Marko Vendelin

List of Publications by Year
in descending order

90 papers	1,945 citations	279487 23 h-index	264894 42 g-index
91 all docs	91 docs citations	91 times ranked	1858 citing authors

#	Article	IF	Citations
1	Cardiac system bioenergetics: metabolic basis of the Frank-Starling law. Journal of Physiology, 2006, 571, 253-273.	1.3	212
2	Mitochondrial regular arrangement in muscle cells: a â€œcrystal-likeâ€•pattern. American Journal of Physiology - Cell Physiology, 2005, 288, C757-C767.	2.1	174
3	Regulation of mitochondrial respiration in heart cells analyzed by reaction-diffusion model of energy transfer. American Journal of Physiology - Cell Physiology, 2000, 278, C747-C764.	2.1	142
4	Optimizing ventricular fibers: uniform strain or stress, but not ATP consumption, leads to high efficiency. American Journal of Physiology - Heart and Circulatory Physiology, 2002, 283, H1072-H1081.	1.5	122
5	Heterogeneity of ADP Diffusion and Regulation of Respiration in Cardiac Cells. Biophysical Journal, 2003, 84, 3436-3456.	0.2	90
6	Intracellular diffusion of adenosine phosphates is locally restricted in cardiac muscle. Molecular and Cellular Biochemistry, 2004, 256, 229-241.	1.4	83
7	Role of the creatine/phosphocreatine system in the regulation of mitochondrial respiration. Acta Physiologica Scandinavica, 2000, 168, 635-641.	2.3	77
8	Metabolic consequences of functional complexes of mitochondria,myofibrils and sarcoplasmic reticulum in muscle cells. Journal of Experimental Biology, 2003, 206, 2059-2072.	0.8	77
9	Regulation of respiration in brain mitochondria and synaptosomes: restrictions of ADP diffusion inÄsitu, roles of tubulin, and mitochondrial creatine kinase. Molecular and Cellular Biochemistry, 2008, 318, 147-165.	1.4	77
10	Application of regularized Richardson-Lucy algorithm for deconvolution of confocal microscopy images. Journal of Microscopy, 2011, 243, 124-140.	0.8	75
11	Analysis of Functional Coupling: Mitochondrial Creatine Kinase and Adenine Nucleotide Translocase. Biophysical Journal, 2004, 87, 696-713.	0.2	67
12	Anisotropic diffusion of fluorescently labeled ATP in rat cardiomyocytes determined by raster image correlation spectroscopy. American Journal of Physiology - Cell Physiology, 2008, 295, C1302-C1315.	2.1	67
13	The Creatine Kinase Phosphotransfer Network: Thermodynamic and Kinetic Considerations, the Impact of the Mitochondrial Outer Membrane and Modelling Approaches. , 2007, 46, 27-65.		57
14	Functional coupling of adenine nucleotide translocase and mitochondrial creatine kinase is enhanced after exercise training in lung transplant skeletal muscle. American Journal of Physiology - Regulatory Integrative and Comparative Physiology, 2005, 289, R1144-R1154.	0.9	56
15	Three-dimensional mitochondrial arrangement in ventricular myocytes: from chaos to order. American Journal of Physiology - Cell Physiology, 2006, 291, C1148-C1158.	2.1	40
16	Calcium-induced contraction of sarcomeres changes the regulation of mitochondrial respiration in permeabilized cardiac cells. FEBS Journal, 2005, 272, 3145-3161.	2.2	36
17	Analysis of Molecular Movement Reveals Latticelike Obstructions to Diffusion in Heart Muscle Cells. Biophysical Journal, 2012, 102, 739-748.	0.2	31
18	On the complexity of signal propagation in nerve fibres. Proceedings of the Estonian Academy of Sciences, 2018, 67, 28.	0.9	31

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19	Unchanged mitochondrial organization and compartmentation of high-energy phosphates in creatine-deficient GAMT^{â^'/â^'}mouse hearts. American Journal of Physiology - Heart and Circulatory Physiology, 2013, 305, H506-H520.	1.5	30
20	Restricted ADP movement in cardiomyocytes: Cytosolic diffusion obstacles are complemented with a small number of open mitochondrial voltage-dependent anion channels. Journal of Molecular and Cellular Cardiology, 2016, 97, 197-203.	0.9	30
21	Tight Coupling of Na+/K+-ATPase with Glycolysis Demonstrated in Permeabilized Rat Cardiomyocytes. PLoS ONE, 2014, 9, e99413.	1.1	29
22	ADP Compartmentation Analysis Reveals Coupling between Pyruvate Kinase and ATPases in Heart Muscle. Biophysical Journal, 2010, 98, 2785-2793.	0.2	26
23	Diffusion Restrictions Surrounding Mitochondria: A Mathematical Model of Heart Muscle Fibers. Biophysical Journal, 2009, 97, 443-452.	0.2	25
24	Modulation of Energy Transfer Pathways between Mitochondria and Myofibrils by Changes in Performance of Perfused Heart. Journal of Biological Chemistry, 2010, 285, 37240-37250.	1.6	24
25	Cardiac Mechanoenergetics Replicated by Cross-Bridge Model. Annals of Biomedical Engineering, 2000, 28, 629-640.	1.3	23
26	Real-time determination of sarcomere length of a single cardiomyocyte during contraction. American Journal of Physiology - Cell Physiology, 2013, 304, C519-C531.	2.1	22
27	Permeabilized Rat Cardiomyocyte Response Demonstrates Intracellular Origin of Diffusion Obstacles. Biophysical Journal, 2011, 101, 2112-2121.	0.2	21
28	ADP Protects Cardiac Mitochondria under Severe Oxidative Stress. PLoS ONE, 2013, 8, e83214.	1.1	21
29	Molecular Dynamics Simulations of Creatine Kinase and Adenine Nucleotide Translocase in Mitochondrial Membrane Patch. Journal of Biological Chemistry, 2012, 287, 7467-7476.	1.6	20
30	Intracellular energetic units in healthy and diseased hearts. Experimental and Clinical Cardiology, 2005, 10, 173-83.	1.3	17
31	Intracellular diffusion restrictions in isolated cardiomyocytes from rainbow trout. BMC Cell Biology, 2009, 10, 90.	3.0	15
32	The location of energetic compartments affects energetic communication in cardiomyocytes. Frontiers in Physiology, 2014, 5, 376.	1.3	14
33	Bidirectionality and Compartmentation of Metabolic Fluxes Are Revealed in the Dynamics of Isotopomer Networks. International Journal of Molecular Sciences, 2009, 10, 1697-1718.	1.8	12
34	Droplet image analysis with user-friendly freeware CellProfiler. Analytical Methods, 2020, 12, 2287-2294.	1.3	11
35	Hierarchical Internal Variables Reflecting Microstructural Properties: Application to Cardiac Muscle Contraction. Journal of Non-Equilibrium Thermodynamics, 2000, 25, .	2.4	10
36	IOCBIO Sparks detection and analysis software. PeerJ, 2019, 7, e6652.	0.9	10

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37	System Analysis of Cardiac Energeticsâ€“Excitationâ€“Contraction Coupling: Integration of Mitochondrial Respiration, Phosphotransfer Pathways, Metabolic Pacing, and Substrate Supply in the Heart. , 0, , 367-405.		6
38	Principles of Mathematical Modeling andin Silico Studies of Integrated Cellular Energetics. , 0, , 407-433.		6
39	Marker enzyme activities in hindleg from creatine-deficient AGAT and GAMT KO mice â€“ differences between models, muscles, and sexes. Scientific Reports, 2020, 10, 7956.	1.6	6
40	Revealing calcium fluxes by analyzing inhibition dynamics in action potential clamp. Journal of Molecular and Cellular Cardiology, 2016, 100, 93-108.	0.9	5
41	Respiration of permeabilized cardiomyocytes from mice: no sex differences, but substrate-dependent changes in the apparent ADP-affinity. Scientific Reports, 2019, 9, 12592.	1.6	5
42	Energy-efficiency of Cardiomyocyte Stimulation with Rectangular Pulses. Scientific Reports, 2019, 9, 13307.	1.6	5
43	Systems biology of the mitochondrion. American Journal of Physiology - Cell Physiology, 2006, 291, C1101-C1103.	2.1	4
44	Cardiac expression and location of hexokinase changes in a mouse model of pure creatine deficiency. American Journal of Physiology - Heart and Circulatory Physiology, 2021, 320, H613-H629.	1.5	4
45	Response to Aliev et al.: PCr and ATP Export Both Participate in Energy Transfer from Mitochondria in Normoxic Heart. Journal of Biological Chemistry, 2010, 285, le22.	1.6	3
46	Symbolic flux analysis for genome-scale metabolic networks. BMC Systems Biology, 2011, 5, 81.	3.0	3
47	Metabolic compartmentation in rainbow trout cardiomyocytes: coupling of hexokinase but not creatine kinase to mitochondrial respiration. Journal of Comparative Physiology B: Biochemical, Systemic, and Environmental Physiology, 2017, 187, 103-116.	0.7	3
48	Multi-nodal nano-actuator pacemaker for energy-efficient stimulation of cardiomyocytes. Nano Communication Networks, 2019, 22, 100270.	1.6	3
49	Altered calcium handling in cardiomyocytes from arginine-glycine amidinotransferase-knockout mice is rescued by creatine. American Journal of Physiology - Heart and Circulatory Physiology, 2021, 320, H805-H825.	1.5	3
50	Cross-Bridge Group Ensembles Describing Cooperativity in Thermodynamically Consistent Way. PLoS ONE, 2015, 10, e0137438.	1.1	3
51	IOCBIO Kinetics: An open-source software solution for analysis of data traces. PLoS Computational Biology, 2020, 16, e1008475.	1.5	3
52	Cardiac mechanoenergetics in silico. Neuroendocrinology Letters, 2002, 23, 13-20.	0.2	3
53	Cardiac muscle regulatory units are predicted to interact stronger than neighboring cross-bridges. Scientific Reports, 2020, 10, 5530.	1.6	2
54	Mathematical Modelling of Cardiac Mechanoenergetics. , 2006, , 369-378.		2

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55	Analysis of Intracellular ADP Compartmentation Reveals Functional Coupling between Pyruvate Kinase and ATPases in Rat Cardiomyocytes. Biophysical Journal, 2010, 98, 734a.	0.2	1
56	3D Confocal Microscope Image Enhancement by Richardson-Lucy Deconvolution Algorithm with Total Variation Regularization: Parameters Estimation. Biophysical Journal, 2010, 98, 178a.	0.2	1
57	Mathematical model of energy transfer in hearts with inhibited or ablated creatine kinase system. Magnetic Resonance Materials in Physics, Biology, and Medicine, 1998, 6, 124-125.	1.1	0
58	Using rainbow trout cardiomyocytes to identify the diffusion restrictions found specifically in oxidative muscles. Comparative Biochemistry and Physiology Part A, Molecular & Integrative Physiology, 2009, 153, S85.	0.8	0
59	Isotopomeric 13C Labeling of Amino Acids Reveal Compartmentation in Saccharomyces uvarum. Biophysical Journal, 2009, 96, 308a.	0.2	0
60	Anisotropic Diffusion Of Fluorescently Labeled Atp In Cardiomyocytes Determined By Raster Image Correlation Spectroscopy. Biophysical Journal, 2009, 96, 624a.	0.2	0
61	Computational Model Of Citric Acid Cycle And Oxidative Phosphorylation In Mitochondria. Biophysical Journal, 2009, 96, 242a.	0.2	0
62	Mechanoenergetics of Actomyosin Interaction Analyzed by Cross-Bridge Model. Biophysical Journal, 2009, 96, 621a.	0.2	0
63	Kinetic Studies of Intracellular Compartmentalization in Permeabilized Rat Cardiomyocytes. Biophysical Journal, 2009, 96, 241a-242a.	0.2	0
64	Diffusion Restrictions in Cardiomyocytes from Low-Performance Heart. Biophysical Journal, 2010, 98, 734a-735a.	0.2	0
65	Determination of Regional Diffusion Coefficients of Fluorescent ATP in Rat Cardiomyocytes. Biophysical Journal, 2010, 98, 749a.	0.2	0
66	Mapping Diffusion Coefficients of Fluorescent Dyes in Cardiomyocytes. Biophysical Journal, 2011, 100, 470a.	0.2	0
67	Influence of SERCA and Actomyosin ATPase on Respiration Kinetics in Permeabilized Rat Cardiomyocytes. Biophysical Journal, 2011, 100, 462a.	0.2	0
68	Regulation of Mitochondrial Permeability Transition by ADP. Biophysical Journal, 2011, 100, 458a-459a.	0.2	0
69	Sensitivity Analysis of Flux Determination in Heart by H218O -provided Labeling Using a Dynamic Isotopologue Model of Energy Transfer Pathways. PLoS Computational Biology, 2012, 8, e1002795.	1.5	0
70	Mathematical Model of Oxygen Labeling to Study Heart Energy Transfer. Biophysical Journal, 2012, 102, 141a.	0.2	0
71	Analysis of Molecular Movement Reveals Lattice like Obstructions to Diffusion in Heart Muscle Cells. Biophysical Journal, 2012, 102, 142a-143a.	0.2	0
72	Permeabilized Rat Cardiomyocyte Response Demonstrates Intracellular Origin of Diffusion Obstacles. Biophysical Journal, 2012, 102, 572a.	0.2	0

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73	Incorporating Cooperativity into Huxley-Type Cross-Bridge Models in Thermodynamically Consistent Way. Biophysical Journal, 2012, 102, 357a.	0.2	0
74	Distribution of Intracellular ADP Diffusion Restriction in Trout Cardiomyocytes. Biophysical Journal, 2012, 102, 572a.	0.2	0
75	Using Raster Image Correlation Spectroscopy for the Detection of ADP/ATP Diffusion Restrictions in Rat Cardiomyocytes. Biophysical Journal, 2013, 104, 509a.	0.2	0
76	Mitochondrial Proteins and Molecular Interaction with Cardiolipin at Atomistic Level. Biophysical Journal, 2013, 104, 665a.	0.2	0
77	Real-Time Determination of Sarcomere Length of a Single Cardiomyocyte during Contraction. Biophysical Journal, 2013, 104, 509a.	0.2	0
78	Na/K ATPase Affects Respiration Kinetics and Provides Evidence for Intracellular Diffusion Restrictions in Permeabilized Rat Cardiomyocyes. Biophysical Journal, 2013, 104, 313a.	0.2	0
79	Unchanged Mitochondrial Organization and Compartmentation in Creatine Deficient GAMT-/- Mouse Heart. Biophysical Journal, 2013, 104, 314a-315a.	0.2	0
80	Distribution of Intracellular ADP Diffusion Restriction in Trout Cardiomyocytes. Biophysical Journal, 2013, 104, 303a.	0.2	0
81	Cardiomyocytes from Creatine-Deficient Mice Lacking L-Arginine:Glycine Amidinotransferase (AGAT) Show No Changes in Mitochondrial Organization and Cellular Compartmentation. Biophysical Journal, 2013, 104, 303a.	0.2	0
82	The Influence of Alternative Energy Transfer Systems on Respiration in Creatine-Deficient Mouse Cardiomyocytes. Biophysical Journal, 2016, 110, 474a-475a.	0.2	0
83	Using Action Potential Clamp Data to Determine the Calcium Fluxes and Contributions in Excitation-Contraction Coupling in Vivo in Cardiomyocytes. Biophysical Journal, 2016, 110, 100a-101a.	0.2	0
84	Number of Open Mitochondrial Voltage-Dependent Anion Channels and Intracellular Diffusion Coefficient in Heart Muscle. Biophysical Journal, 2016, 110, 475a.	0.2	0
85	Cross-Bridge Group Ensembles Describing Cooperativity in Thermodynamically Consistent Way. Biophysical Journal, 2016, 110, 463a.	0.2	0
86	Cardiac Muscle Regulatory Units are Predicted to Interact Stronger than Neighboring Cross-Bridges. Biophysical Journal, 2018, 114, 549a.	0.2	0
87	The Absence of Active Creatine Kinase System Influences Cardiac Calcium Handling. Biophysical Journal, 2019, 116, 96a.	0.2	0
88	Iocbio Sparks Detection and Analysis Software. Biophysical Journal, 2019, 116, 384a.	0.2	0
89	Creatine-Phosphocreatine Pathway in the Intracellular Networks of Energy Transfer and Signal Transduction in Muscle Cells. Medical Science Symposia Series, 2000, , 1-9.	0.0	0
90	A Cross-Bridge Model Describing the Mechanoenergetics of Actomyosin Interaction. , 2013, , 91-102.		0