Kevin Kit Parker

List of Publications by Citations

127 papers	12,439 citations	59 h-index	111 g-index
140 ext. papers	14,509 ext. citations	11.7 avg, IF	6.36 L-index

#	Paper	IF	Citations
127	Modeling the mitochondrial cardiomyopathy of Barth syndrome with induced pluripotent stem cell and heart-on-chip technologies. *Nature Medicine*, **2014**, 20, 616-23	50.5	604
126	Muscular thin films for building actuators and powering devices. *Science*, **2007**, 317, 1366-70	33.3	572
125	Nanowired three-dimensional cardiac patches. *Nature Nanotechnology*, **2011**, 6, 720-5	28.7	537
124	Microtubules can bear enhanced compressive loads in living cells because of lateral reinforcement. *Journal of Cell Biology*, **2006**, 173, 733-41	7.3	503
123	Instrumented cardiac microphysiological devices via multimaterial three-dimensional printing. *Nature Materials*, **2017**, 16, 303-308	27	501
122	A tissue-engineered jellyfish with biomimetic propulsion. *Nature Biotechnology*, **2012**, 30, 792-7	44.5	419
121	Ensembles of engineered cardiac tissues for physiological and pharmacological study: heart on a chip. *Lab on A Chip*, **2011**, 11, 4165-73	7.2	390
120	Directional control of lamellipodia extension by constraining cell shape and orienting cell tractional forces. *FASEB Journal*, **2002**, 16, 1195-204	0.9	390
119	Nanofiber assembly by rotary jet-spinning. *Nano Letters*, **2010**, 10, 2257-61	11.5	377
118	Engineered in vitro disease models. *Annual Review of Pathology: Mechanisms of Disease*, **2015**, 10, 195-262	34	373
117	Phototactic guidance of a tissue-engineered soft-robotic ray. *Science*, **2016**, 353, 158-62	33.3	371
116	Microfluidic heart on a chip for higher throughput pharmacological studies. *Lab on A Chip*, **2013**, 13, 3599-608	7.2	338
115	Cardiogenesis and the complex biology of regenerative cardiovascular medicine. *Science*, **2008**, 322, 1494-7	33.3	211
114	A linked organ-on-chip model of the human neurovascular unit reveals the metabolic coupling of endothelial and neuronal cells. *Nature Biotechnology*, **2018**, 36, 865-874	44.5	207
113	Biohybrid actuators for robotics: A review of devices actuated by living cells. *Science Robotics*, **2017**, 2,	18.6	202
112	Generation of functional ventricular heart muscle from mouse ventricular progenitor cells. *Science*, **2009**, 326, 426-9	33.3	182
111	Controlling the contractile strength of engineered cardiac muscle by hierarchal tissue architecture. *Biomaterials*, **2012**, 33, 5732-41	15.6	166

110	Photosynthetic artificial organelles sustain and control ATP-dependent reactions in a protocellular system. *Nature Biotechnology*, **2018**, 36, 530-535	44.5	163
109	A multiscale model for eccentric and concentric cardiac growth through sarcomerogenesis. *Journal of Theoretical Biology*, **2010**, 265, 433-42	2.3	160
108	Micromolded gelatin hydrogels for extended culture of engineered cardiac tissues. *Biomaterials*, **2014**, 35, 5462-71	15.6	155
107	Quantitative prediction of human pharmacokinetic responses to drugs via fluidically coupled vascularized organ chips. *Nature Biomedical Engineering*, **2020**, 4, 421-436	19	154
106	Matched-Comparative Modeling of Normal and Diseased Human Airway Responses Using a Microengineered Breathing Lung Chip. *Cell Systems*, **2016**, 3, 456-466.e4	10.6	152
105	Sarcomere alignment is regulated by myocyte shape. *Cytoskeleton*, **2008**, 65, 641-51		151
104	Robotic fluidic coupling and interrogation of multiple vascularized organ chips. *Nature Biomedical Engineering*, **2020**, 4, 407-420	19	150
103	Extracellular matrix, mechanotransduction and structural hierarchies in heart tissue engineering. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **2007**, 362, 1267-79	5.8	142
102	Organs-on-Chips with combined multi-electrode array and transepithelial electrical resistance measurement capabilities. *Lab on A Chip*, **2017**, 17, 2294-2302	7.2	134
101	Generation of human muscle fibers and satellite-like cells from human pluripotent stem cells in vitro. *Nature Protocols*, **2016**, 11, 1833-50	18.8	132
100	Biohybrid thin films for measuring contractility in engineered cardiovascular muscle. *Biomaterials*, **2010**, 31, 3613-21	15.6	130
99	Muscle on a chip: in vitro contractility assays for smooth and striated muscle. *Journal of Pharmacological and Toxicological Methods*, **2012**, 65, 126-35	1.7	125
98	Engineering hybrid polymer-protein super-aligned nanofibers via rotary jet spinning. *Biomaterials*, **2014**, 35, 3188-97	15.6	124
97	Recapitulating maladaptive, multiscale remodeling of failing myocardium on a chip. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 9770-5	11.5	120
96	Cyclic strain induces dual-mode endothelial-mesenchymal transformation of the cardiac valve. *Proceedings of the National Academy of Sciences of the United States of America*, **2011**, 108, 19943-8	11.5	120
95	Cooperative coupling of cell-matrix and cell-cell adhesions in cardiac muscle. *Proceedings of the National Academy of Sciences of the United States of America*, **2012**, 109, 9881-6	11.5	119
94	Traumatic brain injury and the neuronal microenvironment: a potential role for neuropathological mechanotransduction. *Neuron*, **2015**, 85, 1177-92	13.9	110
93	A tissue-engineered scale model of the heart ventricle. *Nature Biomedical Engineering*, **2018**, 2, 930-941	19	103

92	Three-dimensional paper-based model for cardiac ischemia. *Advanced Healthcare Materials*, **2014**, 3, 1036-43	10.1	102
91	Soy Protein/Cellulose Nanofiber Scaffolds Mimicking Skin Extracellular Matrix for Enhanced Wound Healing. *Advanced Healthcare Materials*, **2018**, 7, e1701175	10.1	97
90	Hierarchical wrinkling patterns. *Soft Matter*, **2010**, 6, 5751	3.6	94
89	Vascular smooth muscle contractility depends on cell shape. *Integrative Biology (United Kingdom)*, **2011**, 3, 1063-70	3.7	91
88	Blast-induced phenotypic switching in cerebral vasospasm. *Proceedings of the National Academy of Sciences of the United States of America*, **2011**, 108, 12705-10	11.5	89
87	A simple model for nanofiber formation by rotary jet-spinning. *Applied Physics Letters*, **2011**, 99, 203107	3.4	88
86	Self-organization of muscle cell structure and function. *PLoS Computational Biology*, **2011**, 7, e1001088	5	85
85	Myocyte shape regulates lateral registry of sarcomeres and contractility. *American Journal of Pathology*, **2012**, 181, 2030-7	5.8	81
84	Myofibrillar architecture in engineered cardiac myocytes. *Circulation Research*, **2008**, 103, 340-2	15.7	81
83	Micropatterning Alginate Substrates for Cardiovascular Muscle on a Chip. *Advanced Functional Materials*, **2013**, 23, 3738-3746	15.6	80
82	Ultragentle manipulation of delicate structures using a soft robotic gripper. *Science Robotics*, **2019**, 4,	18.6	77
81	Matrix elasticity regulates the optimal cardiac myocyte shape for contractility. *American Journal of Physiology - Heart and Circulatory Physiology*, **2014**, 306, H1525-39	5.2	76
80	A possible role for integrin signaling in diffuse axonal injury. *PLoS ONE*, **2011**, 6, e22899	3.7	76
79	Cardiac microphysiological devices with flexible thin-film sensors for higher-throughput drug screening. *Lab on A Chip*, **2017**, 17, 3692-3703	7.2	75
78	Effect of solvent evaporation on fiber morphology in rotary jet spinning. *Langmuir*, **2014**, 30, 13369-74	4	74
77	Nuclear morphology and deformation in engineered cardiac myocytes and tissues. *Biomaterials*, **2010**, 31, 5143-50	15.6	70
76	Quality metrics for stem cell-derived cardiac myocytes. *Stem Cell Reports*, **2014**, 2, 282-94	8	69
75	Microenvironmental Control of Adipocyte Fate and Function. *Trends in Cell Biology*, **2016**, 26, 745-755	18.3	68

74	The contribution of cellular mechanotransduction to cardiomyocyte form and function. *Biomechanics and Modeling in Mechanobiology*, **2012**, 11, 1227-39	3.8	65
73	Extracellular matrix protein expression is brain region dependent. *Journal of Comparative Neurology*, **2016**, 524, 1309-36	3.4	65
72	Surface-initiated assembly of protein nanofabrics. *Nano Letters*, **2010**, 10, 2184-91	11.5	63
71	Neurons derived from different brain regions are inherently different in vitro: a novel multiregional brain-on-a-chip. *Journal of Neurophysiology*, **2017**, 117, 1320-1341	3.2	61
70	Structural phenotyping of stem cell-derived cardiomyocytes. *Stem Cell Reports*, **2015**, 4, 340-7	8	60
69	Connexin43 ablation in foetal atrial myocytes decreases electrical coupling, partner connexins, and sodium current. *Cardiovascular Research*, **2012**, 94, 58-65	9.9	59
68	Optimization of electroactive hydrogel actuators. *ACS Applied Materials & Interfaces*, **2010**, 2, 343-6	9.5	59
67	JetValve: Rapid manufacturing of biohybrid scaffolds for biomimetic heart valve replacement. *Biomaterials*, **2017**, 133, 229-241	15.6	57
66	Opposite rheological properties of neuronal microcompartments predict axonal vulnerability in brain injury. *Scientific Reports*, **2015**, 5, 9475	4.9	55
65	Insights Into the Pathogenesis of Catecholaminergic Polymorphic Ventricular Tachycardia From Engineered Human Heart Tissue. *Circulation*, **2019**, 140, 390-404	16.7	52
64	Human airway musculature on a chip: an in vitro model of allergic asthmatic bronchoconstriction and bronchodilation. *Lab on A Chip*, **2014**, 14, 3925-36	7.2	51
63	Mussel-inspired 3D fiber scaffolds for heart-on-a-chip toxicity studies of engineered nanomaterials. *Analytical and Bioanalytical Chemistry*, **2018**, 410, 6141-6154	4.4	49
62	Muscle tissue engineering in fibrous gelatin: implications for meat analogs. *Npj Science of Food*, **2019**, 3, 20	6.3	49
61	Hierarchical architecture influences calcium dynamics in engineered cardiac muscle. *Experimental Biology and Medicine*, **2011**, 236, 366-73	3.7	49
60	Cell-to-cell coupling in engineered pairs of rat ventricular cardiomyocytes: relation between Cx43 immunofluorescence and intercellular electrical conductance. *American Journal of Physiology - Heart and Circulatory Physiology*, **2012**, 302, H443-50	5.2	49
59	Production-scale fibronectin nanofibers promote wound closure and tissue repair in a dermal mouse model. *Biomaterials*, **2018**, 166, 96-108	15.6	48
58	A human in vitro model of Duchenne muscular dystrophy muscle formation and contractility. *Journal of Cell Biology*, **2016**, 215, 47-56	7.3	48
57	The structure-function relationships of a natural nanoscale photonic device in cuttlefish chromatophores. *Journal of the Royal Society Interface*, **2014**, 11, 20130942	4.1	46

56	Modeling of cardiac muscle thin films: pre-stretch, passive and active behavior. *Journal of Biomechanics*, **2012**, 45, 832-41	2.9	45
55	A bioinspired and hierarchically structured shape-memory material. *Nature Materials*, **2021**, 20, 242-249	27	45
54	Synchronized stimulation and continuous insulin sensing in a microfluidic human Islet on a Chip designed for scalable manufacturing. *Lab on A Chip*, **2019**, 19, 2993-3010	7.2	44
53	Electrical coupling and propagation in engineered ventricular myocardium with heterogeneous expression of connexin43. *Circulation Research*, **2012**, 110, 1445-53	15.7	43
52	Next-generation tissue-engineered heart valves with repair, remodelling and regeneration capacity. *Nature Reviews Cardiology*, **2021**, 18, 92-116	14.8	43
51	Laminar ventricular myocardium on a microelectrode array-based chip. *Journal of Materials Chemistry B*, **2016**, 4, 3534-3543	7.3	41
50	Traction force microscopy of engineered cardiac tissues. *PLoS ONE*, **2018**, 13, e0194706	3.7	41
49	Functional differences in engineered myocardium from embryonic stem cell-derived versus neonatal cardiomyocytes. *Stem Cell Reports*, **2013**, 1, 387-96	8	39
48	A potential role for integrin signaling in mechanoelectrical feedback. *Progress in Biophysics and Molecular Biology*, **2012**, 110, 196-203	4.7	37
47	Inhibition of mTOR Signaling Enhances Maturation of Cardiomyocytes Derived From Human-Induced Pluripotent Stem Cells via p53-Induced Quiescence. *Circulation*, **2020**, 141, 285-300	16.7	36
46	Automated fabrication of photopatterned gelatin hydrogels for organ-on-chips applications. *Biofabrication*, **2018**, 10, 025004	10.5	35
45	Computational modeling of muscular thin films for cardiac repair. *Computational Mechanics*, **2009**, 43, 535-544	4	34
44	The contractile strength of vascular smooth muscle myocytes is shape dependent. *Integrative Biology (United Kingdom)*, **2014**, 6, 152-63	3.7	33
43	Coupling primary and stem cell-derived cardiomyocytes in an in vitro model of cardiac cell therapy. *Journal of Cell Biology*, **2016**, 212, 389-97	7.3	32
42	Design and Fabrication of Fibrous Nanomaterials Using Pull Spinning. *Macromolecular Materials and Engineering*, **2017**, 302, 1600404	3.9	31
41	Development of Biodegradable and Antimicrobial Electrospun Zein Fibers for Food Packaging. *ACS Sustainable Chemistry and Engineering*, **2020**, 8, 15354-15365	8.3	30
40	Porous Biomimetic Hyaluronic Acid and Extracellular Matrix Protein Nanofiber Scaffolds for Accelerated Cutaneous Tissue Repair. *ACS Applied Materials & Interfaces*, **2019**, 11, 45498-45510	9.5	30
39	Endothelial extracellular vesicles contain protective proteins and rescue ischemia-reperfusion injury in a human heart-on-chip. *Science Translational Medicine*, **2020**, 12,	17.5	29

38	Toward improved myocardial maturity in an organ-on-chip platform with immature cardiac myocytes. *Experimental Biology and Medicine*, **2017**, 242, 1643-1656	3.7	27
37	Symmetry breaking in cultured mammalian cells. *In Vitro Cellular and Developmental Biology - Animal*, **2000**, 36, 563-5	2.6	27
36	Alfalfa Nanofibers for Dermal Wound Healing. *ACS Applied Materials & Interfaces*, **2019**, 11, 33535-33547	9.5	26
35	Metrics for assessing cytoskeletal orientational correlations and consistency. *PLoS Computational Biology*, **2015**, 11, e1004190	5	25
34	Time-warped comparison of gene expression in adaptive and maladaptive cardiac hypertrophy. *Circulation: Cardiovascular Genetics*, **2009**, 2, 116-24		25
33	Cytoskeletal prestress regulates nuclear shape and stiffness in cardiac myocytes. *Experimental Biology and Medicine*, **2015**, 240, 1543-54	3.7	24
32	Production of Synthetic, Para-Aramid and Biopolymer Nanofibers by Immersion Rotary Jet-Spinning. *Macromolecular Materials and Engineering*, **2017**, 302, 1600365	3.9	24
31	Differential contributions of conformation extension and domain unfolding to properties of fibronectin nanotextiles. *Nano Letters*, **2012**, 12, 5587-92	11.5	24
30	Self-organizing large-scale extracellular-matrix protein networks. *Advanced Materials*, **2015**, 27, 2838-45	24	23
29	Safety and efficacy of cardiopoietic stem cells in the treatment of post-infarction left-ventricular dysfunction - From cardioprotection to functional repair in a translational pig infarction model. *Biomaterials*, **2017**, 122, 48-62	15.6	22
28	Mechanotransduction and Metabolism in Cardiomyocyte Microdomains. *BioMed Research International*, **2016**, 2016, 4081638	3	21
27	Nanofiber-reinforced soft fluidic micro-actuators. *Journal of Micromechanics and Microengineering*, **2018**, 28, 084002	2	21
26	Multidimensional detection and analysis of Ca2+ sparks in cardiac myocytes. *Biophysical Journal*, **2007**, 92, 4433-43	2.9	19
25	Angiotensin II Induced Cardiac Dysfunction on a Chip. *PLoS ONE*, **2016**, 11, e0146415	3.7	19
24	An autonomously swimming biohybrid fish designed with human cardiac biophysics.. *Science*, **2022**, 375, 639-647	33.3	17
23	Comparative analysis of poly-glycolic acid-based hybrid polymer starter matrices for in vitro tissue engineering. *Colloids and Surfaces B: Biointerfaces*, **2017**, 158, 203-212	6	16
22	Scatter Enhanced Phase Contrast Microscopy for Discriminating Mechanisms of Active Nanoparticle Transport in Living Cells. *Nano Letters*, **2019**, 19, 793-804	11.5	15
21	Diagnostic tools for evaluating the impact of Focal Axonal Swellings arising in neurodegenerative diseases and/or traumatic brain injury. *Journal of Neuroscience Methods*, **2015**, 253, 233-43	3	13

20	Myofibrils in Cardiomyocytes Tend to Assemble Along the Maximal Principle Stress Directions. *Journal of Biomechanical Engineering*, **2017**, 139,	2.1	13
19	Protein-Based Textiles: Bio-Inspired and Bio-Derived Materials for Medical and Non-Medical Applications **2013**, 1, 25-34		13
18	Quantifying the effects of engineered nanomaterials on endothelial cell architecture and vascular barrier integrity using a cell pair model. *Nanoscale*, **2019**, 11, 17878-17893	7.7	12
17	Continuous Formation of Ultrathin, Strong Collagen Sheets with Tunable Anisotropy and Compaction. *ACS Biomaterials Science and Engineering*, **2020**, 6, 4236-4246	5.5	11
16	Formation of Multi-Component Extracellular Matrix Protein Fibers. *Scientific Reports*, **2018**, 8, 1913	4.9	11
15	Inkjet-Printed Carbon Nanotubes for Fabricating a Spoof Fingerprint on Paper. *ACS Omega*, **2019**, 4, 8626-8631	3.9	10
14	Engineering biomimetic and instructive materials for wound healing and regeneration. *Current Opinion in Biomedical Engineering*, **2019**, 10, 97-106	4.4	9
13	Biomimetic and estrogenic fibers promote tissue repair in mice and human skin via estrogen receptor *Biomaterials*, **2020**, 255, 120149	15.6	8
12	Mapping 2D- and 3D-distributions of metal/metal oxide nanoparticles within cleared human skin tissues. *NanoImpact*, **2020**, 17, 100208-100208	5.6	8
11	Acute pergolide exposure stiffens engineered valve interstitial cell tissues and reduces contractility in vitro. *Cardiovascular Pathology*, **2016**, 25, 316-324	3.8	7
10	The role of extracellular matrix in normal and pathological pregnancy: Future applications of microphysiological systems in reproductive medicine. *Experimental Biology and Medicine*, **2020**, 245, 1163-1174	3.7	6
9	Human brain microvascular endothelial cell pairs model tissue-level blood-brain barrier function. *Integrative Biology (United Kingdom)*, **2020**, 12, 64-79	3.7	5
8	Building Biomimetic Potency Tests for Islet Transplantation. *Diabetes*, **2021**, 70, 347-363	0.9	5
7	Fabrication of Millimeter-Long Carbon Tubular Nanostructures Using the Self-Rolling Process Inherent in Elastic Protein Layers. *Advanced Materials*, **2017**, 29, 1701732	24	4
6	Fattening chips: hypertrophy, feeding, and fasting of human white adipocytes. *Lab on A Chip*, **2020**, 20, 4152-4165	7.2	4
5	Designer Assays for Your Sick, Subdivided Heart. *Cell*, **2019**, 176, 684-685	56.2	2
4	Extracellular matrix protein expression is brain region dependent. *Journal of Comparative Neurology*, **2016**, 524, Spc1-Spc1	3.4	2
3	An Extracellular Matrix-Liposome Composite, a Novel Extracellular Matrix Delivery System for Accelerated Tissue Regeneration. *Advanced Healthcare Materials*, **2021**, e2101599	10.1	0

2	Differential modulation of endothelial cytoplasmic protrusions after exposure to graphene-family nanomaterials.. *NanoImpact*, **2022**, 26, 100401	5.6	0
1	Charge-selective membrane protein patterning with proteoliposomes. *RSC Advances*, **2015**, 5, 5183-5191	3.7	