Nathaniel Huebsch

List of Publications by Year in Descending Order

47 papers	7,560 citations	28 h-index	53 g-index
53 ext. papers	8,703 ext. citations	10.1 avg, IF	5.87 L-index

#	Paper	IF	Citations
47	Metabolically driven maturation of human-induced-pluripotent-stem-cell-derived cardiac microtissues on microfluidic chips.. *Nature Biomedical Engineering*, **2022**, 6, 372-388	19	2
46	iPSC-Derived Micro-Heart Muscle for Medium-Throughput Pharmacology and Pharmacogenomic Studies. *Methods in Molecular Biology*, **2022**, 111-131	1.4	
45	Integrated Isogenic Human Induced Pluripotent Stem Cell-Based Liver and Heart Microphysiological Systems Predict Unsafe Drug-Drug Interaction. *Frontiers in Pharmacology*, **2021**, 12, 667010	5.6	10
44	Interplay of Genotype and Substrate Stiffness in Driving the Hypertrophic Cardiomyopathy Phenotype in iPSC-Micro-Heart Muscle Arrays. *Cellular and Molecular Bioengineering*, **2021**, 14, 409-425	3.9	1
43	Biocompatible and Enzymatically Degradable Gels for 3D Cellular Encapsulation under Extreme Compressive Strain. *Gels*, **2021**, 7,	4.2	3
42	Elastomer-Grafted iPSC-Derived Micro Heart Muscles to Investigate Effects of Mechanical Loading on Physiology. *ACS Biomaterials Science and Engineering*, **2021**, 7, 2973-2989	5.5	6
41	Copper-Free Azide-Alkyne Cycloaddition for Peptide Modification of Alginate Hydrogels.. *ACS Applied Bio Materials*, **2021**, 4, 1229-1237	4.1	3
40	Integrin and syndecan binding peptide-conjugated alginate hydrogel for modulation of nucleus pulposus cell phenotype. *Biomaterials*, **2021**, 277, 121113	15.6	2
39	Modeling the Response of Heart Muscle to Mechanical Stimulation In Vitro. *Current Tissue Microenvironment Reports*, **2020**, 1, 61-72	1.1	4
38	Translational mechanobiology: Designing synthetic hydrogel matrices for improved in vitro models and cell-based therapies. *Acta Biomaterialia*, **2019**, 94, 97-111	10.8	25
37	New Molecular Scaffolds for Fluorescent Voltage Indicators. *ACS Chemical Biology*, **2019**, 14, 390-396	4.9	16
36	Quantitatively characterizing drug-induced arrhythmic contractile motions of human stem cell-derived cardiomyocytes. *Biotechnology and Bioengineering*, **2018**, 115, 1958-1970	4.9	3
35	Inversion and computational maturation of drug response using human stem cell derived cardiomyocytes in microphysiological systems. *Scientific Reports*, **2018**, 8, 17626	4.9	25
34	Contractile deficits in engineered cardiac microtissues as a result of MYBPC3 deficiency and mechanical overload. *Nature Biomedical Engineering*, **2018**, 2, 955-967	19	60
33	In-situ tissue regeneration through SDF-1□driven cell recruitment and stiffness-mediated bone regeneration in a critical-sized segmental femoral defect. *Acta Biomaterialia*, **2017**, 60, 50-63	10.8	47
32	A BAG3 chaperone complex maintains cardiomyocyte function during proteotoxic stress. *JCI Insight* , **2017**, 2,	9.9	52
31	CRISPR Interference Efficiently Induces Specific and Reversible Gene Silencing in Human iPSCs. *Cell Stem Cell*, **2016**, 18, 541-53	18	271

30	Hydrogels with tunable stress relaxation regulate stem cell fate and activity. *Nature Materials*, **2016**, 15, 326-34	27	1153
29	Miniaturized iPS-Cell-Derived Cardiac Muscles for Physiologically Relevant Drug Response Analyses. *Scientific Reports*, **2016**, 6, 24726	4.9	142
28	Self-organizing human cardiac microchambers mediated by geometric confinement. *Nature Communications*, **2015**, 6, 7413	17.4	113
27	Matrix elasticity of void-forming hydrogels controls transplanted-stem-cell-mediated bone formation. *Nature Materials*, **2015**, 14, 1269-77	27	302
26	Automated Video-Based Analysis of Contractility and Calcium Flux in Human-Induced Pluripotent Stem Cell-Derived Cardiomyocytes Cultured over Different Spatial Scales. *Tissue Engineering - Part C: Methods*, **2015**, 21, 467-79	2.9	171
25	Human iPSC-based cardiac microphysiological system for drug screening applications. *Scientific Reports*, **2015**, 5, 8883	4.9	330
24	Substrate stress relaxation regulates cell spreading. *Nature Communications*, **2015**, 6, 6364	17.4	485
23	Ultrasound-triggered disruption and self-healing of reversibly cross-linked hydrogels for drug delivery and enhanced chemotherapy. *Proceedings of the National Academy of Sciences of the United States of America*, **2014**, 111, 9762-7	11.5	282
22	Three-dimensional filamentous human diseased cardiac tissue model. *Biomaterials*, **2014**, 35, 1367-77	15.6	90
21	Characterization of a composite injury model of severe lower limb bone and nerve trauma. *Journal of Tissue Engineering and Regenerative Medicine*, **2014**, 8, 432-41	4.4	10
20	Recovery from hind limb ischemia enhances rhBMP-2-mediated segmental bone defect repair in a rat composite injury model. *Bone*, **2013**, 55, 410-7	4.7	19
19	Attenuated human bone morphogenetic protein-2-mediated bone regeneration in a rat model of composite bone and muscle injury. *Tissue Engineering - Part C: Methods*, **2013**, 19, 316-25	2.9	56
18	Adipose tissue engineering using injectable, oxidized alginate hydrogels. *Tissue Engineering - Part A*, **2012**, 18, 737-43	3.9	51
17	Spatiotemporal delivery of bone morphogenetic protein enhances functional repair of segmental bone defects. *Bone*, **2011**, 49, 485-92	4.7	116
16	An alginate-based hybrid system for growth factor delivery in the functional repair of large bone defects. *Biomaterials*, **2011**, 32, 65-74	15.6	397
15	Active scaffolds for on-demand drug and cell delivery. *Proceedings of the National Academy of Sciences of the United States of America*, **2011**, 108, 67-72	11.5	505
14	Mechanical regulation of vascular growth and tissue regeneration in vivo. *Proceedings of the National Academy of Sciences of the United States of America*, **2011**, 108, E674-80	11.5	160
13	A Role for Integrin-ECM Bonds as Mechanotransducers that Modulate Adult Stem Cell Fate **2011**, 23-46		1

12	Harnessing traction-mediated manipulation of the cell/matrix interface to control stem-cell fate. *Nature Materials*, **2010**, 9, 518-26	27	1126
11	Stress-relaxation behavior in gels with ionic and covalent crosslinks. *Journal of Applied Physics*, **2010**, 107, 63509	2.5	230
10	Patterning alginate hydrogels using light-directed release of caged calcium in a microfluidic device. *Biomedical Microdevices*, **2010**, 12, 145-51	3.7	64
9	Inspiration and application in the evolution of biomaterials. *Nature*, **2009**, 462, 426-32	50.4	605
8	Infection-mimicking materials to program dendritic cells in situ. *Nature Materials*, **2009**, 8, 151-8	27	327
7	Cyclic arginine-glycine-aspartate peptides enhance three-dimensional stem cell osteogenic differentiation. *Tissue Engineering - Part A*, **2009**, 15, 263-72	3.9	78
6	Integrin-adhesion ligand bond formation of preosteoblasts and stem cells in three-dimensional RGD presenting matrices. *Biomacromolecules*, **2008**, 9, 1843-51	6.9	57
5	Noninvasive probing of the spatial organization of polymer chains in hydrogels using fluorescence resonance energy transfer (FRET). *Journal of the American Chemical Society*, **2007**, 129, 4518-9	16.4	27
4	Fluorescent resonance energy transfer: A tool for probing molecular cell-biomaterial interactions in three dimensions. *Biomaterials*, **2007**, 28, 2424-37	15.6	73
3	Analysis of sterilization protocols for peptide-modified hydrogels. *Journal of Biomedical Materials Research - Part B Applied Biomaterials*, **2005**, 74, 440-7	3.5	43
2	Integrated hiPSC-based liver and heart microphysiological systems predict unsafe drug-drug interaction		1
1	Metabolically-Driven Maturation of hiPSC-Cell Derived Cardiac Chip		6