charge-independent mitochondrial free Ca2+ and attenuated ADP-induced NADH oxidation by isoflurane: Implications for cardioprotection. Biochimica Et Biophysica Acta - Bioenergetics, 2012, 1817, 453-465.	1.0	16
41	Modeling of Cellular Metabolism and Microcirculatory Transport. Microcirculation, 2008, 15, 777-793.	1.8	15
42	Integrated computational model of the bioenergetics of isolated lung mitochondria. PLoS ONE, 2018, 13, e0197921.	2.5	14
43	Slow Ca2+ Efflux by Ca2+/H+ Exchange in Cardiac Mitochondria Is Modulated by Ca2+ Re-uptake via MCU, Extra-Mitochondrial pH, and H+ Pumping by FOF1-ATPase. Frontiers in Physiology, 2018, 9, 1914.	2.8	14
44	Modeling to Link Regional Myocardial Work, Metabolism and Blood Flows. Annals of Biomedical Engineering, 2012, 40, 2379-2398.	2.5	13
45	A thermodynamically-constrained mathematical model for the kinetics and regulation of NADPH oxidase 2 complex-mediated electron transfer and superoxide production. Free Radical Biology and Medicine, 2019, 134, 581-597.	2.9	13
46	Substrate- and Calcium-Dependent Differential Regulation of Mitochondrial Oxidative Phosphorylation and Energy Production in the Heart and Kidney. Cells, 2022, 11, 131.	4.1	13
47	Weakly non-local solitary wave solutions of a singularly perturbed Boussinesq equation. Mathematics and Computers in Simulation, 2001, 55, 393-405.	4.4	12
48	Quantification of mitochondrial membrane potential in the isolated rat lung using rhodamine 6G. Journal of Applied Physiology, 2020, 128, 892-906.	2.5	12
49	A Biophysical Model of the Mitochondrial ATP-Mg/Pi Carrier. Biophysical Journal, 2012, 103, 1616-1625.	0.5	11
50	Detection of hydrogen peroxide production in the isolated rat lung using Amplex red. Free Radical Research, 2018, 52, 1052-1062.	3.3	11
51	Mechanistic computational modeling of the kinetics and regulation of NADPH oxidase 2 assembly and activation facilitating superoxide production. Free Radical Research, 2020, 54, 695-721.	3.3	10
52	Substrate-dependent differential regulation of mitochondrial bioenergetics in the heart and kidney cortex and outer medulla. Biochimica Et Biophysica Acta - Bioenergetics, 2022, 1863, 148518.	1.0	10
53	A sizeâ€modified poissonâ€“boltzmann ion channel model in a solvent of multiple ionic species: Application to voltageâ€dependent anion channel. Journal of Computational Chemistry, 2020, 41, 218-230.	3.3	9
54	Letter to the Editor: Mitochondrial cytochrome <i>c</i> oxidase: mechanism of action and role in regulating oxidative phosphorylation. Journal of Applied Physiology, 2015, 119, 157-157.	2.5	7

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55	Network mechanisms and dysfunction within an integrated computational model of progression through mitosis in the human cell cycle. PLoS Computational Biology, 2020, 16, e1007733.	3.2	7
56	Can Mathematical Modeling Explain the Measured Magnitude of the Second Gas Effect?. Anesthesiology, 2018, 128, 1075-1083.	2.5	6
57	Estimating in Vitro Mitochondrial Oxygen Consumption During Muscle Contraction and Recovery: A Novel Approach that Accounts for Diffusion. Annals of Biomedical Engineering, 2005, 33, 343-355.	2.5	4
58	Depolarized mitochondrial membrane potential and protection with duroquinone in isolated perfused lungs from rats exposed to hyperoxia. Journal of Applied Physiology, 2022, 132, 346-356.	2.5	4
59	An efficient deconvolution algorithm for estimating oxygen consumption during muscle activities. Computer Methods and Programs in Biomedicine, 2007, 85, 247-256.	4.7	3
60	An improved algorithm and its parallel implementation for solving a general blood-tissue transport and metabolism model. Journal of Computational Physics, 2009, 228, 7850-7861.	3.8	3
61	Effect of net gas volume changes on alveolar and arterial gas partial pressures in the presence of ventilation-perfusion mismatch. Journal of Applied Physiology, 2019, 126, 558-568.	2.5	3
62	Integrated Computational Model of Lung Tissue Bioenergetics. Frontiers in Physiology, 2019, 10, 191.	2.8	2
63	Elucidating the roles of solubility and ventilation-perfusion mismatch in the second gas effect using a two-step model of gas exchange. Journal of Applied Physiology, 2020, 128, 1587-1593.	2.5	2
64	The Pathway for Oxygen: Tutorial Modelling on Oxygen Transport from Air to Mitochondrion. Advances in Experimental Medicine and Biology, 2016, 876, 103-110.	1.6	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. FASEB Journal, 2022, 36, .	0.5	1
67	Fluorescein Clearance Kinetics in Blood and Bile Indicates Hepatic Ischemia-Reperfusion Injury in Rats. American Journal of Physiology - Renal Physiology, 0, , .	3.4	1
68	Characterizing The Calcium Uniporter: Effect Of Partial Depolarization On Calcium Flux. Biophysical Journal, 2009, 96, 244a.	0.5	0
69	Buffer Magnesium Limits Mitochondrial Calcium Uptake but not Matrix Calcium Buffering in Response to ADP. Biophysical Journal, 2010, 98, 736a.	0.5	0
70	Markov Chain Monte Carlo Model Analysis of Cardiac Mitochondrial VDAC1 Kinetics. Biophysical Journal, 2014, 106, 761a.	0.5	0
71	Modeling Mechanisms of Cardiac L-Type Ca2+ Channel Regulation: Interactions of Voltage, Ca2+, and Isoflurane. Biophysical Journal, 2018, 114, 304a.	0.5	0
72	High Salt Diet Increases Renal Oxygen Consumption in Spragueâ€Dawley Rats. FASEB Journal, 2021, 35, .	0.5	0

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73	Integration of a Randomâ€Rapidâ€Equilibrium Binding Model of NOX2 Assembly with a Fiveâ€State Rateâ€Limiting Model of NOX2 Electron Flow facilitating Superoxide Production. FASEB Journal, 2021, 35, .	0.5	0
74	ADP and CCCP â€induced increases in mitochondrial free Ca 2+ : greater contribution of matrix Ca 2+ buffering by ATP/ADP. FASEB Journal, 2008, 22, 756.6.	0.5	0
75	A Thermodynamically Balanced Kinetic Model of the Mitochondrial Na + â€Ca 2+ Antiporter. FASEB Journal, 2009, 23, 994.1.	0.5	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.	0.5	0
77	Ranolazine delays Ca 2+ â€induced mitochondrial permeability transition pore opening and membrane potential depolarization in guinea pig heart mitochondria. FASEB Journal, 2010, 24, 601.9.	0.5	0
78	Isoflurane Increases Mitochondrial Free Ca 2+ by Attenuating the Na + /Ca 2+ Exchanger Activity. FASEB Journal, 2012, 26, 888.4.	0.5	0
79	Mitochondrial sensitivity to regulatory signals in muscle energy balance: is it constant during exercise?. FASEB Journal, 2012, 26, 887.13.	0.5	0
80	Mitochondrial handling of excess Ca 2+ is substrateâ€dependent with implications on ROS generation. FASEB Journal, 2012, 26, 678.17.	0.5	0
81	Characterization of Different Modes of Ca 2+ Uptake under Physiological Conditions in Heart Mitochondria. FASEB Journal, 2013, 27, 1209.20.	0.5	0
82	Postâ€translationally modified cardiac mitochondrial VDAC1 gating kinetics analyzed using continuousâ€time MCMC model. FASEB Journal, 2013, 27, 1209.15.	0.5	0
83	Substrate â€dependent Action of Isoflurane on Electron Transport Chain Complexes. FASEB Journal, 2013, 27, 1209.9.	0.5	0
84	Differential response of GK and WKY rat microvascular endothelial cells to a hyperglycemic environment. FASEB Journal, 2018, 32, 902.6.	0.5	0
85	Calcium Regulation of Mitochondrial Respiration is Substrate Dependent and Tissue Specific. FASEB Journal, 2018, 32, .	0.5	0
86	Control of Cardiac Mitochondrial Fuel Selection by Calcium. FASEB Journal, 2019, 33, lb313.	0.5	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, .	0.5	0
88	Characterizing Substrate Dependent Differential Regulation of Mitochondrial Respiration in the Heart and Kidney Using Computational Modeling. FASEB Journal, 2020, 34, 1-1.	0.5	0
89	Computational/Experimental Interrogation of the Failing Heartâ€"A Perspective on â€œImpaired Myocardial Energetics Causes Mechanical Dysfunction in Decompensated Failing Heartsâ€• Function, 2020, 1, zqaa022.	2.3	0
90	Progressive Alterations of Mitochondrial Function in the Kidney and Heart During the Development of Saltâ€Induced Hypertension. FASEB Journal, 2020, 34, 1-1.	0.5	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.	0.5	0
92	Abstract 16: Progressive Alterations Of Mitochondrial Bioenergetics In The Kidney During The Development Of Salt-induced Hypertension. Hypertension, 2020, 76, .	2.7	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, .	0.5	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, .	0.5	0
101	Metabolomic Kidney Input and Output Analyses in Saltâ€Sensitive Hypertension. FASEB Journal, 2022, 36, .	0.5	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, .	0.5	0
103	Depolarized Mitochondrial Membrane Potential and Protection with Duroquinone in Isolated Perfused Lungs from Rats Exposed to Hyperoxia. FASEB Journal, 2022, 36, .	0.5	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, .	0.5	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, .	0.5	0