

Alfonso Bueno-Orovio

List of Publications by Year in descending order

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73
papers

3,617
citations

159573

30
h-index

144002

57
g-index

87
all docs

87
docs citations

87
times ranked

2953
citing authors

#	ARTICLE	IF	CITATIONS
1	Minimal model for human ventricular action potentials in tissue. <i>Journal of Theoretical Biology</i> , 2008, 253, 544-560.	1.7	332
2	The "Digital Twin"™ to enable the vision of precision cardiology. <i>European Heart Journal</i> , 2020, 41, 4556-4564.	2.2	319
3	Experimentally calibrated population of models predicts and explains intersubject variability in cardiac cellular electrophysiology. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, E2098-105.	7.1	278
4	Fourier spectral methods for fractional-in-space reaction-diffusion equations. <i>BIT Numerical Mathematics</i> , 2014, 54, 937-954.	2.0	265
5	Human In Silico Drug Trials Demonstrate Higher Accuracy than Animal Models in Predicting Clinical Pro-Arrhythmic Cardiotoxicity. <i>Frontiers in Physiology</i> , 2017, 8, 668.	2.8	227
6	Fractional diffusion models of cardiac electrical propagation: role of structural heterogeneity in dispersion of repolarization. <i>Journal of the Royal Society Interface</i> , 2014, 11, 20140352.	3.4	173
7	Variability in cardiac electrophysiology: Using experimentally-calibrated populations of models to move beyond the single virtual physiological human paradigm. <i>Progress in Biophysics and Molecular Biology</i> , 2016, 120, 115-127.	2.9	141
8	Development, calibration, and validation of a novel human ventricular myocyte model in health, disease, and drug block. <i>ELife</i> , 2019, 8, .	6.0	131
9	Mechanisms of pro-arrhythmic abnormalities in ventricular repolarisation and anti-arrhythmic therapies in human hypertrophic cardiomyopathy. <i>Journal of Molecular and Cellular Cardiology</i> , 2016, 96, 72-81.	1.9	102
10	Spectral Methods for Partial Differential Equations in Irregular Domains: The Spectral Smoothed Boundary Method. <i>SIAM Journal of Scientific Computing</i> , 2006, 28, 886-900.	2.8	101
11	Inter-Subject Variability in Human Atrial Action Potential in Sinus Rhythm versus Chronic Atrial Fibrillation. <i>PLoS ONE</i> , 2014, 9, e105897.	2.5	96
12	Continuous Adjoint Approach for the Spalart-Allmaras Model in Aerodynamic Optimization. <i>AIAA Journal</i> , 2012, 50, 631-646.	2.6	82
13	Up-regulation of miR-31 in human atrial fibrillation begets the arrhythmia by depleting dystrophin and neuronal nitric oxide synthase. <i>Science Translational Medicine</i> , 2016, 8, 340ra74.	12.4	68
14	In Vivo and In Silico Investigation Into Mechanisms of Frequency Dependence of Repolarization Alternans in Human Ventricular Cardiomyocytes. <i>Circulation Research</i> , 2016, 118, 266-278.	4.5	68
15	General Principles for the Validation of Proarrhythmia Risk Prediction Models: An Extension of the CiPA <i>In Silico</i> Strategy. <i>Clinical Pharmacology and Therapeutics</i> , 2020, 107, 102-111.	4.7	67
16	Human ventricular activation sequence and the simulation of the electrocardiographic QRS complex and its variability in healthy and intraventricular block conditions. <i>Europace</i> , 2016, 18, iv4-iv15.	1.7	62
17	Na/K pump regulation of cardiac repolarization: insights from a systems biology approach. <i>Pflugers Archiv European Journal of Physiology</i> , 2014, 466, 183-193.	2.8	61
18	Chaste: Cancer, Heart and Soft Tissue Environment. <i>Journal of Open Source Software</i> , 2020, 5, 1848.	4.6	58

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19	In-silico human electro-mechanical ventricular modelling and simulation for drug-induced pro-arrhythmia and inotropic risk assessment. <i>Progress in Biophysics and Molecular Biology</i> , 2021, 159, 58-74.	2.9	55
20	The Electrogenic Na ⁺ /K ⁺ Pump Is a Key Determinant of Repolarization Abnormality Susceptibility in Human Ventricular Cardiomyocytes: A Population-Based Simulation Study. <i>Frontiers in Physiology</i> , 2017, 8, 278.	2.8	53
21	Sensitivity analysis of a strongly-coupled human-based electromechanical cardiac model: Effect of mechanical parameters on physiologically relevant biomarkers. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2020, 361, 112762.	6.6	52
22	Drug-induced shortening of the electromechanical window is an effective biomarker for in silico prediction of clinical risk of arrhythmias. <i>British Journal of Pharmacology</i> , 2019, 176, 3819-3833.	5.4	47
23	The Na ⁺ /K ⁺ pump is an important modulator of refractoriness and rotor dynamics in human atrial tissue. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2012, 302, H1146-H1159.	3.2	45
24	Toward a broader view of mechanisms of drug cardiotoxicity. <i>Cell Reports Medicine</i> , 2021, 2, 100216.	6.5	44
25	From ionic to cellular variability in human atrial myocytes: an integrative computational and experimental study. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2018, 314, H895-H916.	3.2	40
26	Spectral smoothed boundary methods: The role of external boundary conditions. <i>Numerical Methods for Partial Differential Equations</i> , 2006, 22, 435-448.	3.6	38
27	Balance between sodium and calcium currents underlying chronic atrial fibrillation termination: An in silico intersubject variability study. <i>Heart Rhythm</i> , 2016, 13, 2358-2365.	0.7	36
28	Electrophysiological and Contractile Effects of Disopyramide in Patients With Obstructive Hypertrophic Cardiomyopathy. <i>JACC Basic To Translational Science</i> , 2019, 4, 795-813.	4.1	35
29	On the Order of the Fractional Laplacian in Determining the Spatio-Temporal Evolution of a Space-Fractional Model of Cardiac Electrophysiology. <i>PLoS ONE</i> , 2015, 10, e0143938.	2.5	33
30	Atrial Fibrillation Dynamics and Ionic Block Effects in Six Heterogeneous Human 3D Virtual Atria with Distinct Repolarization Dynamics. <i>Frontiers in Bioengineering and Biotechnology</i> , 2017, 5, 29.	4.1	33
31	In Vivo Human Left-to-Right Ventricular Differences in Rate Adaptation Transiently Increase Pro-Arrhythmic Risk following Rate Acceleration. <i>PLoS ONE</i> , 2012, 7, e52234.	2.5	32
32	CalTrack: High-Throughput Automated Calcium Transient Analysis in Cardiomyocytes. <i>Circulation Research</i> , 2021, 129, 326-341.	4.5	31
33	Electrocardiogram phenotypes in hypertrophic cardiomyopathy caused by distinct mechanisms: apico-basal repolarization gradients vs. Purkinje-myocardial coupling abnormalities. <i>Europace</i> , 2018, 20, iii102-iii112.	1.7	29
34	Anomalous Diffusion in Cardiac Tissue as an Index of Myocardial Microstructure. <i>IEEE Transactions on Medical Imaging</i> , 2016, 35, 2200-2207.	8.9	28
35	Blinded In Silico Drug Trial Reveals the Minimum Set of Ion Channels for Torsades de Pointes Risk Assessment. <i>Frontiers in Pharmacology</i> , 2019, 10, 1643.	3.5	26
36	Basis for the Induction of Tissue-Level Phase-2 Reentry as a Repolarization Disorder in the Brugada Syndrome. <i>BioMed Research International</i> , 2015, 2015, 1-12.	1.9	22

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37	Understanding and Improving Risk Assessment After Myocardial Infarction Using Automated Left Ventricular Shape Analysis. <i>JACC: Cardiovascular Imaging</i> , 2022, 15, 1563-1574.	5.3	21
38	High arrhythmic risk in antero-septal acute myocardial ischemia is explained by increased transmural reentry occurrence. <i>Scientific Reports</i> , 2019, 9, 16803.	3.3	20
39	Pharmacological Management of Hypertrophic Cardiomyopathy: From Bench to Bedside. <i>Drugs</i> , 2022, 82, 889-912.	10.9	18
40	Mapped Chebyshev pseudospectral method for the study of multiple scale phenomena. <i>Computer Physics Communications</i> , 2009, 180, 912-919.	7.5	16
41	Slow Recovery of Excitability Increases Ventricular Fibrillation Risk as Identified by Emulation. <i>Frontiers in Physiology</i> , 2018, 9, 1114.	2.8	15
42	Dual Transcriptomic and Molecular Machine Learning Predicts all Major Clinical Forms of Drug Cardiotoxicity. <i>Frontiers in Pharmacology</i> , 2020, 11, 639.	3.5	15
43	Fourier embedded domain methods: Periodic and \mathbb{C}^{∞} extension of a function defined on an irregular region to a rectangle via convolution with Gaussian kernels. <i>Applied Mathematics and Computation</i> , 2006, 183, 813-818.	2.2	14
44	SMOD - Data Augmentation Based on Statistical Models of Deformation to Enhance Segmentation in 2D Cine Cardiac MRI. <i>Lecture Notes in Computer Science</i> , 2019, , 361-369.	1.3	14
45	The virtual assay software for human in silico drug trials to augment drug cardiac testing. <i>Journal of Computational Science</i> , 2021, 52, 101202.	2.9	14
46	Slow Adaptation of Ventricular Repolarization as a Cause of Arrhythmia?. <i>Methods of Information in Medicine</i> , 2014, 53, 320-323.	1.2	13
47	Investigating the Complex Arrhythmic Phenotype Caused by the Gain-of-Function Mutation KCNQ1-G229D. <i>Frontiers in Physiology</i> , 2019, 10, 259.	2.8	13
48	Exact solutions to the fractional time-space Bloch-Torrey equation for magnetic resonance imaging. <i>Communications in Nonlinear Science and Numerical Simulation</i> , 2017, 52, 91-109.	3.3	12
49	Electrophysiological and anatomical factors determine arrhythmic risk in acute myocardial ischaemia and its modulation by sodium current availability. <i>Interface Focus</i> , 2021, 11, 20190124.	3.0	11
50	ECG-based estimation of dispersion of APD restitution as a tool to stratify sotalol-induced arrhythmic risk. <i>Journal of Electrocardiology</i> , 2015, 48, 867-873.	0.9	9
51	In silico evaluation of arrhythmia. <i>Current Opinion in Physiology</i> , 2018, 1, 95-103.	1.8	8
52	An Automata-Based Cardiac Electrophysiology Simulator to Assess Arrhythmia Inducibility. <i>Mathematics</i> , 2022, 10, 1293.	2.2	8
53	Multiscale Modelling of β_2 -Adrenergic Stimulation in Cardiac Electromechanical Function. <i>Mathematics</i> , 2021, 9, 1785.	2.2	7
54	Enhanced box and prism assisted algorithms for computing the correlation dimension. <i>Chaos, Solitons and Fractals</i> , 2007, 34, 509-518.	5.1	5

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55	Graph-based homogenisation for modelling cardiac fibrosis. <i>Journal of Computational Physics</i> , 2022, 459, 111126.	3.8	3
56	Reply to the Editorâ€™On misuse of null hypothesis testing: Analysis of biophysical model simulations. <i>Heart Rhythm</i> , 2017, 14, e50-e51.	0.7	2
57	Mavacamten Efficacy in Mutation-specific Hypertrophic Cardiomyopathy: an In Silico Approach to Inform Precision Medicine. , 2021, , .		2
58	P3-24. <i>Heart Rhythm</i> , 2006, 3, S186.	0.7	1
59	Successful integrative approach of the pro-arrhythmic risk assessment of the multichannel ion channel inhibitor vanoxerine, via combination of in silico human cardiomyocyte models and in vivo guinea-pig electromechanical window assay. <i>Journal of Pharmacological and Toxicological Methods</i> , 2018, 93, 144-145.	0.7	1
60	Commentary: Atrial Rotor Dynamics Under Complex Fractional Order Diffusion. <i>Frontiers in Physiology</i> , 2018, 9, 1386.	2.8	1
61	PARADOXICAL PROLONGATION OF QT INTERVAL DURING EXERCISE IN PATIENTS WITH HCM: CELLULAR MECHANISMS AND IMPLICATIONS FOR DIASTOLIC FUNCTION. <i>European Heart Journal Open</i> , 0, , .	2.3	1
62	Effects and underlying mechanisms of refractory period pacing on repolarization dynamics in the human heart. , 2016, 2016, 157-160.		0
63	Loss of Myocardial nNOS Mediated by Upregulation of miR-31 in Human Atria Contributes to Begetting of Atrial Fibrillation. <i>Biophysical Journal</i> , 2016, 110, 451a.	0.5	0
64	The Role of the Ina-1k1 Complex on Human Ventricular Conduction Velocity. , 0, , .		0
65	Strategies of data layout and cache writing for input-output optimization in high performance scientific computing: Applications to the forward electrocardiographic problem. <i>PLoS ONE</i> , 2018, 13, e0202410.	2.5	0
66	In silico electro-mechanical window shortening and repolarisation abnormalities predict clinical risk of torsade de pointes for 40 reference compounds. <i>Journal of Pharmacological and Toxicological Methods</i> , 2018, 93, 145.	0.7	0
67	Simultaneous assessment of drug-induced effects on contractility and electrophysiology using human in silico trials. <i>Journal of Pharmacological and Toxicological Methods</i> , 2020, 105, 106803.	0.7	0
68	Simplified Electrophysiology Modeling Framework to Assess Ventricular Arrhythmia Risk in Infarcted Patients. <i>Lecture Notes in Computer Science</i> , 2021, , 531-539.	1.3	0
69	Evaluation of four in silico biomarkers for drug-induced proarrhythmic risk: COVID-19 off-label therapies case study. <i>Journal of Pharmacological and Toxicological Methods</i> , 2021, 111, 107052.	0.7	0
70	Personalization of Atrial Fibrillation Antiarrhythmic Drug Treatments: a Population of Models Approach. , 0, , .		0
71	Prediction of all forms of drug-induced cardiotoxicity by combined transcriptome analysis and machine learning. <i>Proceedings for Annual Meeting of the Japanese Pharmacological Society</i> , 2018, WCP2018, PO1-2-31.	0.0	0
72	Computational methods for safety pharmacology and anti-arrhythmic drug discovery: Towards in silico clinical trials in human. <i>Proceedings for Annual Meeting of the Japanese Pharmacological Society</i> , 2018, WCP2018, PO4-2-34.	0.0	0

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73	Contraction and electrophysiological abnormalities in myofilament mutation-positive and mutation-negative human HCM myocardium. <i>Biophysical Journal</i> , 2022, 121, 435a-436a.	0.5	0