John M Tarbell

List of Publications by Year
in descending order

92 papers	7,215 citations	53794 45 h-index	60623 81 g-index
94 all docs	94 docs citations	94 times ranked	6246 citing authors

#	Article	IF	Citations
1	The Structure and Function of the Endothelial Glycocalyx Layer. Annual Review of Biomedical Engineering, 2007, 9, 121-167.	12.3	976
2	Heparan Sulfate Proteoglycan Is a Mechanosensor on Endothelial Cells. Circulation Research, 2003, 93, e136-42.	4.5	498
3	The role of endothelial glycocalyx components in mechanotransduction of fluid shear stress. Biochemical and Biophysical Research Communications, 2007, 355, 228-233.	2.1	320
4	Shear stress and the endothelial transport barrier. Cardiovascular Research, 2010, 87, 320-330.	3.8	300
5	The role of the glycocalyx in reorganization of the actin cytoskeleton under fluid shear stress: A "bumper-car" model. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 16483-16488.	7.1	277
6	Mass Transport in Arteries and the Localization of Atherosclerosis. Annual Review of Biomedical Engineering, 2003, 5, 79-118.	12.3	256
7	Permeability of Endothelial and Astrocyte Cocultures: In Vitro Bloodâ€“Brain Barrier Models for Drug Delivery Studies. Annals of Biomedical Engineering, 2010, 38, 2499-2511.	2.5	201
8	Sphingosine-1-phosphate protects endothelial glycocalyx by inhibiting syndecan-1 shedding. American Journal of Physiology - Heart and Circulatory Physiology, 2014, 306, H363-H372.	3.2	195
9	Fluid Flow Mechanotransduction in Vascular Smooth Muscle Cells and Fibroblasts. Annals of Biomedical Engineering, 2011, 39, 1608-1619.	2.5	194
10	Imaging the Endothelial Glycocalyx In Vitro by Rapid Freezing/Freeze Substitution Transmission Electron Microscopy. Arteriosclerosis, Thrombosis, and Vascular Biology, 2011, 31, 1908-1915.	2.4	194
11	Shear-induced endothelial NOS activation and remodeling via heparan sulfate, glypican-1, and syndecan-1. Integrative Biology (United Kingdom), 2014, 6, 338-347.	1.3	160
12	Mechanosensing at the Vascular Interface. Annual Review of Biomedical Engineering, 2014, 16, 505-532.	12.3	146
13	Fluid Mechanics, Arterial Disease, and Gene Expression. Annual Review of Fluid Mechanics, 2014, 46, 591-614.	25.0	134
14	Mechanoâ€sensing and transduction by endothelial surface glycocalyx: composition, structure, and function. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2013, 5, 381-390.	6.6	132
15	Cellular Fluid Mechanics and Mechanotransduction. Annals of Biomedical Engineering, 2005, 33, 1719-1723.	2.5	125
16	The Endothelial Glycocalyx: A Mechano-Sensor and -TransducerA presentation from the Experimental Biology 2008 Meeting, San Diego, CA, USA, 5 to 9 April 2008.. Science Signaling, 2008, 1, pt8.	3.6	125
17	Effect of Fluid Flow on Smooth Muscle Cells in a 3-Dimensional Collagen Gel Model. Arteriosclerosis, Thrombosis, and Vascular Biology, 2000, 20, 2220-2225.	2.4	120
18	The Adaptive Remodeling of Endothelial Glycocalyx in Response to Fluid Shear Stress. PLoS ONE, 2014, 9, e86249.	2.5	118

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19	Numerical Simulation of Pulsatile Flow in a Compliant Curved Tube Model of a Coronary Artery. Journal of Biomechanical Engineering, 2000, 122, 77-85.	1.3	111
20	Endothelial Surface Glycocalyx Can Regulate Flow-Induced Nitric Oxide Production in Microvessels In Vivo. PLoS ONE, 2015, 10, e0117133.	2.5	100
21	Endothelial glycocalyx, apoptosis and inflammation in an atherosclerotic mouse model. Atherosclerosis, 2016, 252, 136-146.	0.8	99
22	EXPERIMENTAL FLUID MECHANICS OF PULSATILE ARTIFICIAL BLOOD PUMPS. Annual Review of Fluid Mechanics, 2006, 38, 65-86.	25.0	94
23	The Structural Stability of the Endothelial Glycocalyx after Enzymatic Removal of Glycosaminoglycans. PLoS ONE, 2012, 7, e43168.	2.5	93
24	Interstitial flow through the internal elastic lamina affects shear stress on arterial smooth muscle cells. American Journal of Physiology - Heart and Circulatory Physiology, 2000, 278, H1589-H1597.	3.2	92
25	Flow of non-Newtonian blood analog fluids in rigid curved and straight artery models. Biorheology, 1990, 27, 711-733.	0.4	84
26	In vitro study of LDL transport under pressurized (convective) conditions. American Journal of Physiology - Heart and Circulatory Physiology, 2007, 293, H126-H132.	3.2	82
27	Cancer cell glycocalyx mediates mechanotransduction and flow-regulated invasion. Integrative Biology (United Kingdom), 2013, 5, 1334-1343.	1.3	78
28	Fluid shear stress induces the clustering of heparan sulfate via mobility of glypican-1 in lipid rafts. American Journal of Physiology - Heart and Circulatory Physiology, 2013, 305, H811-H820.	3.2	77
29	Effect of the glycocalyx layer on transmission of interstitial flow shear stress to embedded cells. Biomechanics and Modeling in Mechanobiology, 2013, 12, 111-121.	2.8	77
30	Endothelial Glycocalyx-Mediated Nitric Oxide Production in Response to Selective AFM Pulling. Biophysical Journal, 2017, 113, 101-108.	0.5	77
31	Fluid shear stress induces upregulation of COX-2 and PGI₂release in endothelial cells via a pathway involving PECAM-1, PI3K, FAK, and p38. American Journal of Physiology - Heart and Circulatory Physiology, 2017, 312, H485-H500.	3.2	76
32	Heparan Sulfate Proteoglycans Mediate Interstitial Flow Mechanotransduction Regulating MMP-13 Expression and Cell Motility via FAK-ERK in 3D Collagen. PLoS ONE, 2011, 6, e15956.	2.5	76
33	Effect of mixing on the precipitation of barium sulfate in an MSMPR reactorsssss. AICHE Journal, 1990, 36, 511-522.	3.6	74
34	Shear stress inhibits smooth muscle cell migration via nitric oxide-mediated downregulation of matrix metalloproteinase-2 activity. American Journal of Physiology - Heart and Circulatory Physiology, 2005, 288, H2244-H2252.	3.2	70
35	Shear Stress Modulation of Smooth Muscle Cell Marker Genes in 2-D and 3-D Depends on Mechanotransduction by Heparan Sulfate Proteoglycans and ERK1/2. PLoS ONE, 2010, 5, e12196.	2.5	68
36	Sphingosine 1-phosphate induced synthesis of glycocalyx on endothelial cells. Experimental Cell Research, 2015, 339, 90-95.	2.6	67

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37	The Glycocalyx and Its Role in Vascular Physiology and Vascular Related Diseases. Cardiovascular Engineering and Technology, 2021, 12, 37-71.	1.6	67
38	The Role of Endothelial Surface Glycocalyx in Mechanosensing and Transduction. Advances in Experimental Medicine and Biology, 2018, 1097, 1-27.	1.6	66
39	Effect of pressure on hydraulic conductivity of endothelial monolayers: role of endothelial cleft shear stress. Journal of Applied Physiology, 1999, 87, 261-268.	2.5	61
40	Heparan sulfate proteoglycan mediates shear stressâ€induced endothelial gene expression in mouse embryonic stem cellâ€derived endothelial cells. Biotechnology and Bioengineering, 2012, 109, 583-594.	3.3	60
41	The endothelial glycocalyx mediates shear-induced changes in hydraulic conductivity. American Journal of Physiology - Heart and Circulatory Physiology, 2009, 296, H1451-H1456.	3.2	58
42	Numerical Simulation of Oxygen Mass Transfer in a Compliant Curved Tube Model of a Coronary Artery. Annals of Biomedical Engineering, 2000, 28, 26-38.	2.5	53
43	Sphingosineâ€1â€phosphate Maintains Normal Vascular Permeability by Preserving Endothelial Surface Glycocalyx in Intact Microvessels. Microcirculation, 2016, 23, 301-310.	1.8	52
44	Fluid Dynamics of a Pediatric Ventricular Assist Device. Artificial Organs, 2000, 24, 362-372.	1.9	49
45	A transmural pressure gradient induces mechanical and biological adaptive responses in endothelial cells. American Journal of Physiology - Heart and Circulatory Physiology, 2004, 286, H731-H741.	3.2	48
46	Direct current stimulation of endothelial monolayers induces a transient and reversible increase in transport due to the electroosmotic effect. Scientific Reports, 2018, 8, 9265.	3.3	47
47	The Interaction between Fluid Wall Shear Stress and Solid Circumferential Strain Affects Endothelial Gene Expression. PLoS ONE, 2015, 10, e0129952.	2.5	38
48	Macromolecular Transport Through the Deformable Porous Media of an Artery Wall. Journal of Biomechanical Engineering, 1994, 116, 156-163.	1.3	37
49	Fenestral Pore Size in the Internal Elastic Lamina Affects Transmural Flow Distribution in the Artery Wall. Annals of Biomedical Engineering, 2001, 29, 456-466.	2.5	37
50	Mechanotransmission in endothelial cells subjected to oscillatory and multi-directional shear flow. Journal of the Royal Society Interface, 2017, 14, 20170185.	3.4	37
51	Effect of shear stress on the hydraulic conductivity of cultured bovine retinal microvascular endothelial cell monolayers. Current Eye Research, 2000, 21, 944-951.	1.5	36
52	The glycocalyx core protein Glypican 1 protects vessel wall endothelial cells from stiffness-mediated dysfunction and disease. Cardiovascular Research, 2021, 117, 1592-1605.	3.8	36
53	Oxygen Mass Transport in a Compliant Carotid Bifurcation Model. Annals of Biomedical Engineering, 2006, 34, 1389-1399.	2.5	32
54	Exocytosis of Endothelial Lysosome-Related Organelles Hair-Triggers a Patchy Loss of Glycocalyx at the Onset of Sepsis. American Journal of Pathology, 2016, 186, 248-258.	3.8	31

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55	Effect of shear stress on water and LDL transport through cultured endothelial cell monolayers. Atherosclerosis, 2014, 233, 682-690.	0.8	30
56	The role of oxygen transport in atherosclerosis and vascular disease. Journal of the Royal Society Interface, 2020, 17, 20190732.	3.4	29
57	Heparan sulfate proteoglycans mediate renal carcinoma metastasis. International Journal of Cancer, 2016, 139, 2791-2801.	5.1	28
58	Heparan sulfate proteoglycan glypican-1 and PECAM-1 cooperate in shear-induced endothelial nitric oxide production. Scientific Reports, 2021, 11, 11386.	3.3	25
59	MICROMIXING EFFECTS ON BARIUM SULFATE PRECIPITATION IN AN MSMPR REACTOR. Chemical Engineering Communications, 1996, 146, 33-56.	2.6	24
60	Physiological transport properties of cultured retinal microvascular endothelial cell monolayers. Current Eye Research, 1997, 16, 761-768.	1.5	24
61	Shear-induced force transmission in a multicomponent, multicell model of the endothelium. Journal of the Royal Society Interface, 2014, 11, 20140431.	3.4	24
62	Endothelial surface glycocalyx (ESG) components and ultra-structure revealed by stochastic optical reconstruction microscopy (STORM). Biorheology, 2019, 56, 77-88.	0.4	23
63	Effect of Hematocrit on Wall Shear Rate in Oscillatory Flow: Do the Elastic Properties of Blood Play a Role?. Biorheology, 1991, 28, 569-587.	0.4	18
64	MICROMIXING EFFECTS ON BARIUM SULFATE PRECIPITATION IN A DOUBLE-JET SEMI BATCH REACTOR. Chemical Engineering Communications, 1999, 176, 89-113.	2.6	18
65	Influence of Vasoactive Drugs on Wall Shear Stress Distribution in the Abdominal Aortic Bifurcation: An In Vitro Study. Annals of Biomedical Engineering, 1998, 26, 200-212.	2.5	17
66	Aquaporin-1 facilitates pressure-driven water flow across the aortic endothelium. American Journal of Physiology - Heart and Circulatory Physiology, 2015, 308, H1051-H1064.	3.2	17
67	Interaction between the Stress Phase Angle (SPA) and the Oscillatory Shear Index (OSI) Affects Endothelial Cell Gene Expression. PLoS ONE, 2016, 11, e0166569.	2.5	17
68	Effects of Tilting Disk Heart Valve Gap Width on Regurgitant Flow Through an Artificial Heart Mitral Valve. Artificial Organs, 1997, 21, 1014-1025.	1.9	15
69	The cancer cell glycocalyx proteoglycan Glypican-1 mediates interstitial flow mechanotransduction to enhance cell migration and metastasis. Biorheology, 2019, 56, 151-161.	0.4	15
70	A New Mock Circulatory Loop and Its Application to the Study of Chemical Additive and Aortic Pressure Effects on Hemolysis in the Penn State Electric Ventricular Assist Device. Artificial Organs, 1994, 18, 397-407.	1.9	14
71	Heparan sulfate proteoglycan, integrin, and syndecanâ€4 are mechanosensors mediating cyclic strainâ€modulated endothelial gene expression in mouse embryonic stem cellâ€derived endothelial cells. Biotechnology and Bioengineering, 2019, 116, 2730-2741.	3.3	13
72	Matrix Stiffness Affects Glycocalyx Expression in Cultured Endothelial Cells. Frontiers in Cell and Developmental Biology, 2021, 9, 731666.	3.7	12

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73	EFFECT OF PVA AND GELATIN ADDITIVES ON BARIUM SULFATE PRECIPITATION IN AN MSMPR REACTOR. Chemical Engineering Communications, 1993, 120, 119-137.	2.6	11
74	Rat Aortic Smooth Muscle Cells Contract in Response to Serum and Its Components in a Calcium Independent Manner. Annals of Biomedical Engineering, 2004, 32, 1667-1675.	2.5	7
75	Laser Doppler Velocimetry and Flow Visualization Studies in the Regurgitant Leakage Flow Region of Three Mechanical Mitralâ€ƒValves. Artificial Organs, 2001, 25, 292-299.	1.9	6
76	Glycocalyx mechanotransduction mechanisms are involved in renal cancer metastasis. Matrix Biology Plus, 2022, 13, 100100.	3.5	5
77	Stenting-induced Vasa Vasorum compression and subsequent flow resistance: a finite element study. Biomechanics and Modeling in Mechanobiology, 2021, 20, 121-133.	2.8	3
78	Hydraulic Conductivity of Smooth Muscle Cell-Initiated Arterial Cocultures. Annals of Biomedical Engineering, 2016, 44, 1721-1733.	2.5	2
79	The Endothelial Glycocalyx In Vitro : Its Structure and The Role of Heparan Sulfate and Glypicanâ€1 in eNOS Activation by Flow. FASEB Journal, 2010, 24, 784.8.	0.5	2
80	Influence of Blood Rheology and Vessel Wall Motion on Arterial Fluid Mechanics. Applied Mechanics Reviews, 1994, 47, S291-S295.	10.1	1
81	ENDOTHELIAL GLYCOCALYX STRUCTURE AND ROLE IN MECHANOTRANSDUCTION. , 2010, , 69-95.		1
82	Mechanisms of flow-dependent endothelial COX-2 and PGI<inf>2</inf> expression. , 2014, , .		1
83	Special Issue on Professor John M. Tarbellâ€™s Contribution to Cardiovascular Engineering. Cardiovascular Engineering and Technology, 2021, 12, 1-8.	1.6	1
84	Endothelial Glycocalyx and Apoptosis in Atherosclerosis. FASEB Journal, 2015, 29, 631.3.	0.5	1
85	Permeability of in vitro blood-brain barrier models. , 2010, , .		0
86	Hydraulic conductivity and solute permeability of an in vitro bloodâ€brain barrier (BBB) model. FASEB Journal, 2009, 23, 1020.2.	0.5	0
87	Interstitial flow induces vascular SMC migration in collagen I gels regulated by MMPâ€1 via an ERK1/2â€dependent and câ€Junâ€mediated mechanism. FASEB Journal, 2010, 24, 235.6.	0.5	0
88	The role of mechanical forces in stem cell differentiation to vascular lineage. FASEB Journal, 2010, 24, 750.13.	0.5	0
89	Heparan sulfate proteoglycan mediates shear stressâ€induced endothelial gene expression in mouse embryonic stem cellâ€derived cells. FASEB Journal, 2011, 25, 1043.17.	0.5	0
90	Regulation of flowâ€induced intracellular NO levels by endothelial surface glycocalyx. FASEB Journal, 2013, 27, .	0.5	0

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91	Endothelial apoptosis and glycocalyx morphology in plaque and nonâ€plaque areas of the mouse atherosclerotic brachiocephalic artery. FASEB Journal, 2013, 27, 869.4.	0.5	0
92	Surface glycocalyx and glypicanâ€1 mediate tumor cell metastasis. FASEB Journal, 2018, 32, 281.5.	0.5	0