

Abdul I Barakat

List of Publications by Year in descending order

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93
papers

3,886
citations

126708

33
h-index

133063

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. <i>Environmental Health Perspectives</i> , 2007, 115, 403-409.	2.8	435
2	Endothelial cellular response to altered shear stress. <i>American Journal of Physiology - Lung Cellular and Molecular Physiology</i> , 2001, 281, L529-L533.	1.3	314
3	SPATIAL RELATIONSHIPS IN EARLY SIGNALING EVENTS OF FLOW-MEDIATED ENDOTHELIAL MECHANOTRANSDUCTION. <i>Annual Review of Physiology</i> , 1997, 59, 527-549.	5.6	293
4	Autophagy is required for endothelial cell alignment and atheroprotection under physiological blood flow. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, E8675-E8684.	3.3	156
5	A Flow-Activated Chloride-Selective Membrane Current in Vascular Endothelial Cells. <i>Circulation Research</i> , 1999, 85, 820-828.	2.0	144
6	Computational Study of Fluid Mechanical Disturbance Induced by Endovascular Stents. <i>Annals of Biomedical Engineering</i> , 2005, 33, 444-456.	1.3	116
7	Nesprin-3 regulates endothelial cell morphology, perinuclear cytoskeletal architecture, and flow-induced polarization. <i>Molecular Biology of the Cell</i> , 2011, 22, 4324-4334.	0.9	105
8	Differential Responsiveness of Vascular Endothelial Cells to Different Types of Fluid Mechanical Shear Stress. <i>Cell Biochemistry and Biophysics</i> , 2003, 38, 323-343.	0.9	100
9	Effect of cerium oxide nanoparticles on inflammation in vascular endothelial cells. <i>Inhalation Toxicology</i> , 2009, 21, 123-130.	0.8	84
10	Modeling the transport of drugs eluted from stents: physical phenomena driving drug distribution in the arterial wall. <i>Biomechanics and Modeling in Mechanobiology</i> , 2014, 13, 327-347.	1.4	82
11	Integration of basal topographic cues and apical shear stress in vascular endothelial cells. <i>Biomaterials</i> , 2012, 33, 4126-4135.	5.7	79
12	Integration of substrate- and flow-derived stresses in endothelial cell mechanobiology. <i>Communications Biology</i> , 2021, 4, 764.	2.0	77
13	Serum proteins prevent aggregation of Fe ₂ O ₃ and ZnO nanoparticles. <i>Nanotoxicology</i> , 2012, 6, 837-846.	1.6	75
14	Differential membrane potential and ion current responses to different types of shear stress in vascular endothelial cells. <i>American Journal of Physiology - Cell Physiology</i> , 2004, 286, C1367-C1375.	2.1	68
15	Microchannel Platform for the Study of Endothelial Cell Shape and Function. <i>Biomedical Microdevices</i> , 2002, 4, 9-16.	1.4	67
16	Modulation of ATP/ADP Concentration at the Endothelial Surface by Shear Stress: Effect of Flow-Induced ATP Release. <i>Annals of Biomedical Engineering</i> , 2001, 29, 740-751.	1.3	64
17	Role of Ultrasonic Shear Rate Estimation Errors in Assessing Inflammatory Response and Vascular Risk. <i>Ultrasound in Medicine and Biology</i> , 2008, 34, 963-972.	0.7	61
18	Vascular endothelial wound closure under shear stress: role of membrane fluidity and flow-sensitive ion channels. <i>Journal of Applied Physiology</i> , 2005, 98, 2355-2362.	1.2	59

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19	A Model for Shear Stress-induced Deformation of a Flow Sensor on the Surface of Vascular Endothelial Cells. <i>Journal of Theoretical Biology</i> , 2001, 210, 221-236.	0.8	55
20	Flow-activated Chloride Channels in Vascular Endothelium. <i>Journal of Biological Chemistry</i> , 2006, 281, 36492-36500.	1.6	53
21	Optimization of Drug Delivery by Drug-Eluting Stents. <i>PLoS ONE</i> , 2015, 10, e0130182.	1.1	53
22	Secrets of the code: Do vascular endothelial cells use ion channels to decipher complex flow signals?. <i>Biomaterials</i> , 2006, 27, 671-678.	5.7	51
23	The basement membrane as a structured surface – role in vascular health and disease. <i>Journal of Cell Science</i> , 2020, 133, .	1.2	51
24	Generation of hydrogen peroxide from San Joaquin Valley particles in a cell-free solution. <i>Atmospheric Chemistry and Physics</i> , 2011, 11, 753-765.	1.9	44
25	Computational Fluid Dynamic Simulations of Maternal Circulation: Wall Shear Stress in the Human Placenta and Its Biological Implications. <i>PLoS ONE</i> , 2016, 11, e0147262.	1.1	44
26	Mechanisms of Shear Stress Transmission and Transduction in Endothelial Cells. <i>Chest</i> , 1998, 114, 58S-63S.	0.4	43
27	Characterizing Cell Adhesion by Using Micropipette Aspiration. <i>Biophysical Journal</i> , 2015, 109, 209-219.	0.2	43
28	Micropipette force probe to quantify single-cell force generation: application to T-cell activation. <i>Molecular Biology of the Cell</i> , 2017, 28, 3229-3239.	0.9	43
29	Numerical study of the impact of non-Newtonian blood behavior on flow over a two-dimensional backward facing step. <i>Biorheology</i> , 2005, 42, 493-509.	1.2	38
30	Flow-induced expression of endothelial Na-K-Cl cotransport: dependence on K ⁺ and Cl ⁻ channels. <i>American Journal of Physiology - Cell Physiology</i> , 2001, 280, C216-C227.	2.1	37
31	A Model for Shear Stress Sensing and Transmission in Vascular Endothelial Cells. <i>Biophysical Journal</i> , 2003, 84, 4087-4101.	0.2	37
32	Effect of shear stress on migration and integrin expression in macaque trophoblast cells. <i>Biochimica Et Biophysica Acta - Molecular Cell Research</i> , 2002, 1589, 233-246.	1.9	36
33	Mechanical Criterion for the Rupture of a Cell Membrane under Compression. <i>Biophysical Journal</i> , 2016, 111, 2711-2721.	0.2	34
34	T-lymphocyte passive deformation is controlled by unfolding of membrane surface reservoirs. <i>Molecular Biology of the Cell</i> , 2016, 27, 3574-3582.	0.9	34
35	Blood flow and arterial endothelial dysfunction: Mechanisms and implications. <i>Comptes Rendus Physique</i> , 2013, 14, 479-496.	0.3	33
36	MUC1 is involved in trophoblast transendothelial migration. <i>Biochimica Et Biophysica Acta - Molecular Cell Research</i> , 2007, 1773, 1007-1014.	1.9	31

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37	Microcinematographic studies of flow patterns in the excised rabbit aorta and its major branches. <i>Biorheology</i> , 1997, 34, 195-221.	1.2	29
38	ATP Release by Red Blood Cells under Flow: Model and Simulations. <i>Biophysical Journal</i> , 2018, 115, 2218-2229.	0.2	29
39	Focal adhesion clustering drives endothelial cell morphology on patterned surfaces. <i>Journal of the Royal Society Interface</i> , 2019, 16, 20190263.	1.5	29
40	Microcinematographic Studies of Flow Patterns in the Excised Rabbit Aorta and its Major Branches. <i>Biorheology</i> , 1997, 34, 195-221.	1.2	28
41	Pericyte mechanics and mechanobiology. <i>Journal of Cell Science</i> , 2021, 134, .	1.2	28
42	Trophoblast Migration Under Flow Is Regulated by Endothelial Cells1. <i>Biology of Reproduction</i> , 2005, 73, 14-19.	1.2	26
43	Is there a universal mechanism of cell alignment in response to substrate topography?. <i>Cytoskeleton</i> , 2021, 78, 284-292.	1.0	25
44	Macaque trophoblast migration is regulated by RANTES. <i>Experimental Cell Research</i> , 2005, 305, 355-364.	1.2	24
45	Endothelial autophagic flux hampers atherosclerotic lesion development. <i>Autophagy</i> , 2018, 14, 173-175.	4.3	24
46	Elastocapillary Instability in Mitochondrial Fission. <i>Physical Review Letters</i> , 2015, 115, 088102.	2.9	23
47	Fluid Shear Stress Promotes Placental Growth Factor Upregulation in Human Syncytiotrophoblast Through the cAMP \rightarrow PKA Signaling Pathway. <i>Hypertension</i> , 2016, 68, 1438-1446.	1.3	23
48	Model of cellular mechanotransduction via actin stress fibers. <i>Biomechanics and Modeling in Mechanobiology</i> , 2016, 15, 331-344.	1.4	23
49	Flow-Activated Ion Channels in Vascular Endothelium. <i>Cell Biochemistry and Biophysics</i> , 2006, 46, 277-284.	0.9	22
50	New Approach to Investigate the Cytotoxicity of Nanomaterials Using Single Cell Mechanics. <i>Journal of Physical Chemistry B</i> , 2014, 118, 1246-1255.	1.2	22
51	Dynamics of Mechanical Signal Transmission through Prestressed Stress Fibers. <i>PLoS ONE</i> , 2012, 7, e35343.	1.1	22
52	Shear stress and 17 β -estradiol modulate cerebral microvascular endothelial Na-K-Cl cotransporter and Na/H exchanger protein levels. <i>American Journal of Physiology - Cell Physiology</i> , 2008, 294, C363-C371.	2.1	21
53	Effect of Aqueous Tobacco Smoke Extract and Shear Stress on PECAM-1 Expression and Cell Motility in Human Uterine Endothelial Cells. <i>Toxicological Sciences</i> , 2004, 81, 408-418.	1.4	20
54	Modulation of ATP/ADP Concentration at the Endothelial Surface by Shear Stress: Effect of Flow Recirculation. <i>Annals of Biomedical Engineering</i> , 2007, 35, 505-516.	1.3	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. <i>Biorheology</i> , 1998, 35, 415-435.	1.2	18
56	Regulation of trophoblast beta1-integrin expression by contact with endothelial cells. <i>Cell Communication and Signaling</i> , 2004, 2, 4.	2.7	18
57	Mechanisms of cytoskeleton-mediated mechanical signal transmission in cells. <i>Communicative and Integrative Biology</i> , 2012, 5, 538-542.	0.6	18
58	Dynamics of Receptor-Mediated Nanoparticle Internalization into Endothelial Cells. <i>PLoS ONE</i> , 2015, 10, e0122097.	1.1	18
59	Dragging Along. <i>Circulation Research</i> , 2008, 102, 747-748.	2.0	17
60	Rapid viscoelastic changes are a hallmark of early leukocyte activation. <i>Biophysical Journal</i> , 2021, 120, 1692-1704.	0.2	17
61	Shear stress in the microvasculature: influence of red blood cell morphology and endothelial wall undulation. <i>Biomechanics and Modeling in Mechanobiology</i> , 2019, 18, 1095-1109.	1.4	15
62	3D Printing for Cardiovascular Applications: From End-to-End Processes to Emerging Developments. <i>Annals of Biomedical Engineering</i> , 2021, 49, 1598-1618.	1.3	15
63	The stentable <i>in vitro</i> artery: an instrumented platform for endovascular device development and optimization. <i>Journal of the Royal Society Interface</i> , 2016, 13, 20160834.	1.5	14
64	Comparison of a Drug-Free Early Programmed Dismantling PDLLA Bioresorbable Scaffold and a Metallic Stent in a Porcine Coronary Artery Model at 3-Year Follow-Up. <i>Journal of the American Heart Association</i> , 2017, 6, .	1.6	14
65	A compact integrated microfluidic oxygenator with high gas exchange efficiency and compatibility for long-lasting endothelialization. <i>Lab on A Chip</i> , 2021, 21, 4791-4804.	3.1	14
66	Luminal flow actuation generates coupled shear and strain in a microvessel-on-chip. <i>Biofabrication</i> , 2022, 14, 015003.	3.7	14
67	The Effect of Noisy Flow on Endothelial Cell Mechanotransduction: A Computational Study. <i>Annals of Biomedical Engineering</i> , 2011, 39, 911-921.	1.3	13
68	Medical Stents: State of the Art and Future Directions. <i>Annals of Biomedical Engineering</i> , 2016, 44, 274-275.	1.3	13
69	A simple microfluidic device to study cell-scale endothelial mechanotransduction. <i>Biomedical Microdevices</i> , 2016, 18, 63.	1.4	11
70	Modulation of ATP/ADP Concentration at the Endothelial Cell Surface by Flow: Effect of Cell Topography. <i>Annals of Biomedical Engineering</i> , 2009, 37, 2459-2468.	1.3	10
71	ORIGINAL ARTICLE: Trophoblasts and Shear Stress Induce an Asymmetric Distribution of ICAM-1 in Uterine Endothelial Cells. <i>American Journal of Reproductive Immunology</i> , 2008, 59, 167-181.	1.2	9
72	Topography-induced large-scale antiparallel collective migration in vascular endothelium. <i>Nature Communications</i> , 2022, 13, 2797.	5.8	8

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73	Drug-Eluting Stent Design is a Determinant of Drug Concentration at the Endothelial Cell Surface. <i>Annals of Biomedical Engineering</i> , 2016, 44, 302-314.	1.3	7
74	A Mathematical Model for the Sounds Produced by Knuckle Cracking. <i>Scientific Reports</i> , 2018, 8, 4600.	1.6	7
75	Distinct timing of neutrophil spreading and stiffening during phagocytosis. <i>Biophysical Journal</i> , 2022, , .	0.2	7
76	Intracellular regulation of cell signaling cascades: how location makes a difference. <i>Journal of Mathematical Biology</i> , 2014, 69, 213-242.	0.8	5
77	Role of Ion Channels in Cellular Mechanotransduction â€œ 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. <i>ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik</i> , 2018, 98, 1493-1502.	0.9	2
80	eG Coated Stents Exhibit Enhanced Endothelial Wound Healing Characteristics. <i>Cardiovascular Engineering and Technology</i> , 2021, 12, 515-525.	0.7	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. <i>Transactions of the Korean Society of Mechanical Engineers, B</i> , 2005, 29, 1042-1048.	0.0	2
84	Numerical Analysis on the Effect of Wall Shear Stress Around the Ring Drug-Eluting Stent. <i>Transactions of the Korean Society of Mechanical Engineers, B</i> , 2007, 31, 21-28.	0.0	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. <i>ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik</i> , 2018, 98, 2222-2222.	0.9	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. <i>Biophysical Journal</i> , 2012, 102, 668a.	0.2	0
89	Dynamic Monitoring of Cell Mechanical Properties using Profile Microindentation. <i>Biophysical Journal</i> , 2016, 110, 134a.	0.2	0
90	Elastocapillary Instability in Mitochondrial Fission. <i>Biophysical Journal</i> , 2016, 110, 472a.	0.2	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.	0.0	0
93	Dynamics of Arterial Wall Transport for Small Hydrophobic Drugs. , 2012, , .		0