R D Kamm

List of Publications by Year
in descending order

268 papers	25,418 citations	5574 82 h-index	8167 148 g-index
287 all docs	287 docs citations	287 times ranked	23430 citing authors

#	Article	IF	Citations
1	Migration of tumor cells in 3D matrices is governed by matrix stiffness along with cell-matrix adhesion and proteolysis. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 10889-10894.	7.1	1,029
2	Lamin A/C deficiency causes defective nuclear mechanics and mechanotransduction. Journal of Clinical Investigation, 2004, 113, 370-378.	8.2	828
3	Three-dimensional microfluidic model for tumor cell intravasation and endothelial barrier function. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 13515-13520.	7.1	744
4	Human 3D vascularized organotypic microfluidic assays to study breast cancer cell extravasation. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 214-219.	7.1	616
5	Distinct endothelial phenotypes evoked by arterial waveforms derived from atherosclerosis-susceptible and -resistant regions of human vasculature. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 14871-14876.	7.1	578
6	The Impact of Calcification on the Biomechanical Stability of Atherosclerotic Plaques. Circulation, 2001, 103, 1051-1056.	1.6	538
7	Lamin A/C deficiency causes defective nuclear mechanics and mechanotransduction. Journal of Clinical Investigation, 2004, 113, 370-378.	8.2	522
8	Microfluidic assay for simultaneous culture of multiple cell types on surfaces or within hydrogels. Nature Protocols, 2012, 7, 1247-1259.	12.0	518
9	3D self-organized microvascular model of the human blood-brain barrier with endothelial cells, pericytes and astrocytes. Biomaterials, 2018, 180, 117-129.	11.4	499
10	Cell migration into scaffolds under co-culture conditions in a microfluidic platform. Lab on A Chip, 2009, 9, 269-275.	6.0	456
11	A microfluidic 3D inÂvitro model for specificity of breast cancer metastasis to bone. Biomaterials, 2014, 35, 2454-2461.	11.4	440
12	Impact of the physical microenvironment on tumor progression and metastasis. Current Opinion in Biotechnology, 2016, 40, 41-48.	6.6	437
13	Interstitial flow influences direction of tumor cell migration through competing mechanisms. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 11115-11120.	7.1	412
14	<i>Ex Vivo</i> Profiling of PD-1 Blockade Using Organotypic Tumor Spheroids. Cancer Discovery, 2018, 8, 196-215.	9.4	392
15	Neutrophils Suppress Intraluminal NK Cellâ€"Mediated Tumor Cell Clearance and Enhance Extravasation of Disseminated Carcinoma Cells. Cancer Discovery, 2016, 6, 630-649.	9.4	369
16	A 3D neurovascular microfluidic model consisting of neurons, astrocytes and cerebral endothelial cells as a bloodâ€"brain barrier. Lab on A Chip, 2017, 17, 448-459.	6.0	338
17	Noncontact three-dimensional mapping of intracellular hydromechanical properties by Brillouin microscopy. Nature Methods, 2015, 12, 1132-1134.	19.0	326
18	Mechanotransduction through growth-factor shedding into the extracellular space. Nature, 2004, 429, 83-86.	27.8	324

#	Article	IF	Citations
19	Design, fabrication and implementation of a novel multi-parameter control microfluidic platform for three-dimensional cell culture and real-time imaging. Lab on A Chip, 2008, 8, 1468.	6.0	312
20	On-chip human microvasculature assay for visualization and quantification of tumor cell extravasation dynamics. Nature Protocols, 2017, 12, 865-880.	12.0	297
21	The bioprinting roadmap. Biofabrication, 2020, 12, 022002.	7.1	291
22	Microphysiological 3D model of amyotrophic lateral sclerosis (ALS) from human iPS-derived muscle cells and optogenetic motor neurons. Science Advances, 2018, 4, eaat5847.	10.3	282
23	Formation and optogenetic control of engineered 3D skeletal muscle bioactuators. Lab on A Chip, 2012, 12, 4976.	6.0	253
24	Mechanisms of tumor cell extravasation in an in vitro microvascular network platform. Integrative Biology (United Kingdom), 2013, 5, 1262.	1.3	244
25	MicroRNA delivery through nanoparticles. Journal of Controlled Release, 2019, 313, 80-95.	9.9	235
26	Optogenetic skeletal muscle-powered adaptive biological machines. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 3497-3502.	7.1	234
27	Cell contraction induces long-ranged stress stiffening in the extracellular matrix. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 4075-4080.	7.1	231
28	Microfluidic platforms for mechanobiology. Lab on A Chip, 2013, 13, 2252.	6.0	226
29	Mechanotransduction of fluid stresses governs 3D cell migration. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 2447-2452.	7.1	214
30	Microfluidic Models of Vascular Functions. Annual Review of Biomedical Engineering, 2012, 14, 205-230.	12.3	208
31	In Vitro Model of Tumor Cell Extravasation. PLoS ONE, 2013, 8, e56910.	2.5	201
32	An investigation of transition to turbulence in bounded oscillatory Stokes flows Part 1. Experiments. Journal of Fluid Mechanics, 1991, 225, 395-422.	3.4	197
33	Generation of 3D functional microvascular networks with human mesenchymal stem cells in microfluidic systems. Integrative Biology (United Kingdom), 2014, 6, 555-563.	1.3	195
34	Microfluidic device for the formation of optically excitable, three-dimensional, compartmentalized motor units. Science Advances, 2016, 2, e1501429.	10.3	192
35	Control of Perfusable Microvascular Network Morphology Using a Multiculture Microfluidic System. Tissue Engineering - Part C: Methods, 2014, 20, 543-552.	2.1	188
36	3D microfluidic <i>ex vivo</i> culture of organotypic tumor spheroids to model immune checkpoint blockade. Lab on A Chip, 2018, 18, 3129-3143.	6.0	185

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37	Measuring molecular rupture forces between single actin filaments and actin-binding proteins. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 9221-9226.	7.1	183
38	Tumor cell migration in complex microenvironments. Cellular and Molecular Life Sciences, 2013, 70, 1335-1356.	5.4	183
39	Transportâ€mediated angiogenesis in 3D epithelial coculture. FASEB Journal, 2009, 23, 2155-2164.	0.5	179
40	Warburg metabolism in tumor-conditioned macrophages promotes metastasis in human pancreatic ductal adenocarcinoma. OncoImmunology, 2016, 5, e1191731.	4.6	178
41	A 3D microfluidic model for preclinical evaluation of TCR-engineered T cells against solid tumors. JCI Insight, 2017, 2, .	5.0	169
42	Bloodâ€“Brain Barrier Dysfunction in a 3D In Vitro Model of Alzheimer's Disease. Advanced Science, 2019, 6, 1900962.	11.2	168
43	Microfluidics: A New Tool for Modeling Cancerâ€“Immune Interactions. Trends in Cancer, 2016, 2, 6-19.	7.4	163
44	Complex mechanics of the heterogeneous extracellular matrix in cancer. Extreme Mechanics Letters, 2018, 21, 25-34.	4.1	158
45	Vascularized organoids on a chip: strategies for engineering organoids with functional vasculature. Lab on A Chip, 2021, 21, 473-488.	6.0	151
46	Screening therapeutic EMT blocking agents in a three-dimensional microenvironment. Integrative Biology (United Kingdom), 2013, 5, 381-389.	1.3	150
47	Rethinking organoid technology through bioengineering. Nature Materials, 2021, 20, 145-155.	27.5	150
48	Computational Analysis of Viscoelastic Properties of Crosslinked Actin Networks. PLoS Computational Biology, 2009, 5, e1000439.	3.2	145
49	A high-throughput microfluidic assay to study neurite response to growth factor gradients. Lab on A Chip, 2011, 11, 497-507.	6.0	145
50	In vitro 3D collective sprouting angiogenesis under orchestrated ANG-1 and VEGF gradients. Lab on A Chip, 2011, 11, 2175.	6.0	142
51	Microfluidic Platforms for Studies of Angiogenesis, Cell Migration, and Cellâ€“Cell Interactions. Annals of Biomedical Engineering, 2010, 38, 1164-1177.	2.5	140
52	A novel microfluidic platform for high-resolution imaging of a three-dimensional cell culture under a controlled hypoxic environment. Lab on A Chip, 2012, 12, 4855.	6.0	134
53	Inflamed neutrophils sequestered at entrapped tumor cells via chemotactic confinement promote tumor cell extravasation. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 7022-7027.	7.1	132
54	Elucidation of the Roles of Tumor Integrin Î²1 in the Extravasation Stage of the Metastasis Cascade. Cancer Research, 2016, 76, 2513-2524.	0.9	129

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55	An investigation of transition to turbulence in bounded oscillatory Stokes flows Part 2. Numerical simulations. Journal of Fluid Mechanics, 1991, 225, 423-444.	3.4	127
56	Advances in on-chip vascularization. Regenerative Medicine, 2017, 12, 285-302.	1.7	125
57	Engineered 3D vascular and neuronal networks in a microfluidic platform. Scientific Reports, 2018, 8, 5168.	3.3	123
58	Is airway closure caused by a liquid film instability?. Respiration Physiology, 1989, 75, 141-156.	2.7	117
59	Microfluidic devices for studying heterotypic cell-cell interactions and tissue specimen cultures under controlled microenvironments. Biomicrofluidics, 2011, 5, 013406.	2.4	117
60	A quantitative microfluidic angiogenesis screen for studying anti-angiogenic therapeutic drugs. Lab on A Chip, 2015, 15, 301-310.	6.0	116
61	Dynamic interplay between tumour, stroma and immune system can drive or prevent tumour progression. Convergent Science Physical Oncology, 2017, 3, 034002.	2.6	114
62	A Chemomechanical Model for Nuclear Morphology and Stresses during Cell Transendothelial Migration. Biophysical Journal, 2016, 111, 1541-1552.	0.5	112
63	Perspective: The promise of multi-cellular engineered living systems. APL Bioengineering, 2018, 2, 040901.	6.2	110
64	The effects of monocytes on tumor cell extravasation in a 3D vascularized microfluidic model. Biomaterials, 2019, 198, 180-193.	11.4	110
65	Breast Cancer Cell Invasion into a Three Dimensional Tumor-Stroma Microenvironment. Scientific Reports, 2016, 6, 34094.	3.3	109
66	Human Vascular Tissue Models Formed from Human Induced Pluripotent Stem Cell Derived Endothelial Cells. Stem Cell Reviews and Reports, 2015, 11, 511-525.	5.6	107
67	Flow in Collapsible Tubes: A Brief Review. Journal of Biomechanical Engineering, 1989, 111, 177-179.	1.3	106
68	Emerging Trends in Micro- and Nanoscale Technologies in Medicine: From Basic Discoveries to Translation. ACS Nano, 2017, 11, 5195-5214.	14.6	104
69	Mechanism of a flow-gated angiogenesis switch: early signaling events at cellâ€“matrix and cellâ€“cell junctions. Integrative Biology (United Kingdom), 2012, 4, 863.	1.3	103
70	Cellâ€“Extracellular Matrix Mechanobiology: Forceful Tools and Emerging Needs for Basic and Translational Research. Nano Letters, 2018, 18, 1-8.	9.1	103
71	Sprouting Angiogenesis under a Chemical Gradient Regulated by Interactions with an Endothelial Monolayer in a Microfluidic Platform. Analytical Chemistry, 2011, 83, 8454-8459.	6.5	102
72	Ensemble Analysis of Angiogenic Growth in Three-Dimensional Microfluidic Cell Cultures. PLoS ONE, 2012, 7, e37333.	2.5	102

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73	3D matrix microenvironment for targeted differentiation of embryonic stem cells into neural and glial lineages. Biomaterials, 2013, 34, 5995-6007.	11.4	99
74	In Vitro Microfluidic Models for Neurodegenerative Disorders. Advanced Healthcare Materials, 2018, 7, 1700489.	7.6	98
75	Controlled electromechanical cell stimulation on-a-chip. Scientific Reports, 2015, 5, 11800.	3.3	97
76	Contact-dependent carcinoma aggregate dispersion by M2a macrophages via ICAM-1 and Î²2 integrin interactions. Oncotarget, 2015, 6, 25295-25307.	1.8	97
77	Vascularized microfluidic organ-chips for drug screening, disease models and tissue engineering. Current Opinion in Biotechnology, 2018, 52, 116-123.	6.6	95
78	A versatile assay for monitoring in vivo-like transendothelial migration of neutrophils. Lab on A Chip, 2012, 12, 3861.	6.0	93
79	On-chip 3D neuromuscular model for drug screening and precision medicine in neuromuscular disease. Nature Protocols, 2020, 15, 421-449.	12.0	93
80	The nonlinear growth of surface-tension-driven instabilities of a thin annular film. Journal of Fluid Mechanics, 1991, 233, 141-156.	3.4	92
81	Molecular responses of rat tracheal epithelial cells to transmembrane pressure. American Journal of Physiology - Lung Cellular and Molecular Physiology, 2000, 278, L1264-L1272.	2.9	92
82	Creating Living Cellular Machines. Annals of Biomedical Engineering, 2014, 42, 445-459.	2.5	92
83	Characterizing the Role of Monocytes in T Cell Cancer Immunotherapy Using a 3D Microfluidic Model. Frontiers in Immunology, 2018, 9, 416.	4.8	91
84	Computational modeling of three-dimensional ECM-rigidity sensing to guide directed cell migration. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E390-E399.	7.1	88
85	Macrophage-Secreted TNFÎ± and TGFÎ²1 Influence Migration Speed and Persistence of Cancer Cells in 3D Tissue Culture via Independent Pathways. Cancer Research, 2017, 77, 279-290.	0.9	86
86	Surfaceâ€Treatmentâ€Induced Threeâ€Dimensional Capillary Morphogenesis in a Microfluidic Platform. Advanced Materials, 2009, 21, 4863-4867.	21.0	85
87	CELLULARFLUIDMECHANICS. Annual Review of Fluid Mechanics, 2002, 34, 211-232.	25.0	84
88	Computational Analysis of a Cross-linked Actin-like Network. Experimental Mechanics, 2009, 49, 91-104.	2.0	83
89	Simultaneous or Sequential Orthogonal Gradient Formation in a 3D Cell Culture Microfluidic Platform. Small, 2016, 12, 612-622.	10.0	83
90	Interstitial flow promotes macrophage polarization toward an M2 phenotype. Molecular Biology of the Cell, 2018, 29, 1927-1940.	2.1	83

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91	An on-chip model of protein paracellular and transcellular permeability in the microcirculation. Biomaterials, 2019, 212, 115-125.	11.4	80
92	Engineered human bloodâ€“brain barrier microfluidic model for vascular permeability analyses. Nature Protocols, 2022, 17, 95-128.	12.0	79
93	Engineering of In Vitro 3D Capillary Beds by Self-Directed Angiogenic Sprouting. PLoS ONE, 2012, 7, e50582.	2.5	78
94	Endothelial Regulation of Drug Transport in a 3D Vascularized Tumor Model. Advanced Functional Materials, 2020, 30, 2002444.	14.9	78
95	Rapid Prototyping of Concave Microwells for the Formation of 3D Multicellular Cancer Aggregates for Drug Screening. Advanced Healthcare Materials, 2014, 3, 609-616.	7.6	77
96	Interplay of active processes modulates tension and drives phase transition in self-renewing, motor-driven cytoskeletal networks. Nature Communications, 2016, 7, 10323.	12.8	76
97	Computational modeling of RBC and neutrophil transit through the pulmonary capillaries. Journal of Applied Physiology, 2001, 90, 545-564.	2.5	75
98	Single-Cell Migration in Complex Microenvironments: Mechanics and Signaling Dynamics. Journal of Biomechanical Engineering, 2016, 138, 021004.	1.3	74
99	Dynamic filopodial forces induce accumulation, damage, and plastic remodeling of 3D extracellular matrices. PLoS Computational Biology, 2019, 15, e1006684.	3.2	74
100	In vitro models of the metastatic cascade: from local invasion to extravasation. Drug Discovery Today, 2014, 19, 735-742.	6.4	73
101	Engineering a 3D microfluidic culture platform for tumor-treating field application. Scientific Reports, 2016, 6, 26584.	3.3	73
102	Vasculogenic and Osteogenesis-Enhancing Potential of Human Umbilical Cord Blood Endothelial Colony-Forming Cells. Stem Cells, 2012, 30, 1911-1924.	3.2	72
103	Contrasting Effects of Vasculogenic Induction Upon Biaxial Bioreactor Stimulation of Mesenchymal Stem Cells and Endothelial Progenitor Cells Cocultures in Three-Dimensional Scaffolds Under <i>In Vitro</i> and <i>In Vivo</i> Paradigms for Vascularized Bone Tissue Engineering. Tissue Engineering - Part A, 2013, 19, 893-904.	3.1	71
104	Oxygen levels in thermoplastic microfluidic devices during cell culture. Lab on A Chip, 2014, 14, 459-462.	6.0	71
105	Airway Wall Mechanics. Annual Review of Biomedical Engineering, 1999, 1, 47-72.	12.3	69
106	A microfluidics assay to study invasion of human placental trophoblast cells. Journal of the Royal Society Interface, 2017, 14, 20170131.	3.4	68
107	Influence of protein corona and caveolae-mediated endocytosis on nanoparticle uptake and transcytosis. Nanoscale, 2018, 10, 12386-12397.	5.6	68
108	Biology and Models of the Bloodâ€“Brain Barrier. Annual Review of Biomedical Engineering, 2021, 23, 359-384.	12.3	68

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109	Biohybrid valveless pump-bot powered by engineered skeletal muscle. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 1543-1548.	7.1	67
110	Detection of weakly absorbing gases using a resonant optoacoustic method. Journal of Applied Physics, 1976, 47, 3550-3558.	2.5	65
111	Steady, supercritical flow in collapsible tubes. Part 1. Experimental observations. Journal of Fluid Mechanics, 1981, 109, 367-389.	3.4	65
112	Pericytes Contribute to Dysfunction in a Human 3D Model of Placental Microvasculature through VEGFâ€Angâ€Tie2 Signaling. Advanced Science, 2019, 6, 1900878.	11.2	65
113	Dynamic Modeling of Cell Migration and Spreading Behaviors on Fibronectin Coated Planar Substrates and Micropatterned Geometries. PLoS Computational Biology, 2013, 9, e1002926.	3.2	64
114	In Vitro Modeling of Mechanics in Cancer Metastasis. ACS Biomaterials Science and Engineering, 2018, 4, 294-301.	5.2	64
115	Microfluidic models for adoptive cell-mediated cancer immunotherapies. Drug Discovery Today, 2016, 21, 1472-1478.	6.4	63
116	Balance of interstitial flow magnitude and vascular endothelial growth factor concentration modulates three-dimensional microvascular network formation. APL Bioengineering, 2019, 3, 036102.	6.2	63
117	Interstitial Fluid Flow Intensity Modulates Endothelial Sprouting in Restricted Src-Activated Cell Clusters During Capillary Morphogenesis. Tissue Engineering - Part A, 2009, 15, 175-185.	3.1	62
118	A 3D microvascular network model to study the impact of hypoxia on the extravasation potential of breast cell lines. Scientific Reports, 2018, 8, 17949.	3.3	62
119	Three-dimensional extracellular matrix-mediated neural stem cell differentiation in a microfluidic device. Lab on A Chip, 2012, 12, 2305.	6.0	61
120	<i>In vitro</i> models of molecular and nano-particle transport across the blood-brain barrier. Biomicrofluidics, 2018, 12, 042213.	2.4	61
121	Cell Invasion Dynamics into a Three Dimensional Extracellular Matrix Fibre Network. PLoS Computational Biology, 2015, 11, e1004535.	3.2	60
122	Mechano-sensing and cell migration: a 3D model approach. Physical Biology, 2011, 8, 066008.	1.8	59
123	Image-based modeling for better understanding and assessment of atherosclerotic plaque progression and vulnerability: Data, modeling, validation, uncertainty and predictions. Journal of Biomechanics, 2014, 47, 834-846.	2.1	59
124	Crosstalk between developing vasculature and optogenetically engineered skeletal muscle improves muscle contraction and angiogenesis. Biomaterials, 2018, 156, 65-76.	11.4	59
125	Dynamic Mechanisms of Cell Rigidity Sensing: Insights from a Computational Model of Actomyosin Networks. PLoS ONE, 2012, 7, e49174.	2.5	57
126	Modeling Nanocarrier Transport across a 3D In Vitro Human Bloodâ€Brainâ€"Barrier Microvasculature. Advanced Healthcare Materials, 2020, 9, e1901486.	7.6	57

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127	Identification of drugs as single agents or in combination to prevent carcinoma dissemination in a microfluidic 3D environment. Oncotarget, 2015, 6, 36603-36614.	1.8	57
128	The effect of secondary motion on axial transport in oscillatory tube flow. Journal of Fluid Mechanics, 1988, 193, 347.	3.4	55
129	Platelet decoys inhibit thrombosis and prevent metastatic tumor formation in preclinical models. Science Translational Medicine, 2019, 11, .	12.4	55
130	Balance of mechanical forces drives endothelial gap formation and may facilitate cancer and immune-cell extravasation. PLoS Computational Biology, 2019, 15, e1006395.	3.2	53
131	Engineering approaches for studying immune-tumor cell interactions and immunotherapy. IScience, 2021, 24, 101985.	4.1	52
132	A process engineering approach to increase organoid yield. Development (Cambridge), 2017, 144, 1128-1136.	2.5	51
133	Cooperative Effects of Vascular Angiogenesis and Lymphangiogenesis. Regenerative Engineering and Translational Medicine, 2018, 4, 120-132.	2.9	51
134	Epithelial-Mesenchymal Transition Induces Podocalyxin to Promote Extravasation via Ezrin Signaling. Cell Reports, 2018, 24, 962-972.	6.4	51
135	Activatable and Cell-Penetrable Multiplex FRET Nanosensor for Profiling MT1-MMP Activity in Single Cancer Cells. Nano Letters, 2015, 15, 5025-5032.	9.1	50
136	Onâ€chip assessment of human primary cardiac fibroblasts proliferative responses to uniaxial cyclic mechanical strain. Biotechnology and Bioengineering, 2016, 113, 859-869.	3.3	50
137	In Vitro Microvessel Growth and Remodeling within a Three-Dimensional Microfluidic Environment. Cellular and Molecular Bioengineering, 2014, 7, 15-25.	2.1	49
138	A Facile Method to Probe the Vascular Permeability of Nanoparticles in Nanomedicine Applications. Scientific Reports, 2017, 7, 707.	3.3	49
139	Integrating focal adhesion dynamics, cytoskeleton remodeling, and actin motor activity for predicting cell migration on 3D curved surfaces of the extracellular matrix. Integrative Biology (United Kingdom), 2012, 4, 1386.	1.3	48
140	Morphological Transformation and Force Generation of Active Cytoskeletal Networks. PLoS Computational Biology, 2017, 13, e1005277.	3.2	48
141	A predictive microfluidic model of human glioblastoma to assess trafficking of bloodâ€“brain barrier-penetrant nanoparticles. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	7.1	46
142	The Use of Microfluidic Platforms to Probe the Mechanism of Cancer Cell Extravasation. Advanced Healthcare Materials, 2020, 9, e1901410.	7.6	45
143	Biomechanical Regulation of Endothelium-dependent Events Critical for Adaptive Remodeling. Journal of Biological Chemistry, 2009, 284, 8412-8420.	3.4	44
144	Quantification of human neuromuscular function through optogenetics. Theranostics, 2019, 9, 1232-1246.	10.0	44

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145	Steady, supercritical flow in collapsible tubes. Part 2. Theoretical studies. Journal of Fluid Mechanics, 1981, 109, 391-415.	3.4	43
146	Dispersion in a curved tube during oscillatory flow. Journal of Fluid Mechanics, 1991, 223, 537.	3.4	43
147	Microfabrication and microfluidics for muscle tissue models. Progress in Biophysics and Molecular Biology, 2014, 115, 279-293.	2.9	43
148	ADAM8 expression in breast cancer derived brain metastases: Functional implications on MMPâ€9 expression and transendothelial migration in breast cancer cells. International Journal of Cancer, 2018, 142, 779-791.	5.1	42
149	Tumor cell nuclei soften during transendothelial migration. Journal of Biomechanics, 2021, 121, 110400.	2.1	42
150	Integrated in silico and 3D in vitro model of macrophage migration in response to physical and chemical factors in the tumor microenvironment. Integrative Biology (United Kingdom), 2020, 12, 90-108.	1.3	41
151	Human cardiac fibroblasts adaptive responses to controlled combined mechanical strain and oxygen changes in vitro. ELife, 2017, 6, .	6.0	41
152	Modular Aspects of Kinesin Force Generation Machinery. Biophysical Journal, 2013, 104, 1969-1978.	0.5	40
153	Validating Antimetastatic Effects of Natural Products in an Engineered Microfluidic Platform Mimicking Tumor Microenvironment. Molecular Pharmaceutics, 2014, 11, 2022-2029.	4.6	40
154	Construction of Continuous Capillary Networks Stabilized by Pericyte-like Perivascular Cells. Tissue Engineering - Part A, 2019, 25, 499-510.	3.1	40
155	The CCL2-CCR2 astrocyte-cancer cell axis in tumor extravasation at the brain. Science Advances, 2021, 7, .	10.3	40
156	A versatile microfluidic device for high throughput production of microparticles and cell microencapsulation. Lab on A Chip, 2017, 17, 2067-2075.	6.0	39
157	The effects of luminal and trans-endothelial fluid flows on the extravasation and tissue invasion of tumor cells in a 3D in vitro microvascular platform. Biomaterials, 2021, 265, 120470.	11.4	39
158	Progress in multicellular human cardiac organoids for clinical applications. Cell Stem Cell, 2022, 29, 503-514.	11.1	39
159	Molecular Biomechanics: The Molecular Basis of How Forces Regulate Cellular Function. Cellular and Molecular Bioengineering, 2010, 3, 91-105.	2.1	37
160	Dynamic Role of Cross-Linking Proteins in Actin Rheology. Biophysical Journal, 2011, 101, 1597-1603.	0.5	37
161	Endothelial monolayer permeability under controlled oxygen tension. Integrative Biology (United) Tj ETQq1 1 0.784314 rgBT /Overlock	1.3	37
162	Application of Transmural Flow Across In Vitro Microvasculature Enables Direct Sampling of Interstitial Therapeutic Molecule Distribution. Small, 2019, 15, e1902393.	10.0	37

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163	Tumor-Derived cGAMP Regulates Activation of the Vasculature. Frontiers in Immunology, 2020, 11, 2090.	4.8	37
164	Numerical Simulation of Enhanced External Counterpulsation. Annals of Biomedical Engineering, 2001, 29, 284-297.	2.5	36
165	Impact of Dimensionality and Network Disruption on Microrheology of Cancer Cells in 3D Environments. PLoS Computational Biology, 2014, 10, e1003959.	3.2	35
166	USNCTAM perspectives on mechanics in medicine. Journal of the Royal Society Interface, 2014, 11, 20140301.	3.4	35
167	Microfluidic platform for three-dimensional cell culture under spatiotemporal heterogeneity of oxygen tension. APL Bioengineering, 2020, 4, 016106.	6.2	34
168	The cancer glycocalyx mediates intravascular adhesion and extravasation during metastatic dissemination. Communications Biology, 2021, 4, 255.	4.4	34
169	Tension, Free Space, and Cell Damage in a Microfluidic Wound Healing Assay. PLoS ONE, 2011, 6, e24283.	2.5	34
170	A three-dimensional microfluidic tumor cell migration assay to screen the effect of anti-migratory drugs and interstitial flow. Microfluidics and Nanofluidics, 2013, 14, 969-981.	2.2	33
171	Extracellular Matrix Heterogeneity Regulates Threeâ€Dimensional Morphologies of Breast Adenocarcinoma Cell Invasion. Advanced Healthcare Materials, 2013, 2, 790-794.	7.6	33
172	Multiscale mechanobiology: computational models for integrating molecules to multicellular systems. Integrative Biology (United Kingdom), 2015, 7, 1093-1108.	1.3	33
173	Cell adhesion during bullet motion in capillaries. American Journal of Physiology - Heart and Circulatory Physiology, 2016, 311, H395-H403.	3.2	32
174	Multiscale impact of nucleotides and cations on the conformational equilibrium, elasticity and rheology of actin filaments and crosslinked networks. Biomechanics and Modeling in Mechanobiology, 2015, 14, 1143-1155.	2.8	31
175	Concentration gradients in microfluidic 3D matrix cell culture systems. International Journal of Micro-nano Scale Transport, 2010, 1, 27-36.	0.2	30
176	Constructive remodeling of a synthetic endothelial extracellular matrix. Scientific Reports, 2016, 5, 18290.	3.3	28
177	Angiogenic responses in a 3D micro-engineered environment of primary endothelial cells and pericytes. Angiogenesis, 2021, 24, 111-127.	7.2	27
178	A robust vasculogenic microfluidic model using human immortalized endothelial cells and Thy1 positive fibroblasts. Biomaterials, 2021, 276, 121032.	11.4	27
179	Probabilistic Voxel-Fe model for single cell motility in 3D. In Silico Cell and Tissue Science, 2014, 1, 2.	2.6	26
180	A combined microfluidic-transcriptomic approach to characterize the extravasation potential of cancer cells. Oncotarget, 2018, 9, 36110-36125.	1.8	26

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181	Receptor-Based Differences in Human Aortic Smooth Muscle Cell Membrane Stiffness. Hypertension, 2001, 38, 1158-1161.	2.7	25
182	Modeling the Blood-Brain Barrier in a 3D triple co-culture microfluidic system. , 2015, 2015, 338-41.		24
183	Cytoskeletal Deformation at High Strains and the Role of Cross-link Unfolding or Unbinding. Cellular and Molecular Bioengineering, 2009, 2, 28-38.	2.1	23
184	Quantitative screening of the effects of hyper-osmotic stress on cancer cells cultured in 2- or 3-dimensional settings. Scientific Reports, 2019, 9, 13782.	3.3	23
185	Pulmonary-arterial-hypertension (PAH)-on-a-chip: fabrication, validation and application. Lab on A Chip, 2020, 20, 3334-3345.	6.0	23
186	Physiologic flow-conditioning limits vascular dysfunction in engineered human capillaries. Biomaterials, 2022, 280, 121248.	11.4	23
187	A Robust Method for Perfusable Microvascular Network Formation In Vitro. Small Methods, 2022, 6, e2200143.	8.6	23
188	Complementary effects of ciclopirox olamine, a prolyl hydroxylase inhibitor and sphingosine 1-phosphate on fibroblasts and endothelial cells in driving capillary sprouting. Integrative Biology (United Kingdom), 2013, 5, 1474.	1.3	22
189	In vitro angiogenesis assay for the study of cell-encapsulation therapy. Lab on A Chip, 2012, 12, 2942.	6.0	21
190	Effects of 3D geometries on cellular gradient sensing and polarization. Physical Biology, 2016, 13, 036008.	1.8	21
191	Microheart: A microfluidic pump for functional vascular culture in microphysiological systems. Journal of Biomechanics, 2021, 119, 110330.	2.1	21
192	Studying nucleicÂenvelope and plasma membrane mechanics of eukaryotic cells using confocal reflectance interferometric microscopy. Nature Communications, 2019, 10, 3652.	12.8	20
193	Remodeling of the Tumor Microenvironment by a Chemokine/Anti-PD-L1 Nanobody Fusion Protein. Molecular Pharmaceutics, 2019, 16, 2838-2844.	4.6	20
194	Migration of vascular endothelial cells in monolayers under hypoxic exposure. Integrative Biology (United Kingdom), 2019, 11, 26-35.	1.3	20
195	Phthalimide Derivative Shows Anti-angiogenic Activity in a 3D Microfluidic Model and No Teratogenicity in Zebrafish Embryos. Frontiers in Pharmacology, 2019, 10, 349.	3.5	20
196	Bioengineered optogenetic model of human neuromuscular junction. Biomaterials, 2021, 276, 121033.	11.4	20
197	Nascent vessel elongation rate is inversely related to diameter in in vitro angiogenesis. Integrative Biology (United Kingdom), 2012, 4, 1081.	1.3	19
198	Hydrogel-incorporating unit in a well: 3D cell culture for high-throughput analysis. Lab on A Chip, 2018, 18, 2604-2613.	6.0	19

#	Article	IF	Citations
199	Microphysiological models of neurological disorders for drug development. Current Opinion in Biomedical Engineering, 2020, 13, 119-126.	3.4	18
200	Principles for the design of multicellular engineered living systems. APL Bioengineering, 2022, 6, 010903.	6.2	17
201	Steady compressible flow in collapsible tubes: application to forced expiration. Journal of Fluid Mechanics, 1989, 203, 401-418.	3.4	16
202	Lectin Staining of Microvascular Glycocalyx in Microfluidic Cancer Cell Extravasation Assays. Life, 2021, 11, 179.	2.4	16
203	The driving role of the Cdk5/Tln1/FAKS732 axis in cancer cell extravasation dissected by human vascularized microfluidic models. Biomaterials, 2021, 276, 120975.	11.4	16
204	Mechanical characterization of selfâ€assembling peptide hydrogels by microindentation. Journal of Biomedical Materials Research - Part B Applied Biomaterials, 2013, 101B, 981-990.	3.4	15
205	Analysis of nanoprobe penetration through a lipid bilayer. Biochimica Et Biophysica Acta - Biomembranes, 2013, 1828, 1667-1673.	2.6	14
206	The Stabilization Effect of Mesenchymal Stem Cells on the Formation of Microvascular Networks in a Microfluidic Device. Journal of Biomechanical Science and Engineering, 2013, 8, 114-128.	0.3	14
207	Using microfluidics to investigate tumor cell extravasation and T-cell immunotherapies. , 2015, 2015, 1853-6.		14
208	Integrated Analysis of Intracellular Dynamics of MenaINV Cancer Cells in a 3D Matrix. Biophysical Journal, 2017, 112, 1874-1884.	0.5	14
209	A novel 3D vascular assay for evaluating angiogenesis across porous membranes. Biomaterials, 2021, 268, 120592.	11.4	14
210	On the molecular basis for mechanotransduction. Mcb Mechanics and Chemistry of Biosystems, 2004, 1, 201-9.	0.3	14
211	A time-dependent phenomenological model for cell mechano-sensing. Biomechanics and Modeling in Mechanobiology, 2014, 13, 451-462.	2.8	13
212	Toward improved methods of high frequency ventilation: a study of gas transport mechanisms. Acta Anaesthesiologica Scandinavica, 1989, 33, 51-57.	1.6	9
213	Vascular Endothelial Growth Factor (VEGF) and Platelet (PF-4) Factor 4 Inputs Modulate Human Microvascular Endothelial Signaling in a Three-Dimensional Matrix Migration Context. Molecular and Cellular Proteomics, 2013, 12, 3704-3718.	3.8	9
214	Studying TCR T cell anti-tumor activity in a microfluidic intrahepatic tumor model. Methods in Cell Biology, 2018, 146, 199-214.	1.1	9
215	3D Self-Organized Human Bloodâ€"Brain Barrier in a Microfluidic Chip. Methods in Molecular Biology, 2021, 2258, 205-219.	0.9	9
216	Methodological considerations for global analysis of cellular FLIM/FRET measurements. Journal of Biomedical Optics, 2012, 17, 026013.	2.6	8

#	Article	IF	Citations
217	Models for Monocytic Cells in the Tumor Microenvironment. Advances in Experimental Medicine and Biology, 2020, 1224, 87-115.	1.6	8
218	Microphysiological Neurovascular Barriers to Model the Inner Retinal Microvasculature. Journal of Personalized Medicine, 2022, 12, 148.	2.5	8
219	Self-organization of hepatocyte morphogenesis depending on the size of collagen microbeads relative to hepatocytes. Biofabrication, 2019, 11, 035007.	7.1	7
220	Cysteine cathepsins are altered by flow within an engineered <i>in vitro</i> microvascular niche. APL Bioengineering, 2020, 4, 046102.	6.2	7
221	A computational modeling of invadopodia protrusion into an extracellular matrix fiber network. Scientific Reports, 2022, 12, 1231.	3.3	7
222	Determining Cell Fate Transition Probabilities to VEGF/Ang 1 Levels: Relating Computational Modeling to Microfluidic Angiogenesis Studies. Cellular and Molecular Bioengineering, 2010, 3, 345-360.	2.1	6
223	PO-12 - The key role of talin-1 in cancer cell extravasation dissected through human vascularized 3D microfluidic model. Thrombosis Research, 2016, 140, S180-S181.	1.7	6
224	Biohybrid systems: Borrowing from nature to make better machines. APL Bioengineering, 2020, 4, 020401.	6.2	6
225	In Pursuit of Designing Multicellular Engineered Living Systems: A Fluid Mechanical Perspective. Annual Review of Fluid Mechanics, 2021, 53, 411-437.	25.0	6
226	Triâ€culture of spatially organizing human skeletal muscle cells, endothelial cells, and fibroblasts enhances contractile force and vascular perfusion of skeletal muscle tissues. FASEB Journal, 2022, 36, .	0.5	6
227	Integrating functional vasculature into organoid culture: A biomechanical perspective. APL Bioengineering, 2022, 6, .	6.2	6
228	Airway Closure at Low Lung Volume: The Role of Liquid Film Instabilities. Applied Mechanics Reviews, 1990, 43, S92-S97.	10.1	5
229	A microfluidic device to investigate axon targeting by limited numbers of purified cortical projection neuron subtypes. Integrative Biology (United Kingdom), 2012, 4, 1398.	1.3	5
230	Engineered Models of Metastasis with Application to Study Cancer Biomechanics. Advances in Experimental Medicine and Biology, 2018, 1092, 189-207.	1.6	5
231	Evidence from ITIR-FCS Diffusion Studies that the Amyloid-Beta (Aî²) Peptide Does Not Perturb Plasma Membrane Fluidity in Neuronal Cells. Journal of Molecular Biology, 2018, 430, 3439-3453.	4.2	5
232	Endothelial cell phenotypic behaviors cluster into dynamic state transition programs modulated by angiogenic and angiostatic cytokines. Integrative Biology (United Kingdom), 2013, 5, 510.	1.3	4
233	Toward improved models of human cancer: Two perspectives. APL Bioengineering, 2021, 5, 010402.	6.2	4
234	Effect of Surface Patterning and Presence of Collagen I on the Phenotypic Changes of Embryonic Stem Cell Derived Cardiomyocytes. Cellular and Molecular Bioengineering, 2011, 4, 56-66.	2.1	3

#	Article	IF	Citations
235	Quantifying intracellular protein binding thermodynamics during mechanotransduction based on FRET spectroscopy. Methods, 2014, 66, 208-221.	3.8	3
236	Microfluidics: Simultaneous or Sequential Orthogonal Gradient Formation in a 3D Cell Culture Microfluidic Platform (Small 5/2016). Small, 2016, 12, 688-688.	10.0	3
237	Microfluidic assessment of metastatic potential. Nature Biomedical Engineering, 2019, 3, 423-424.	22.5	3
238	Abstract 1578: Exploring the role of tumor-conditioned macrophage metabolism on extravasation of pancreatic ductal adenocarcinoma cells. , 2016, , .		3
239	A stochastic control framework for regulating collective behaviors of an angiogenesis cell population. , 2008, , .		2
240	Microfluidic Devices for Angiogenesis. Studies in Mechanobiology, Tissue Engineering and Biomaterials, 2013, , 93-120.	1.0	2
241	Cellular Nanomechanics. Springer Handbooks, 2017, , 1069-1100.	0.6	2
242	Bloodâ€Brainâ€"Barrier Microvasculatures: Modeling Nanocarrier Transport across a 3D In Vitro Human Bloodâ€Brainâ€"Barrier Microvasculature (Adv. Healthcare Mater. 7/2020). Advanced Healthcare Materials, 2020, 9, 2070021.	7.6	2
243	Mentoring and Education: A Lifetime of Experience and Learning. Journal of Biomechanical Engineering, 2019, 141, .	1.3	2
244	Abstract B22: Role of monocytes in 3D microfluidic models of cancer cell extravasation. , 2017, , .		2
245	Abstract A126: The role of macrophages and monocytes during cancer cell extravasation in 3D vascularized microfluidic models. , 2016, , .		2
246	Neurovascular models for organ-on-a-chips. In Vitro Models, 0, , 1.	2.0	2
247	Hydrogels: Extracellular Matrix Heterogeneity Regulates Threeâ€Dimensional Morphologies of Breast Adenocarcinoma Cell Invasion (Adv. Healthcare Mater. 6/2013). Advanced Healthcare Materials, 2013, 2, 920-920.	7.6	1
248	Microcirculationâ€onâ€Chip: Application of Transmural Flow Across In Vitro Microvasculature Enables Direct Sampling of Interstitial Therapeutic Molecule Distribution (Small 46/2019). Small, 2019, 15, 1970247.	10.0	1
249	Microphysiological systems. APL Bioengineering, 2019, 3, 040401.	6.2	1
250	THER-15. FUNCTIONALIZED NANOPARTICLE TRAFFICKING ASSESSED IN A NOVEL MICROFLUIDIC MODEL OF THE BLOOD-BRAIN BARRIER WITH HIGH GRADE GLIOMA SPHEROIDS. Neuro-Oncology, 2019, 21, ii117-ii117.	1.2	1
251	Abstract A53: Probing forces and modulation of cancer cell mechanical properties during transendothelial migration. , 2017, , .		1
252	Abstract 5814: Engineered microfluidic 3D human microvasculature identifies Talin-1-dependent adhesion and FAK activation as the key promoter of cancer cell trans-endothelial migration. , 2017, , .		1

#	Article	IF	Citations
253	Abstract A049: Three-dimensional microfluidic platform mimicking the tumor microenvironment. Cancer Immunology Research, 2019, 7, A049-A049.	3.4	1
254	DDEL-04. ENGINEERED NANOCARRIERS TO ENHANCE DRUG DELIVERY ACROSS THE BLOOD-BRAIN BARRIER. Neuro-Oncology, 2020, 22, iii284-iii284.	1.2	1
255	A computational model of cardiomyocyte metabolism predicts unique reperfusion protocols capable of reducing cell damage during ischemia/reperfusion. Journal of Biological Chemistry, 2022, 298, 101693.	3.4	1
256	A Molecular Perspective on Mechanotransduction in Focal Adhesions. , 0, , 250-268.		0
257	Microfluidic Platforms for Evaluating Angiogenesis and Vasculogenesis. , 2013, , 385-403.		0
258	Multiscale analysis of cancer cell mechanics. , 2014, , .		0
259	Drug Screening: Rapid Prototyping of Concave Microwells for the Formation of 3D Multicellular Cancer Aggregates for Drug Screening (Adv. Healthcare Mater. 4/2014). Advanced Healthcare Materials, 2014, 3, 620-620.	7.6	0
260	Dynamic modeling of cancer cell migration in an extracellular matrix fiber network. , 2017, , .		0
261	Foreword to mechanobiology in health and disease. , 2018, , xvii-xviii.		0
262	In vitro microfluidic modelling of the human blood-brain-barrier microvasculature and testing of nanocarrier transport. Biomedical Science and Engineering, 2020, 3, .	0.0	0
263	Perfusable host microfluidic endothelial networks for quantitative assessment of the effects of interstitial flows, macrophage polarization and monoclonalâ€based immunotherapy on immune cell infiltration into a tumor spheroid. FASEB Journal, 2021, 35, .	0.5	0
264	Multiscale Biomechanics of Actin Filaments and Crosslinked Networks. , 2012, , .		0
265	Abstract A49: Tumor-associated interstitial flow promotes macrophage migration and pro-metastatic M2 phenotype in 3D ECM. , 2017, , .		0
266	Molecular & Cellular Biomechanics In Honor of The 100th Brithday of Professor Yuan-Cheng Fung. , 2019, , .		0
267	In Memoriam Robert M. Nerem, 1937â€"2020. Journal of Biomechanical Engineering, 2020, 142, .	1.3	0
268	Abstract 958: Tumor-vascular interactions promote STING-driven inflammation in the tumor microenvironment. , 2019, , .		0