Abdul I Barakat

List of Publications by Year
in descending order

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93 papers	3,886 citations	126907 33 h-index	133252 59 g-index
103 all docs	103 docs citations	103 times ranked	5700 citing authors

#	Article	IF	Citations
1	Induction of Inflammation in Vascular Endothelial Cells by Metal Oxide Nanoparticles: Effect of Particle Composition. Environmental Health Perspectives, 2007, 115, 403-409.	6.0	435
2	Endothelial cellular response to altered shear stress. American Journal of Physiology - Lung Cellular and Molecular Physiology, 2001, 281, L529-L533.	2.9	314
3	SPATIAL RELATIONSHIPS IN EARLY SIGNALING EVENTS OF FLOW-MEDIATED ENDOTHELIAL MECHANOTRANSDUCTION. Annual Review of Physiology, 1997, 59, 527-549.	13.1	293
4	Autophagy is required for endothelial cell alignment and atheroprotection under physiological blood flow. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E8675-E8684.	7.1	156
5	A Flow-Activated Chloride-Selective Membrane Current in Vascular Endothelial Cells. Circulation Research, 1999, 85, 820-828.	4.5	144
6	Computational Study of Fluid Mechanical Disturbance Induced by Endovascular Stents. Annals of Biomedical Engineering, 2005, 33, 444-456.	2.5	116
7	Nesprin-3 regulates endothelial cell morphology, perinuclear cytoskeletal architecture, and flow-induced polarization. Molecular Biology of the Cell, 2011, 22, 4324-4334.	2.1	105
8	Differential Responsiveness of Vascular Endothelial Cells to Different Types of Fluid Mechanical Shear Stress. Cell Biochemistry and Biophysics, 2003, 38, 323-343.	1.8	100
9	Effect of cerium oxide nanoparticles on inflammation in vascular endothelial cells. Inhalation Toxicology, 2009, 21, 123-130.	1.6	84
10	Modeling the transport of drugs eluted from stents: physical phenomena driving drug distribution in the arterial wall. Biomechanics and Modeling in Mechanobiology, 2014, 13, 327-347.	2.8	82
11	Integration of basal topographic cues and apical shear stress in vascular endothelial cells. Biomaterials, 2012, 33, 4126-4135.	11.4	79
12	Integration of substrate- and flow-derived stresses in endothelial cell mechanobiology. Communications Biology, 2021, 4, 764.	4.4	77
13	Serum proteins prevent aggregation of Fe₂O₃and ZnO nanoparticles. Nanotoxicology, 2012, 6, 837-846.	3.0	75
14	Differential membrane potential and ion current responses to different types of shear stress in vascular endothelial cells. American Journal of Physiology - Cell Physiology, 2004, 286, C1367-C1375.	4.6	68
15	Microchannel Platform for the Study of Endothelial Cell Shape and Function. Biomedical Microdevices, 2002, 4, 9-16.	2.8	67
16	Modulation of ATP/ADP Concentration at the Endothelial Surface by Shear Stress: Effect of Flow-Induced ATP Release. Annals of Biomedical Engineering, 2001, 29, 740-751.	2.5	64
17	Role of Ultrasonic Shear Rate Estimation Errors in Assessing Inflammatory Response and Vascular Risk. Ultrasound in Medicine and Biology, 2008, 34, 963-972.	1.5	61
18	Vascular endothelial wound closure under shear stress: role of membrane fluidity and flow-sensitive ion channels. Journal of Applied Physiology, 2005, 98, 2355-2362.	2.5	59

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19	A Model for Shear Stress-induced Deformation of a Flow Sensor on the Surface of Vascular Endothelial Cells. Journal of Theoretical Biology, 2001, 210, 221-236.	1.7	55
20	Flow-activated Chloride Channels in Vascular Endothelium. Journal of Biological Chemistry, 2006, 281, 36492-36500.	3.4	53
21	Optimization of Drug Delivery by Drug-Eluting Stents. PLoS ONE, 2015, 10, e0130182.	2.5	53
22	Secrets of the code: Do vascular endothelial cells use ion channels to decipher complex flow signals?. Biomaterials, 2006, 27, 671-678.	11.4	51
23	The basement membrane as a structured surface â€“ role in vascular health and disease. Journal of Cell Science, 2020, 133, .	2.0	51
24	Generation of hydrogen peroxide from San Joaquin Valley particles in a cell-free solution. Atmospheric Chemistry and Physics, 2011, 11, 753-765.	4.9	44
25	Computational Fluid Dynamic Simulations of Maternal Circulation: Wall Shear Stress in the Human Placenta and Its Biological Implications. PLoS ONE, 2016, 11, e0147262.	2.5	44
26	Mechanisms of Shear Stress Transmission and Transduction in Endothelial Cells. Chest, 1998, 114, 58S-63S.	0.8	43
27	Characterizing Cell Adhesion by Using Micropipette Aspiration. Biophysical Journal, 2015, 109, 209-219.	0.5	43
28	Micropipette force probe to quantify single-cell force generation: application to T-cell activation. Molecular Biology of the Cell, 2017, 28, 3229-3239.	2.1	43
29	Numerical study of the impact of non-Newtonian blood behavior on flow over a two-dimensional backward facing step. Biorheology, 2005, 42, 493-509.	0.4	38
30	Flow-induced expression of endothelial Na-K-Cl cotransport: dependence on K⁺and Cl^{â^'}channels. American Journal of Physiology - Cell Physiology, 2001, 280, C216-C227.	4.6	37
31	A Model for Shear Stress Sensing and Transmission in Vascular Endothelial Cells. Biophysical Journal, 2003, 84, 4087-4101.	0.5	37
32	Effect of shear stress on migration and integrin expression in macaque trophoblast cells. Biochimica Et Biophysica Acta - Molecular Cell Research, 2002, 1589, 233-246.	4.1	36
33	Mechanical Criterion for the Rupture of a Cell Membrane under Compression. Biophysical Journal, 2016, 111, 2711-2721.	0.5	34
34	T-lymphocyte passive deformation is controlled by unfolding of membrane surface reservoirs. Molecular Biology of the Cell, 2016, 27, 3574-3582.	2.1	34
35	Blood flow and arterial endothelial dysfunction: Mechanisms and implications. Comptes Rendus Physique, 2013, 14, 479-496.	0.9	33
36	MUC1 is involved in trophoblast transendothelial migration. Biochimica Et Biophysica Acta - Molecular Cell Research, 2007, 1773, 1007-1014.	4.1	31

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37	Microcinematographic studies of flow patterns in the excised rabbit aorta and its major branches. Biorheology, 1997, 34, 195-221.	0.4	29
38	ATP Release by Red Blood Cells under Flow: Model and Simulations. Biophysical Journal, 2018, 115, 2218-2229.	0.5	29
39	Focal adhesion clustering drives endothelial cell morphology on patterned surfaces. Journal of the Royal Society Interface, 2019, 16, 20190263.	3.4	29
40	Microcinematographic Studies of Flow Patterns in the Excised Rabbit Aorta and its Major Branches. Biorheology, 1997, 34, 195-221.	0.4	28
41	Pericyte mechanics and mechanobiology. Journal of Cell Science, 2021, 134, .	2.0	28
42	Trophoblast Migration Under Flow Is Regulated by Endothelial Cells1. Biology of Reproduction, 2005, 73, 14-19.	2.7	26
43	Is there a universal mechanism of cell alignment in response to substrate topography?. Cytoskeleton, 2021, 78, 284-292.	2.0	25
44	Macaque trophoblast migration is regulated by RANTES. Experimental Cell Research, 2005, 305, 355-364.	2.6	24
45	Endothelial autophagic flux hampers atherosclerotic lesion development. Autophagy, 2018, 14, 173-175.	9.1	24
46	Elastocapillary Instability in Mitochondrial Fission. Physical Review Letters, 2015, 115, 088102.	7.8	23
47	Fluid Shear Stress Promotes Placental Growth Factor Upregulation in Human Syncytiotrophoblast Through the cAMPâ€“PKA Signaling Pathway. Hypertension, 2016, 68, 1438-1446.	2.7	23
48	Model of cellular mechanotransduction via actin stress fibers. Biomechanics and Modeling in Mechanobiology, 2016, 15, 331-344.	2.8	23
49	Flow-Activated Ion Channels in Vascular Endothelium. Cell Biochemistry and Biophysics, 2006, 46, 277-284.	1.8	22
50	New Approach to Investigate the Cytotoxicity of Nanomaterials Using Single Cell Mechanics. Journal of Physical Chemistry B, 2014, 118, 1246-1255.	2.6	22
51	Dynamics of Mechanical Signal Transmission through Prestressed Stress Fibers. PLoS ONE, 2012, 7, e35343.	2.5	22
52	Shear stress and 17Î²-estradiol modulate cerebral microvascular endothelial Na-K-Cl cotransporter and Na/H exchanger protein levels. American Journal of Physiology - Cell Physiology, 2008, 294, C363-C371.	4.6	21
53	Effect of Aqueous Tobacco Smoke Extract and Shear Stress on PECAM-1 Expression and Cell Motility in Human Uterine Endothelial Cells. Toxicological Sciences, 2004, 81, 408-418.	3.1	20
54	Modulation of ATP/ADP Concentration at the Endothelial Surface by Shear Stress: Effect of Flow Recirculation. Annals of Biomedical Engineering, 2007, 35, 505-516.	2.5	20

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55	Computational study of the effect of geometric and flow parameters on the steady flow field at the rabbit aorto-celiac bifurcation. Biorheology, 1998, 35, 415-435.	0.4	18
56	Regulation of trophoblast beta1-integrin expression by contact with endothelial cells. Cell Communication and Signaling, 2004, 2, 4.	6.5	18
57	Mechanisms of cytoskeleton-mediated mechanical signal transmission in cells. Communicative and Integrative Biology, 2012, 5, 538-542.	1.4	18
58	Dynamics of Receptor-Mediated Nanoparticle Internalization into Endothelial Cells. PLoS ONE, 2015, 10, e0122097.	2.5	18
59	Dragging Along. Circulation Research, 2008, 102, 747-748.	4.5	17
60	Rapid viscoelastic changes are a hallmark of early leukocyte activation. Biophysical Journal, 2021, 120, 1692-1704.	0.5	17
61	Shear stress in the microvasculature: influence of red blood cell morphology and endothelial wall undulation. Biomechanics and Modeling in Mechanobiology, 2019, 18, 1095-1109.	2.8	15
62	3D Printing for Cardiovascular Applications: From End-to-End Processes to Emerging Developments. Annals of Biomedical Engineering, 2021, 49, 1598-1618.	2.5	15
63	The stentable in vitro artery: an instrumented platform for endovascular device development and optimization. Journal of the Royal Society Interface, 2016, 13, 20160834.	3.4	14
64	Comparison of a Drugâ€Free Early Programmed Dismantling PDLLA Bioresorbable Scaffold and a Metallic Stent in a Porcine Coronary Artery Model at 3â€Year Followâ€Up. Journal of the American Heart Association, 2017, 6, .	3.7	14
65	A compact integrated microfluidic oxygenator with high gas exchange efficiency and compatibility for long-lasting endothelialization. Lab on A Chip, 2021, 21, 4791-4804.	6.0	14
66	Luminal flow actuation generates coupled shear and strain in a microvessel-on-chip. Biofabrication, 2022, 14, 015003.	7.1	14
67	The Effect of Noisy Flow on Endothelial Cell Mechanotransduction: A Computational Study. Annals of Biomedical Engineering, 2011, 39, 911-921.	2.5	13
68	Medical Stents: State of the Art and Future Directions. Annals of Biomedical Engineering, 2016, 44, 274-275.	2.5	13
69	A simple microfluidic device to study cell-scale endothelial mechanotransduction. Biomedical Microdevices, 2016, 18, 63.	2.8	11
70	Modulation of ATP/ADP Concentration at the Endothelial Cell Surface by Flow: Effect of Cell Topography. Annals of Biomedical Engineering, 2009, 37, 2459-2468.	2.5	10
71	ORIGINAL ARTICLE: Trophoblasts and Shear Stress Induce an Asymmetric Distribution of ICAMâ€1 in Uterine Endothelial Cells. American Journal of Reproductive Immunology, 2008, 59, 167-181.	1.2	9
72	Topography-induced large-scale antiparallel collective migration in vascular endothelium. Nature Communications, 2022, 13, 2797.	12.8	8

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73	Drug-Eluting Stent Design is a Determinant of Drug Concentration at the Endothelial Cell Surface. Annals of Biomedical Engineering, 2016, 44, 302-314.	2.5	7
74	A Mathematical Model for the Sounds Produced by Knuckle Cracking. Scientific Reports, 2018, 8, 4600.	3.3	7
75	Distinct timing of neutrophil spreading and stiffening during phagocytosis. Biophysical Journal, 2022, , .	0.5	7
76	Intracellular regulation of cell signaling cascades: how location makes a difference. Journal of Mathematical Biology, 2014, 69, 213-242.	1.9	5
77	Role of Ion Channels in Cellular Mechanotransduction â€“ Lessons from the Vascular Endothelium. , 0, , 161-180.		3
78	Microinstrument for optical monitoring of endothelial cell migration under controlled tension/compression via integrated magnetic composite polymer actuation. , 2014, , .		2
79	Effect of flow on ATP/ADP concentration at the endothelial cell surface: interplay between shear stress and mass transport. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2018, 98, 1493-1502.	1.6	2
80	eG Coated Stents Exhibit Enhanced Endothelial Wound Healing Characteristics. Cardiovascular Engineering and Technology, 2021, 12, 515-525.	1.6	2
81	Ion Channels in Shear Stress Sensing in Vascular Endothelium. , 2007, , 155-170.		2
82	Computational Modeling of ATP/ADP Concentration at the Vascular Surface. , 2010, , 49-67.		2
83	Stent Design Using Computational Fluid Dynamics. Transactions of the Korean Society of Mechanical Engineers, B, 2005, 29, 1042-1048.	0.1	2
84	Numerical Analysis on the Effect of Wall Shear Stress Around the Ring Drug-Eluting Stent. Transactions of the Korean Society of Mechanical Engineers, B, 2007, 31, 21-28.	0.1	2
85	<title>Modular microinstrumentation for endothelial cell research</title>. , 2000, , .		1
86	Effect of flow on ATP/ADP concentration at the endothelial cell surface: interplay between shear stress and mass transport. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2018, 98, 2222-2222.	1.6	1
87	Effect Of Ambient San Joaquin Valley Ultrafine Particulate Matter On Vascular Endothelial Cell Viability And Inflammation. , 2011, , .		0
88	Spatial Sensitivity of the Map Kinase Signaling Pathway in the Cellular Cytoplasm. Biophysical Journal, 2012, 102, 668a.	0.5	0
89	Dynamic Monitoring of Cell Mechanical Properties using Profile Microindentation. Biophysical Journal, 2016, 110, 134a.	0.5	0
90	Elastocapillary Instability in Mitochondrial Fission. Biophysical Journal, 2016, 110, 472a.	0.5	0

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91	Unsteady and Three-Dimensional Flow Simulations in the Human Aorta. , 2001, , 233-238.		0
92	Performance of Various Drug-Eluting Stent Geometries Measured Using Computational Analysis. Transactions of the Korean Society of Mechanical Engineers, B, 2012, 36, 601-607.	0.1	0
93	Dynamics of Arterial Wall Transport for Small Hydrophobic Drugs. , 2012, , .		0