Nenad Bursac

List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

133 papers	7,287 citations	47 h-index	83 g-index
150 ext. papers	8,489 ext. citations	8.6 avg, IF	6.28 L-index

#	Paper	IF	Citations
133	Tissue-engineered cardiac patch for advanced functional maturation of human ESC-derived cardiomyocytes. *Biomaterials*, **2013**, 34, 5813-20	15.6	420
132	Cardiac tissue engineering: cell seeding, cultivation parameters, and tissue construct characterization. *Biotechnology and Bioengineering*, **1999**, 64, 580-9	4.9	418
131	The extracellular matrix protein agrin promotes heart regeneration in mice. *Nature*, **2017**, 547, 179-184	50.4	329
130	Cardiopatch platform enables maturation and scale-up of human pluripotent stem cell-derived engineered heart tissues. *Nature Communications*, **2017**, 8, 1825	17.4	226
129	Tissue engineering of functional cardiac muscle: molecular, structural, and electrophysiological studies. *American Journal of Physiology - Heart and Circulatory Physiology*, **2001**, 280, H168-78	5.2	220
128	Cardiomyocyte cultures with controlled macroscopic anisotropy: a model for functional electrophysiological studies of cardiac muscle. *Circulation Research*, **2002**, 91, e45-54	15.7	212
127	Bioengineered human myobundles mimic clinical responses of skeletal muscle to drugs. *ELife*, **2015**, 4, e04885	8.9	199
126	Engineered skeletal muscle tissue networks with controllable architecture. *Biomaterials*, **2009**, 30, 1401-12	15.6	193
125	The role of extracellular matrix composition in structure and function of bioengineered skeletal muscle. *Biomaterials*, **2011**, 32, 3575-83	15.6	192
124	Pluripotent stem cell-derived cardiac tissue patch with advanced structure and function. *Biomaterials*, **2011**, 32, 9180-7	15.6	181
123	Mesoscopic hydrogel molding to control the 3D geometry of bioartificial muscle tissues. *Nature Protocols*, **2009**, 4, 1522-34	18.8	180
122	Cardiac muscle tissue engineering: toward an in vitro model for electrophysiological studies. *American Journal of Physiology - Heart and Circulatory Physiology*, **1999**, 277, H433-44	5.2	175
121	Biomimetic engineered muscle with capacity for vascular integration and functional maturation in vivo. *Proceedings of the National Academy of Sciences of the United States of America*, **2014**, 111, 5508-13	11.5	169
120	Engineering human pluripotent stem cells into a functional skeletal muscle tissue. *Nature Communications*, **2018**, 9, 126	17.4	155
119	Stoichiometry of Gata4, Mef2c, and Tbx5 influences the efficiency and quality of induced cardiac myocyte reprogramming. *Circulation Research*, **2015**, 116, 237-44	15.7	152
118	Effect of Electromechanical Stimulation on the Maturation of Myotubes on Aligned Electrospun Fibers. *Cellular and Molecular Bioengineering*, **2008**, 1, 133-145	3.9	124
117	Dynamic culture yields engineered myocardium with near-adult functional output. *Biomaterials*, **2016**, 111, 66-79	15.6	123

116	Cardiac fibroblast paracrine factors alter impulse conduction and ion channel expression of neonatal rat cardiomyocytes. *Cardiovascular Research*, **2009**, 83, 688-97	9.9	119
115	Distilling complexity to advance cardiac tissue engineering. *Science Translational Medicine*, **2016**, 8, 342ps13	17.5	108
114	Novel anisotropic engineered cardiac tissues: studies of electrical propagation. *Biochemical and Biophysical Research Communications*, **2007**, 361, 847-53	3.4	107
113	Transcription factors MYOCD, SRF, Mesp1 and SMARCD3 enhance the cardio-inducing effect of GATA4, TBX5, and MEF2C during direct cellular reprogramming. *PLoS ONE*, **2013**, 8, e63577	3.7	105
112	Novel micropatterned cardiac cell cultures with realistic ventricular microstructure. *Biophysical Journal*, **2009**, 96, 3873-85	2.9	99
111	Controlling the structural and functional anisotropy of engineered cardiac tissues. *Biofabrication*, **2014**, 6, 024109-24109	10.5	90
110	Functional cardiac tissue engineering. *Regenerative Medicine*, **2012**, 7, 187-206	2.5	87
109	Whole-cell-analysis of live cardiomyocytes using wide-field interferometric phase microscopy. *Biomedical Optics Express*, **2010**, 1, 706-719	3.5	82
108	Fibroblast growth factor homologous factor 13 regulates Na+ channels and conduction velocity in murine hearts. *Circulation Research*, **2011**, 109, 775-82	15.7	82
107	Cultivation in rotating bioreactors promotes maintenance of cardiac myocyte electrophysiology and molecular properties. *Tissue Engineering*, **2003**, 9, 1243-53		82
106	Engineered cardiac tissue patch maintains structural and electrical properties after epicardial implantation. *Biomaterials*, **2018**, 159, 48-58	15.6	80
105	Electrical stimulation increases hypertrophy and metabolic flux in tissue-engineered human skeletal muscle. *Biomaterials*, **2019**, 198, 259-269	15.6	74
104	Use of flow, electrical, and mechanical stimulation to promote engineering of striated muscles. *Annals of Biomedical Engineering*, **2014**, 42, 1391-405	4.7	71
103	Overcoming the Roadblocks to Cardiac Cell Therapy Using Tissue Engineering. *Journal of the American College of Cardiology*, **2017**, 70, 766-775	15.1	67
102	Multiarm spirals in a two-dimensional cardiac substrate. *Proceedings of the National Academy of Sciences of the United States of America*, **2004**, 101, 15530-4	11.5	65
101	Incorporation of macrophages into engineered skeletal muscle enables enhanced muscle regeneration. *Nature Biomedical Engineering*, **2018**, 2, 942-954	19	64
100	Tension Creates an Endoreplication Wavefront that Leads Regeneration of Epicardial Tissue. *Developmental Cell*, **2017**, 42, 600-615.e4	10.2	62
99	Engineering skeletal muscle repair. *Current Opinion in Biotechnology*, **2013**, 24, 880-6	11.4	62

98	Engineering biosynthetic excitable tissues from unexcitable cells for electrophysiological and cell therapy studies. *Nature Communications*, **2011**, 2, 300	17.4	60
97	Structural coupling of cardiomyocytes and noncardiomyocytes: quantitative comparisons using a novel micropatterned cell pair assay. *American Journal of Physiology - Heart and Circulatory Physiology*, **2008**, 295, H390-400	5.2	60
96	Local tissue geometry determines contractile force generation of engineered muscle networks. *Tissue Engineering - Part A*, **2012**, 18, 957-67	3.9	59
95	Tissue engineering of functional skeletal muscle: challenges and recent advances. *IEEE Engineering in Medicine and Biology Magazine*, **2008**, 27, 109-13		59
94	Robust T-tubulation and maturation of cardiomyocytes using tissue-engineered epicardial mimetics. *Biomaterials*, **2014**, 35, 3819-28	15.6	57
93	Age-dependent functional crosstalk between cardiac fibroblasts and cardiomyocytes in a 3D engineered cardiac tissue. *Acta Biomaterialia*, **2017**, 55, 120-130	10.8	54
92	Implantation of mouse embryonic stem cell-derived cardiac progenitor cells preserves function of infarcted murine hearts. *PLoS ONE*, **2010**, 5, e11536	3.7	54
91	Tissue-engineered 3-dimensional (3D) microenvironment enhances the direct reprogramming of fibroblasts into cardiomyocytes by microRNAs. *Scientific Reports*, **2016**, 6, 38815	4.9	54
90	Defined electrical stimulation emphasizing excitability for the development and testing of engineered skeletal muscle. *Tissue Engineering - Part C: Methods*, **2012**, 18, 349-57	2.9	53
89	Regulating fibrinolysis to engineer skeletal muscle from the C2C12 cell line. *Tissue Engineering - Part C: Methods*, **2009**, 15, 501-11	2.9	52
88	Induced pluripotent stem cell-derived cardiac progenitors differentiate to cardiomyocytes and form biosynthetic tissues. *PLoS ONE*, **2013**, 8, e65963	3.7	49
87	Striated muscle function, regeneration, and repair. *Cellular and Molecular Life Sciences*, **2016**, 73, 4175-4202	10.3	48
86	Electrotonic loading of anisotropic cardiac monolayers by unexcitable cells depends on connexin type and expression level. *American Journal of Physiology - Cell Physiology*, **2009**, 297, C339-51	5.4	47
85	Roles of adherent myogenic cells and dynamic culture in engineered muscle function and maintenance of satellite cells. *Biomaterials*, **2014**, 35, 9438-46	15.6	46
84	Electrical pacing counteracts intrinsic shortening of action potential duration of neonatal rat ventricular cells in culture. *Journal of Molecular and Cellular Cardiology*, **2006**, 41, 633-41	5.8	46
83	Soluble miniagrin enhances contractile function of engineered skeletal muscle. *FASEB Journal*, **2012**, 26, 955-65	0.9	45
82	Functional reentry in cultured monolayers of neonatal rat cardiac cells. *American Journal of Physiology - Heart and Circulatory Physiology*, **2003**, 285, H449-56	5.2	45
81	In Vitro Tissue-Engineered Skeletal Muscle Models for Studying Muscle Physiology and Disease. *Advanced Healthcare Materials*, **2018**, 7, e1701498	10.1	44

80	WNT3 is a biomarker capable of predicting the definitive endoderm differentiation potential of hESCs. *Stem Cell Reports*, **2013**, 1, 46-52	8	44
79	Physiology and metabolism of tissue-engineered skeletal muscle. *Experimental Biology and Medicine*, **2014**, 239, 1203-14	3.7	43
78	Mechanoelectrical excitation by fluid jets in monolayers of cultured cardiac myocytes. *Journal of Applied Physiology*, **2005**, 98, 2328-36; discussion 2320	3.7	39
77	Synergizing Engineering and Biology to Treat and Model Skeletal Muscle Injury and Disease. *Annual Review of Biomedical Engineering*, **2015**, 17, 217-42	12	38
76	A method to replicate the microstructure of heart tissue in vitro using DTMRI-based cell micropatterning. *Annals of Biomedical Engineering*, **2009**, 37, 2510-21	4.7	38
75	Sodium channel kinetic changes that produce Brugada syndrome or progressive cardiac conduction system disease. *American Journal of Physiology - Heart and Circulatory Physiology*, **2007**, 292, H399-407	5.2	38
74	Biomaterializing the promise of cardiac tissue engineering. *Biotechnology Advances*, **2020**, 42, 107353	17.8	38
73	Human Cardiac Tissue Engineering: From Pluripotent Stem Cells to Heart Repair. *Current Opinion in Chemical Engineering*, **2015**, 7, 57-64	5.4	36
72	Engineered skeletal muscles for disease modeling and drug discovery. *Biomaterials*, **2019**, 221, 119416	15.6	36
71	Reflective interferometric chamber for quantitative phase imaging of biological sample dynamics. *Journal of Biomedical Optics*, **2010**, 15, 030503	3.5	36
70	Design, evaluation, and application of engineered skeletal muscle. *Methods*, **2016**, 99, 81-90	4.6	35
69	STIM1-Ca2+ signaling modulates automaticity of the mouse sinoatrial node. *Proceedings of the National Academy of Sciences of the United States of America*, **2015**, 112, E5618-27	11.5	34
68	Acceleration of functional reentry by rapid pacing in anisotropic cardiac monolayers: formation of multi-wave functional reentries. *Cardiovascular Research*, **2006**, 69, 381-90	9.9	34
67	Developmental stage-dependent effects of cardiac fibroblasts on function of stem cell-derived engineered cardiac tissues. *Scientific Reports*, **2017**, 7, 42290	4.9	30
66	Cardiac tissue engineering using stem cells. *IEEE Engineering in Medicine and Biology Magazine*, **2009**, 28, 80, 82, 84-6, 88-9		29
65	Long-term contractile activity and thyroid hormone supplementation produce engineered rat myocardium with adult-like structure and function. *Acta Biomaterialia*, **2018**, 78, 98-110	10.8	26
64	An Engineered Optogenetic Switch for Spatiotemporal Control of Gene Expression, Cell Differentiation, and Tissue Morphogenesis. *ACS Synthetic Biology*, **2017**, 6, 2003-2013	5.7	26
63	Cell Density and Joint microRNA-133a and microRNA-696 Inhibition Enhance Differentiation and Contractile Function of Engineered Human Skeletal Muscle Tissues. *Tissue Engineering - Part A*, **2016**, 22, 573-83	3.9	25

62	A method to measure myocardial calcium handling in adult Drosophila. *Circulation Research*, **2011**, 108, 1306-15	15.7	25
61	Contractile and metabolic properties of engineered skeletal muscle derived from slow and fast phenotype mouse muscle. *Journal of Cellular Physiology*, **2015**, 230, 1750-7	7	21
60	Design considerations for an integrated microphysiological muscle tissue for drug and tissue toxicity testing. *Stem Cell Research and Therapy*, **2013**, 4 Suppl 1, S10	8.3	21
59	Role of contraction duration in inducing fast-to-slow contractile and metabolic protein and functional changes in engineered muscle. *Journal of Cellular Physiology*, **2015**, 230, 2489-97	7	21
58	The effect of serum origin on tissue engineered skeletal muscle function. *Journal of Cellular Biochemistry*, **2014**, 115, 2198-207	4.7	21
57	Engineered muscle: a tool for studying muscle physiology and function. *Exercise and Sport Sciences Reviews*, **2007**, 35, 186-91	6.7	21
56	The NIH Somatic Cell Genome Editing program. *Nature*, **2021**, 592, 195-204	50.4	21
55	Conduction block in micropatterned cardiomyocyte cultures replicating the structure of ventricular cross-sections. *Cardiovascular Research*, **2012**, 93, 263-71	9.9	20
54	Size and ionic currents of unexcitable cells coupled to cardiomyocytes distinctly modulate cardiac action potential shape and pacemaking activity in micropatterned cell pairs. *Circulation: Arrhythmia and Electrophysiology*, **2012**, 5, 821-30	6.4	19
53	Cardiac cell therapy in vitro: reproducible assays for comparing the efficacy of different donor cells. *IEEE Engineering in Medicine and Biology Magazine*, **2008**, 27, 72-80		19
52	Cardiac fibroblasts in pressure overload hypertrophy: the enemy within?. *Journal of Clinical Investigation*, **2014**, 124, 2850-3	15.9	18
51	Glucose concentration and streptomycin alter in vitro muscle function and metabolism. *Journal of Cellular Physiology*, **2015**, 230, 1226-34	7	17
50	Factors That Affect Tissue-Engineered Skeletal Muscle Function and Physiology. *Cells Tissues Organs*, **2016**, 202, 159-168	2.1	16
49	Engineering prokaryotic channels for control of mammalian tissue excitability. *Nature Communications*, **2016**, 7, 13132	17.4	16
48	X-linked inhibitor of apoptosis protein-mediated attenuation of apoptosis, using a novel cardiac-enhanced adeno-associated viral vector. *Human Gene Therapy*, **2012**, 23, 635-46	4.8	16
47	Rapid fusion between mesenchymal stem cells and cardiomyocytes yields electrically active, non-contractile hybrid cells. *Scientific Reports*, **2015**, 5, 12043	4.9	15
46	Genetically Encoded Photoactuators and Photosensors for Characterization and Manipulation of Pluripotent Stem Cells. *Theranostics*, **2017**, 7, 3539-3558	12.1	15
45	Single-detector simultaneous optical mapping of V(m) and [Ca(2+)](i) in cardiac monolayers. *Annals of Biomedical Engineering*, **2012**, 40, 1006-17	4.7	14

44	Characterizing functional stem cell-cardiomyocyte interactions. *Regenerative Medicine*, **2010**, 5, 87-105	2.5	14
43	Exercise mimetics and JAK inhibition attenuate IFN-�nduced wasting in engineered human skeletal muscle. *Science Advances*, **2021**, 7,	14.3	14
42	Correction of Biochemical Abnormalities and Improved Muscle Function in a Phase I/II Clinical Trial of Clenbuterol in Pompe Disease. *Molecular Therapy*, **2018**, 26, 2304-2314	11.7	13
41	Adjunctive �-agonist treatment reduces glycogen independently of receptor-mediated acid �glucosidase uptake in the limb muscles of mice with Pompe disease. *FASEB Journal*, **2014**, 28, 2272-80	0.9	13
40	Calcium dependent CAMTA1 in adult stem cell commitment to a myocardial lineage. *PLoS ONE*, **2012**, 7, e38454	3.7	12
39	Genetic engineering of somatic cells to study and improve cardiac function. *Europace*, **2012**, 14 Suppl 5, v40-v49	3.9	12
38	Streptomycin decreases the functional shift to a slow phenotype induced by electrical stimulation in engineered muscle. *Tissue Engineering - Part A*, **2015**, 21, 1003-12	3.9	11
37	Hif-1a suppresses ROS-induced proliferation of cardiac fibroblasts following myocardial infarction. *Cell Stem Cell*, **2021**,	18	11
36	A computer model of engineered cardiac monolayers. *Biophysical Journal*, **2010**, 98, 1762-71	2.9	10
35	Lack of Thy1 defines a pathogenic fraction of cardiac fibroblasts in heart failure. *Biomaterials*, **2020**, 236, 119824	15.6	8
34	Three-dimensional tissue-engineered human skeletal muscle model of Pompe disease. *Communications Biology*, **2021**, 4, 524	6.7	8
33	Microheterogeneity-induced conduction slowing and wavefront collisions govern macroscopic conduction behavior: A computational and experimental study. *PLoS Computational Biology*, **2018**, 14, e1006276	5	7
32	Tissue-Engineered Human Myobundle System as a Platform for Evaluation of Skeletal Muscle Injury Biomarkers. *Toxicological Sciences*, **2020**, 176, 124-136	4.4	7
31	Spatial profiles of electrical mismatch determine vulnerability to conduction failure across a host-donor cell interface. *Circulation: Arrhythmia and Electrophysiology*, **2013**, 6, 1200-7	6.4	6
30	The small molecule Chicago Sky Blue promotes heart repair following myocardial infarction in mice. *JCI Insight*, **2019**, 4,	9.9	6
29	Ion channel engineering for modulation and de novo generation of electrical excitability. *Current Opinion in Biotechnology*, **2019**, 58, 100-107	11.4	5
28	Generation and customization of biosynthetic excitable tissues for electrophysiological studies and cell-based therapies. *Nature Protocols*, **2018**, 13, 927-945	18.8	5
27	Tissue-Engineered Skeletal Muscle Models to Study Muscle Function, Plasticity, and Disease. *Frontiers in Physiology*, **2021**, 12, 619710	4.6	5

26	Glucose Uptake and Insulin Response in Tissue-engineered Human Skeletal Muscle. *Tissue Engineering and Regenerative Medicine*, **2020**, 17, 801-813	4.5	4
25	Modeling an Excitable Biosynthetic Tissue with Inherent Variability for Paired Computational-Experimental Studies. *PLoS Computational Biology*, **2017**, 13, e1005342	5	4
24	Quantifying electrical interactions between cardiomyocytes and other cells in micropatterned cell pairs. *Methods in Molecular Biology*, **2014**, 1181, 249-62	1.4	4
23	Collision-based spiral acceleration in cardiac media: roles of wavefront curvature and excitable gap. *Biophysical Journal*, **2010**, 98, 1119-28	2.9	3
22	Genetic engineering and stem cells: combinatorial approaches for cardiac cell therapy. *IEEE Engineering in Medicine and Biology Magazine*, **2008**, 27, 85-8		3
21	Rotors and Spiral Waves in Two Dimensions **2004**, 336-344		3
20	Loss of sarcomeric proteins via upregulation of JAK/STAT signaling underlies interferon-induced contractile deficit in engineered human myocardium. *Acta Biomaterialia*, **2021**, 126, 144-153	10.8	3
19	Altering integrin engagement regulates membrane localization of K2.1 channels. *Journal of Cell Science*, **2019**, 132,	5.3	2
18	FGF13 is a Regulator of the Cardiac Voltage-Gated Sodium Channel Nav1.5. *Biophysical Journal*, **2011**, 100, 420a-421a	2.9	2
17	Stem cell therapies for heart disease: why do we need bioengineers?. *IEEE Engineering in Medicine and Biology Magazine*, **2007**, 26, 76-9		2
16	Neuromuscular Development and Disease: Learning From and Models. *Frontiers in Cell and Developmental Biology*, **2021**, 9, 764732	5.7	2
15	Frame-Hydrogel Methodology for Engineering Highly Functional Cardiac Tissue Constructs. *Methods in Molecular Biology*, **2021**, 2158, 171-186	1.4	2
14	Human Erbb2-induced Erk activity robustly stimulates cycling and functional remodeling of rat and human cardiomyocytes. *ELife*, **2021**, 10,	8.9	1
13	Myoblast deactivation within engineered human skeletal muscle creates a transcriptionally heterogeneous population of quiescent satellite-like cells.. *Biomaterials*, **2022**, 284, 121508	15.6	1
12	Engineered bacterial voltage-gated sodium channel platform for cardiac gene therapy.. *Nature Communications*, **2022**, 13, 620	17.4	0
11	Targeted Delivery for Cardiac Regeneration: Comparison of Intra-coronary Infusion and Intra-myocardial Injection in Porcine Hearts.. *Frontiers in Cardiovascular Medicine*, **2022**, 9, 833335	5.4	0
10	In vitro discovery of novel prokaryotic ion channel candidates for antiarrhythmic gene therapy. *Methods in Enzymology*, **2021**, 654, 407-434	1.7	0
9	Cardiac Fibroblasts and Arrhythmogenesis **2014**, 297-308		

8	Maturation of functional cardiac tissue patches **2014**, 248-282	
7	The role restitution in pacing induced spiral wave acceleration. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, **2006**, 2006, 3919-22	
6	Cardiomyoplasty: the prospect of human stem cells. *IEEE Engineering in Medicine and Biology Magazine*, **2005**, 24, 125-7	
5	System identification of dynamic closed-loop control of total peripheral resistance by arterial and cardiopulmonary baroreceptors. *Acta Astronautica*, **2001**, 49, 167-70	2.9
4	Cardiac Tissue Engineering **2007**, 27-1-27-24	
3	Gene Expression Differences In Three-dimensional Myobundles Compared To Two-dimensional Myocultures. *Medicine and Science in Sports and Exercise*, **2020**, 52, 781-782	1.2
2	BRG1 is a biomarker of hypertrophic cardiomyopathy in human heart specimens.. *Scientific Reports*, **2022**, 12, 7996	4.9
1	CRISPR Library Screening in Cultured Cardiomyocytes. *Methods in Molecular Biology*, **2022**, 1-13	1.4