

The absence of active creatine kinase system influences cardiac calcium handling

Laasmaa, Martin; Branovets, Jelena; Karro, Niina; Birkedal Nielsen, Rikke; Vendelin, Marko Biophysical journal 2019 / Poster 484 ; p. 96a <https://doi.org/10.1016/j.bpj.2018.11.558>

Albumin affects the stability, oligomerization and ligand interactions of lipoprotein lipase

Risti, Robert; Gunn, Kathryn H.; Hiis-Hommuk, Kristofer; Seeba, Natjan-Naatan; Villo, Ly; Vendelin, Marko; Neher, Saskia B.; Lõokene, Aivar Atherosclerosis 2022 / p. 68 <https://doi.org/10.1016/j.atherosclerosis.2022.06.428>

Albumin and heparin together or separately — different outcome on lipoprotein lipase oligomerization and stability

Risti, Robert; Gunn, K.; Villo, Ly; Hiis-Hommuk, Kristofer; Seeba, Natjan-Naatan; Karimi, Hamed; Vendelin, Marko; Neher, Saskia B.; Lõokene, Aivar FEBS Open Bio 2023 / p. 223 <https://doi.org/10.1002/2211-5463.13646>

Altered calcium handling in cardiomyocytes from arginine-glycine amidinotransferase-knockout mice is rescued by creatine

Laasmaa, Martin; Branovets, Jelena; Barsunova, Karina; Karro, Niina; Lygate, Craig A.; Birkedal Nielsen, Rikke; Vendelin, Marko American journal of physiology-heart and circulatory physiology 2020 / p. H805-H825 <https://doi.org/10.1152/ajpheart.00300.2020>
[Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Analysis of molecular movement reveals latticelike obstructions to diffusion in heart muscle cells

Illaste, Ardo; Laasmaa, Martin; Peterson, Pearu; Vendelin, Marko Biophysical journal 2012 / p. 739-748 : ill <https://www.sciencedirect.com/science/article/pii/S0006349512000859>

Analysis of molecular movements in cardiac myocytes = Molekulaarse te liikumiste analüüs südame lihaskiududes

Illaste, Ardo 2012 <https://digi.lib.ttu.ee/i/?648>

Bidirectionality and compartmentation of metabolic fluxes are revealed in the dynamics of isotopomer networks

Schryer, David; Peterson, Pearu; Paalme, Toomas; Vendelin, Marko International journal of molecular sciences 2009 / 4, p. 1697-1718 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2680642/>

Biofüüsikud loodavad südamerakkude segadusse ajamisega haigusi ennetada

Alvela, Ain novaator.err.ee 2023 [Biofüüsikud loodavad südamerakkude segadusse ajamisega haigusi ennetada](https://novaator.err.ee/2023/biofuusikud-loodavad-sudamerakkude-segadusse-ajamisega-haigusi-ennetada)

Cardiac dynamics involving arrhythmias and continuum mechanics

Engelbrecht, Jüri; Vendelin, Marko; Kongas, Olav; Herten, R. von Trends in continuum physics TRECOP 98 1999 / p. 113-118

Cardiac expression and location of hexokinase changes in a mouse model of pure creatine deficiency

Branovets, Jelena; Karro, Niina; Barsunova, Karina; Laasmaa, Martin; Lygate, Craig A.; Vendelin, Marko; Birkedal Nielsen, Rikke American journal of physiology-heart and circulatory physiology 2021 / p. H613-H629 <https://doi.org/10.1152/ajpheart.00188.2020>
[Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Cardiac mechanoenergetics in silico

Vendelin, Marko 2001 http://www.eester.ee/record=b1556271*est

Cardiac muscle regulatory units are predicted to interact stronger than neighboring cross-bridges

Kalda, Mari; Vendelin, Marko Scientific reports 2020 / art. 5530, 13 p. : ill <https://doi.org/10.1038/s41598-020-62452-7> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Cardiac muscle regulatory units are predicted to interact stronger than neighboring cross-bridges

Kalda, Mari; Vendelin, Marko Biophysical journal 2018 / p. 549a <https://doi.org/10.1016/j.bpj.2017.11.2998>

Cardiomyocytes from female compared to male mice have larger ryanodine receptor clusters and higher calcium spark frequency

Laasmaa, Martin; Branovets, Jelena; Stolova, Jekaterina; Shen, Xin; Rätsepso, Triinu; Balodis, Mihkel Jaan; Grahv, Cärolin; Hendrikson, Eliise; Louch, William Edward; Birkedal Nielsen, Rikke; Vendelin, Marko The journal of physiology 2023 / p. 4033-4052 : ill <https://doi.org/10.1113/JP284515>

Cellprofiler is a fit tool for droplet digital image analysis

Bartkova, Simona; Vendelin, Marko; Pata, Pille; Scheler, Ott 23rd International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS 2019) Basel, Switzerland, 27 – 31 October 2019 2020 / art. 163704, p. 1644-1645 <https://doi.org/10.1101/811869>

Combined action of albumin and heparin regulates lipoprotein lipase oligomerization, stability, and ligand interactions

Risti, Robert; Gunn, Kathryn H.; Hiis-Hommuk, Kristofer; Seeba, Natjan-Naatan; Karimi, Hamed; Villo, Ly; Vendelin, Marko; Neher, Saskia B.; Lõokene, Aivar PLoS ONE 2023 / art. e0283358, 24 p. : ill <https://doi.org/10.1371/journal.pone.0283358>

Compromised creatine kinase energy transfer leads to adaptations in cardiac excitation-contraction coupling that are distinct from changes associated with heart failure : [manuscript]

Branovets, Jelena; Kalda, Mari; Laasmaa, Martin; Stolova, Jekaterina; Shen, Xin; Balodis, Mihkel Jaan; Grahv, Cärolin; Hendrikson, Eliise; Louch, William Edward; Birkedal Nielsen, Rikke; Vendelin, Marko 2022

Cross-bridge group ensembles describing cooperativity in thermodynamically consistent way

Kalda, Mari; Peterson, Pearu; Vendelin, Marko PLoS ONE 2015 / p. 1-26 : ill <https://doi.org/10.1371/journal.pone.0137438>

Cross-bridge group ensembles describing cooperativity in thermodynamically consistent way

Kalda, Mari; Peterson, Pearu; Vendelin, Marko Biophysical journal 2016 / p. 463a <https://doi.org/10.1016/j.bpj.2015.11.2481>

Droplet image analysis with user-friendly freeware CellProfiler

Bartkova, Simona; Vendelin, Marko; Sanka, Immanuel; Pata, Pille; Scheler, Ott Analytical methods 2020 / p. 2287-2294 : ill <https://doi.org/10.1039/D0AY00031K> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Energy-efficiency of cardiomyocyte stimulation with rectangular pulses

Laasmaa, Martin; Lu, Pengfei; Veletic, Mladen; Louch, William Edward; Bergsland, Jacob; Balasingham, Ilango; Vendelin, Marko Scientific reports 2019 / art. 13307, p. 1-9 <https://doi.org/10.1038/s41598-019-49791-w> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Estimation of diffusion restrictions in cardiomyocytes using kinetic measurements = Difusioonitakistuste hindamine kardiomüotsüütides kasutades kineetilisi mõõtmisi

Sepp, Mervi 2013 https://www.ester.ee/record=b2987727*est

Heterogeneity of diffusion restrictions in cardiomyocytes = Difusioonitakistuste heterogeensus südamelihaskudes

Jepihina, Natalja 2017 <https://digi.lib.ttu.ee/i/?8085>

The influence of alternative energy transfer systems on respiration in creatine-deficient mouse cardiomyocytes

Branovets, Jelena; Jugai, Svetlana; Vendelin, Marko; Birkedal Nielsen, Rikke Biophysical journal 2016 / p. 474a-475a <https://doi.org/10.1016/j.bpj.2015.11.2538>

Intracellular compartmentalization shapes energy transfer – differences between adenylate kinase activities in homogenate and permeabilized cardiomyocytes : [manuscript]

Branovets, Jelena; Vendelin, Marko; Birkedal Nielsen, Rikke 2022

Intracellular diffusion of adenosine phosphates is locally restricted in cardiac muscle

Vendelin, Marko; Eimre, Margus; Seppet, Evelin; Peet, Nadežda; Andrienko, Tatiana; Lemba, Maris; Engelbrecht, Jüri; Seppet, Enn; Saks, Valdur Molecular and cellular biochemistry 2004 / p. 229-241 : ill

IOCBIO Kinetics : an open-source software solution for analysis of data traces

Vendelin, Marko; Laasmaa, Martin; Kalda, Mari; Branovets, Jelena; Karro, Niina; Barsunova, Karina; Birkedal Nielsen, Rikke PLoS computational biology 2020 / art. e1008475 <https://doi.org/10.1371/journal.pcbi.1008475> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

IOCBIO Sparks detection and analysis software

Laasmaa, Martin; Karro, Niina; Birkedal Nielsen, Rikke; Vendelin, Marko Biophysical journal 2019 / art. 1900-Pos ; p. 384a <https://doi.org/10.1016/j.bpj.2018.11.2080>

IOCBIO Sparks detection and analysis software

Laasmaa, Martin; Karro, Niina; Birkedal Nielsen, Rikke; Vendelin, Marko PeerJ 2019 / art. e6652, 28 p. : ill <https://doi.org/10.7717/peerj.6652> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Isotopomeric ¹³C labeling of amino acids reveal compartmentation in Saccharomyces uvarum

Schryer, David; Peterson, Pearu; Paalme, Toomas; Vendelin, Marko Biophysical journal 2009 / 3, Supplement 1, p. 308a

Kahe tuhande kaheksanda aasta teaduspreemia geo- ja bioteaduste alal tööde tsükli "Molekulaarne süsteemne bioenergeetika" eest : [Valdur Saks (kollektiivi juht), Jüri Engelbrecht, Enn Seppet, Marko Vendelin]

Saks, Valdur; Engelbrecht, Jüri; Seppet, Enn; Vendelin, Marko Teadusmõtte Küberneetika Instituudis 2010 / lk. 120-130 : ill

Linear dependence of myocardium oxygen consumption on stress-strain area predicted by cross-bridge model

Vendelin, Marko; Bovendeerd, Peter; Arts, Theo; Engelbrecht, Jüri; Campen, Dick H. van Medical & biological engineering & computing 1999 / Suppl. 1, Proceedings of the 11th Nordic-Baltic Conference on Biomedical Engineering, June 6-10, 1999, Tallinn, Estonia, p. 63-66: ill

Marker enzyme activities in hindleg from creatine-deficient AGAT and GAMT KO mice - differences between models,

muscles, and sexes

Barsunova, Karina; Vendelin, Marko; Birkedal Nielsen, Rikke Scientific reports 2020 / Art. 7956, 9 p

<https://doi.org/10.1038/s41598-020-64740-8> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Mechanoenergetics of a single cardiomyocyte = Ühe südameraku mehaanoenergeetika

Kalda, Mari 2015

Metabolic compartmentation in rainbow trout cardiomyocytes : coupling of hexokinase but not creatine kinase to mitochondrial respiration

Karro, Niina; Sepp, Mervi; Jugai, Svetlana; Laasmaa, Martin; Vendelin, Marko; Birkedal Nielsen, Rikke Journal of comparative physiology B 2017 / p. 103-116 : ill <https://doi.org/10.1007/s00360-016-1025-x>

Metabolic flux analysis of compartmentalized systems using dynamic isotopologue modeling = Isotopoloogilise modelleerimise rakendamine heterogeensete bioloogiliste süsteemide ainevahetusvoo analüüsis

Schryer, David 2012 https://www.ester.ee/record=b2776763*est

Microstructure described by hierarchical internal variables

Engelbrecht, Jüri; Vendelin, Marko Rendiconti del Seminario Matematico (Università e Politecnico di Torino) 2000 / 83-91

Modeling of the coupled enzyme systems : model of mitochondrial creatine kinase (miCK) and adenine nucleotide translocase (ANT) coupling

Vendelin, Marko; Anmann, Tiia; Käämbre, Tuuli; Sikk, Peeter; Saks, Valdur Biophysical Society meeting abstracts : Biophysical journal supplement 2007 / p. 660A

Molecular dynamics simulations of creatine kinase and adenine nucleotide translocase in mitochondrial membrane patch

Karo, Jaanus; Peterson, Pearu; Vendelin, Marko The journal of biological chemistry 2012 / p. 7467-7476 : ill

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3293576/>

Molekulaarne süsteemne bioenergeetika : kommentaar Eesti Vabariigi teaduse aastapreemia pälvinud tööde tsüklile

Saks, Valdur; Engelbrecht, Jüri; Seppet, Enn; Vendelin, Marko Tallinna Tehnikaülikooli aastaraamat 2008 2009 / lk. 291-298 : ill

Multi-nodal nano-actuator pacemaker for energy-efficient stimulation of cardiomyocytes

Lu, Pengfei; Veletic, Mladen; Laasmaa, Martin; Vendelin, Marko Nano Communication Networks 2019 / art. 100270, 11 p. : ill

<https://doi.org/10.1016/j.nancom.2019.100270> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Number of open mitochondrial voltage-dependent anion channels and intracellular diffusion coefficient in heart muscle

Simson, Päivo; Jepihhina, Natalja; Laasmaa, Martin; Branovets, Jelena; Peterson, Pearu; Birkedal Nielsen, Rikke;

Vendelin, Marko Biophysical journal 2016 / p. 475a <https://doi.org/10.1016/j.bpj.2015.11.2540>

On the complexity of signal propagation in nerve fibres

Engelbrecht, Jüri; Peets, Tanel; Tamm, Kert; Laasmaa, Martin; Vendelin, Marko Proceedings of the Estonian Academy of

Sciences 2018 / p. 28-38 : ill <https://doi.org/10.3176/proc.2017.4.28> http://www.ester.ee/record=b2355998*est [Journal metrics at Scopus](#)

[Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Ontogeny of cardiomyocytes : ultrastructure optimization to meet the demand for tight communication in excitation–contraction coupling and energy transfer

Birkedal Nielsen, Rikke; Laasmaa, Martin; Branovets, Jelena; Vendelin, Marko Philosophical Transactions of the Royal Society

B : Biological Sciences 2022 / art. 20210321 <https://doi.org/10.1098/rstb.2021.0321> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Optimizing ventricular fibers : uniform strain or stress, but not ATP consumption, leads to high efficiency

Vendelin, Marko; Bovendeerd, Peter; Engelbrecht, Jüri; Arts, Theo American journal of physiology - heart and circulatory physiology 2002 / p. H1072-H1081 : ill

Rat and mouse cardiomyocytes show subtle differences in creatine kinase expression and compartmentalization

Branovets, Jelena; Soodla, Kārol; Vendelin, Marko; Birkedal Nielsen, Rikke PLoS ONE 2023 / art. e0294718

<https://doi.org/10.1371/journal.pone.0294718>

Real-time determination of sarcomere length of a single cardiomyocyte during contraction

Peterson, Pearu; Kalda, Mari; Vendelin, Marko American journal of physiology - cell physiology 2013 / p. C519-C531 : ill

Respiration of permeabilized cardiomyocytes from mice: no sex differences, but substrate-dependent changes in the apparent ADP-affinity

Karro, Niina; Laasmaa, Martin; Vendelin, Marko; Birkedal Nielsen, Rikke Scientific reports 2019 / art. 12592

<https://doi.org/10.1038/s41598-019-48964-x> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Restricted ADP movement in cardiomyocytes : cytosolic diffusion obstacles are complemented with a small number of open mitochondrial voltage-dependent anion channels

Simson, Päivo; Jepihhina, Natalja; Laasmaa, Martin; Peterson, Pearu; Birkedal Nielsen, Rikke; Vendelin, Marko Journal of molecular and cellular cardiology 2016 / p. 197-203 : ill <https://doi.org/10.1016/j.yjmcc.2016.04.012>

Revealing aspects of cardiac function from fluorescence and electrophysiological recordings = Südamealalituse uuringud fluorestsentsi ja elektrofüsioloogiliste mõõtmiste abil

Laasmaa, Martin 2016 http://www.ester.ee/record=b4632325*est <https://digikogu.taltech.ee/et/Item/5e9f5bd2-8295-4f7e-8f6d-65d0b8002a74>

Revealing calcium fluxes by analyzing inhibition dynamics in action potential clamp

Laasmaa, Martin; Birkedal Nielsen, Rikke; Vendelin, Marko Journal of molecular and cellular cardiology 2016 / p. 93-108 : ill <http://dx.doi.org/10.1016/j.yjmcc.2016.08.015>

Scaled microstructure and internal variables

Engelbrecht, Jüri; Vendelin, Marko Abstract book : Finno-Ugric International Conference on Mechanics : FUDOM 2001, May 27-June 2, Rackeve/Budapest, Hungary 2001 / ? p

Sensitivity analysis of flux determination in heart by H(2) (18)O-provided labeling using a dynamic isotopologue model of energy transfer pathways

Schryer, David; Peterson, Pearu; Illaste, Ardo; Vendelin, Marko PLoS computational biology 2012 / p. e1002795, 1-15 : ill

Südameasjad

Lemba, Maris; Kongas, Olav; Vendelin, Marko Noored teadused 2000 / lk. 62-66 : portr https://artiklid.elnet.ee/record=b2111022*est

Südameraku sisestruktuuri uurimine molekulaarse müra abil

Simson, Päivo; Vendelin, Marko Tallinna Tehnikaülikooli aastaraamat 2013 2014 / lk. 253-256

Süsteemne lähenemine aitab mõista ka inimese südant : [intervjuu Marko Vendelin'iga]

Vendelin, Marko Teadusmõte Küberneetika Instituudis 2010 / lk. 164-166 : portr

Teaduspreemia geo- ja bioteaduste alal tööde tsükli "Molekulaarne süsteemne bioenergeetika" eest : Valdur Saks (kollektiivi juht), Jüri Engelbrecht, Enn Seppet, Marko Vendelin

Saks, Valdur; Engelbrecht, Jüri; Seppet, Enn; Vendelin, Marko Eesti Vabariigi teaduspreemiad 2008 2008 / lk. 110-123 : fot., ill

Tight Coupling of Na⁺/K⁺-ATPase with glycolysis demonstrated in permeabilized rat cardiomyocytes

Sepp, Mervi; Sokolova, Niina; Jugai, Svetlana; Mandel, Merle; Peterson, Pearu; Vendelin, Marko PLoS ONE 2014 / art. e99413 <https://doi.org/10.1371/journal.pone.0099413>

Unchanged mitochondrial organization and compartmentation of high-energy phosphates in creatine-deficient GAMT(-/-) mouse hearts

Branovets, Jelena; Sepp, Mervi; Kotlyarova, Svetlana; Jepihhina, Natalja; Sokolova, Niina; Aksentijevic, Dunja; Neubauer, Stefan; Lygate, Craig A.; Vendelin, Marko; Birkedal Nielsen, Rikke American journal of physiology - heart and circulatory physiology 2013 / p. H506-H520 : ill <https://doi.org/10.1152/ajpheart.00919.2012>

Using action potential clamp data to determine the calcium fluxes and contributions in excitation-contraction coupling in vivo in cardiomyocytes

Laasmaa, Martin; Vendelin, Marko; Birkedal Nielsen, Rikke Biophysical journal 2016 / p. 100a-101a <http://dx.doi.org/10.1016/j.bpj.2015.11.600>

Uued inimesed ja positsioonid

Tammet, Tanel; Uska, Riina; Laanearu, Janek; Tabri, Kristjan; Vendelin, Marko; Margus, Madis; Kindsigo, Merit; Talpsepp, Tõnn; Tähemaa, Toivo; Laos, Katrin; Liiv, Innar; Rüütmann, Tiia; Sarapuu, Külli; Kikkas, Kaido; Pachel, Karin Mente et Manu 2022 / lk. 40-49 : fot https://www.ester.ee/record=b1242496*est