

Alfonso Bueno-Orovio

List of Publications by Year in descending order

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73

papers

3,617

citations

159585

30

h-index

144013

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

#	ARTICLE	IF	CITATIONS
55	Graph-based homogenisation for modelling cardiac fibrosis. Journal of Computational Physics, 2022, 459, 111126.	3.8	3
56	Reply to the Editorâ€™On misuse of null hypothesis testing: Analysis of biophysical model simulations. Heart Rhythm, 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. Heart Rhythm, 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. Journal of Pharmacological and Toxicological Methods, 2018, 93, 144-145.	0.7	1
60	Commentary: Atrial Rotor Dynamics Under Complex Fractional Order Diffusion. Frontiers in Physiology, 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. European Heart Journal Open, 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. Biophysical Journal, 2016, 110, 451a.	0.5	0
64	The Role of the Ina-Ik1 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. PLoS ONE, 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. Journal of Pharmacological and Toxicological Methods, 2018, 93, 145.	0.7	0
67	Simultaneous assessment of drug-induced effects on contractility and electrophysiology using human in silico trials. Journal of Pharmacological and Toxicological Methods, 2020, 105, 106803.	0.7	0
68	Simplified Electrophysiology Modeling Framework to Assess Ventricular Arrhythmia Risk in Infarcted Patients. Lecture Notes in Computer Science, 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. Journal of Pharmacological and Toxicological Methods, 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. Proceedings for Annual Meeting of the Japanese Pharmacological Society, 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. Proceedings for Annual Meeting of the Japanese Pharmacological Society, 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. Biophysical Journal, 2022, 121, 435a-436a.	0.5	0