Robert M Nerem

List of Publications by Citations

124 papers	8,116 citations	48 h-index	89 g-index
130 ext. papers	8,580 ext. citations	5.9 avg, IF	6.03 L-index

#	Paper	IF	Citations
124	Oscillatory and steady laminar shear stress differentially affect human endothelial redox state: role of a superoxide-producing NADH oxidase. *Circulation Research*, **1998**, 82, 1094-101	15.7	516
123	Oscillatory shear stress stimulates adhesion molecule expression in cultured human endothelium. *Circulation Research*, **1998**, 82, 532-9	15.7	429
122	Dynamic mechanical conditioning of collagen-gel blood vessel constructs induces remodeling in vitro. *Annals of Biomedical Engineering*, **2000**, 28, 351-62	4.7	420
121	Vascular tissue engineering. *Annual Review of Biomedical Engineering*, **2001**, 3, 225-43	12	347
120	Phosphorylation of endothelial nitric oxide synthase in response to fluid shear stress. *Circulation Research*, **1996**, 79, 984-91	15.7	321
119	Tissue engineering: from biology to biological substitutes. *Tissue Engineering*, **1995**, 1, 3-13		280
118	Endothelial cellular response to altered shear stress. *American Journal of Physiology - Lung Cellular and Molecular Physiology*, **2001**, 281, L529-33	5.8	274
117	Properties of engineered vascular constructs made from collagen, fibrin, and collagen-fibrin mixtures. *Biomaterials*, **2004**, 25, 3699-706	15.6	253
116	Unique morphology and focal adhesion development of valvular endothelial cells in static and fluid flow environments. *Arteriosclerosis, Thrombosis, and Vascular Biology*, **2004**, 24, 1429-34	9.4	224
115	Mechanical, biochemical, and extracellular matrix effects on vascular smooth muscle cell phenotype. *Journal of Applied Physiology*, **2005**, 98, 2321-7	3.7	221
114	Shear stress modulates endothelial cell morphology and F-actin organization through the regulation of focal adhesion-associated proteins. *Journal of Cellular Physiology*, **1995**, 163, 179-93	7	198
113	Phenotype modulation in vascular tissue engineering using biochemical and mechanical stimulation. *Annals of Biomedical Engineering*, **2003**, 31, 391-402	4.7	170
112	Valvular endothelial cells regulate the phenotype of interstitial cells in co-culture: effects of steady shear stress. *Tissue Engineering*, **2006**, 12, 905-15		165
111	Altered response of vascular smooth muscle cells to exogenous biochemical stimulation in two- and three-dimensional culture. *Experimental Cell Research*, **2003**, 283, 146-55	4.2	163
110	Transcriptional profiles of valvular and vascular endothelial cells reveal phenotypic differences: influence of shear stress. *Arteriosclerosis, Thrombosis, and Vascular Biology*, **2006**, 26, 69-77	9.4	151
109	Mechanical strain-stimulated remodeling of tissue-engineered blood vessel constructs. *Tissue Engineering*, **2003**, 9, 657-66		147
108	The study of the influence of flow on vascular endothelial biology. *American Journal of the Medical Sciences*, **1998**, 316, 169-75	2.2	145

107	A biological hybrid model for collagen-based tissue engineered vascular constructs. *Biomaterials*, **2003**, 24, 1241-54	15.6	134
106	Transport of 14 C-4-cholesterol between serum and wall in the perfused dog common carotid artery. *Circulation Research*, **1973**, 32, 187-205	15.7	133
105	Cellular engineering. *Annals of Biomedical Engineering*, **1991**, 19, 529-45	4.7	125
104	Tissue engineering: the hope, the hype, and the future. *Tissue Engineering*, **2006**, 12, 1143-50		119
103	Hemodynamics and the vascular endothelium. *Journal of Biomechanical Engineering*, **1993**, 115, 510-4	2.1	119
102	The role of matrix metalloproteinase-2 in the remodeling of cell-seeded vascular constructs subjected to cyclic strain. *Annals of Biomedical Engineering*, **2001**, 29, 923-34	4.7	115
101	Bone marrow-derived mesenchymal stem cells promote angiogenic processes in a time- and dose-dependent manner in vitro. *Tissue Engineering - Part A*, **2009**, 15, 2459-70	3.9	113
100	Incorporation of intact elastin scaffolds in tissue-engineered collagen-based vascular grafts. *Tissue Engineering*, **2004**, 10, 1526-35		103
99	Porcine aortic valve interstitial cells in three-dimensional culture: comparison of phenotype with aortic smooth muscle cells. *Journal of Heart Valve Disease*, **2004**, 13, 478-85; discussion 485-6		100
98	Progress in tissue engineering and regenerative medicine. *Proceedings of the National Academy of Sciences of the United States of America*, **2010**, 107, 3285-6	11.5	98
97	Valvular endothelial cells and the mechanoregulation of valvular pathology. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **2007**, 362, 1445-57	5.8	96
96	Quantitative study of the rabbit aortic endothelium using vascular casts. *Atherosclerosis*, **1980**, 35, 321-37	3.1	91
95	A novel single-step self-assembly approach for the fabrication of tissue-engineered vascular constructs. *Tissue Engineering - Part A*, **2010**, 16, 1737-47	3.9	90
94	Discovery of shear- and side-specific mRNAs and miRNAs in human aortic valvular endothelial cells. *American Journal of Physiology - Heart and Circulatory Physiology*, **2011**, 301, H856-67	5.2	83
93	Tissue engineering a blood vessel: regulation of vascular biology by mechanical stresses. *Journal of Cellular Biochemistry*, **1994**, 56, 204-9	4.7	79
92	The impact of biomechanics in tissue engineering and regenerative medicine. *Tissue Engineering - Part B: Reviews*, **2009**, 15, 477-84	7.9	75
91	Poly(glycerol sebacate) supports the proliferation and phenotypic protein expression of primary baboon vascular cells. *Journal of Biomedical Materials Research - Part A*, **2007**, 83, 1070-1075	5.4	72
90	Hot-film anemometer velocity measurements of arterial blood flow horses. *Circulation Research*, **1974**, 34, 193-203	15.7	72

89	Hemodynamic Influences on Vascular Endothelial Biology*. *Toxicologic Pathology*, **1990**, 18, 572-582	2.1	66
88	Fluid shear stress promotes an endothelial-like phenotype during the early differentiation of embryonic stem cells. *Tissue Engineering - Part A*, **2010**, 16, 3547-53	3.9	65
87	Vessel wall-embedded dendritic cells induce T-cell autoreactivity and initiate vascular inflammation. *Circulation Research*, **2008**, 102, 546-53	15.7	64
86	Oscillatory shear stress and hydrostatic pressure modulate cell-matrix attachment proteins in cultured endothelial cells. *In Vitro Cellular and Developmental Biology - Animal*, **1995**, 31, 45-54	2.6	64
85	Preferential activation of SMAD1/5/8 on the fibrosa endothelium in calcified human aortic valves--association with low BMP antagonists and SMAD6. *PLoS ONE*, **2011**, 6, e20969	3.7	60
84	The study of rheological effects on vascular endothelial cells in culture. *Biorheology*, **1989**, 26, 345-57	1.7	58
83	Use of embryonic stem cell-derived endothelial cells as a cell source to generate vessel structures in vitro. *Tissue Engineering*, **2005**, 11, 497-505		54
82	The tissue engineering of blood vessels and the heart. *American Journal of Transplantation*, **2004**, 4 Suppl 6, 36-42	8.7	52
81	Tissue engineering a blood vessel substitute: the role of biomechanics. *Yonsei Medical Journal*, **2000**, 41, 735-9	3	52
80	Effects of shear on endothelial cell calcium in the presence and absence of ATP. *FASEB Journal*, **1995**, 9, 968-73	0.9	52
79	Vascular casting. A new method for the study of the arterial endothelium. *Atherosclerosis*, **1979**, 34, 457-67	3.1	52
78	Differentiation patterns of embryonic stem cells in two- versus three-dimensional culture. *Cells Tissues Organs*, **2013**, 197, 399-410	2.1	48
77	Equibiaxial strain stimulates fibroblastic phenotype shift in smooth muscle cells in an engineered tissue model of the aortic wall. *Biomaterials*, **2006**, 27, 5252-8	15.6	48
76	Role of mechanics in vascular tissue engineering. *Biorheology*, **2003**, 40, 281-7	1.7	47
75	Biomanufacturing of Therapeutic Cells: State of the Art, Current Challenges, and Future Perspectives. *Annual Review of Chemical and Biomolecular Engineering*, **2016**, 7, 455-78	8.9	45
74	Cyclic strain improves strength and function of a collagen-based tissue-engineered vascular media. *Tissue Engineering - Part A*, **2010**, 16, 3149-57	3.9	45
73	Embryonic stem cell-derived endothelial cells may lack complete functional maturation in vitro. *Journal of Vascular Research*, **2006**, 43, 411-21	1.9	44
72	Endothelial connexin 37, connexin 40, and connexin 43 respond uniquely to substrate and shear stress. *Endothelium: Journal of Endothelial Cell Research*, **2007**, 14, 215-26		40

71	Regenerative medicine: the emergence of an industry. *Journal of the Royal Society Interface*, **2010**, 7 Suppl 6, S771-5	4.1	38
70	Cell-based therapies: from basic biology to replacement, repair, and regeneration. *Biomaterials*, **2007**, 28, 5074-7	15.6	38
69	Fluid-induced shear stress stimulates chondrocyte proliferation partially mediated via TGF-beta1. *Tissue Engineering*, **2002**, 8, 581-90		38
68	Hot film coronary artery velocity measurements in horses. *Cardiovascular Research*, **1976**, 10, 301-13	9.9	38
67	Effects of shear stress on germ lineage specification of embryonic stem cells. *Integrative Biology (United Kingdom)*, **2012**, 4, 1263-73	3.7	34
66	Viscoelastic testing methodologies for tissue engineered blood vessels. *Journal of Biomechanical Engineering*, **2005**, 127, 1176-84	2.1	34
65	Fluid dynamic aspects of arterial disease. *Atherosclerosis*, **1976**, 23, 253-261	3.1	33
64	Purified and proliferating endothelial cells derived and expanded in vitro from embryonic stem cells. *Endothelium: Journal of Endothelial Cell Research*, **2003**, 10, 329-36		32
63	Disturbed Flow Increases UBE2C (Ubiquitin E2 Ligase C) via Loss of miR-483-3p, Inducing Aortic Valve Calcification by the pVHL (von Hippel-Lindau Protein) and HIF-1 (Hypoxia-Inducible Factor-1) Pathway in Endothelial Cells. *Arteriosclerosis, Thrombosis, and Vascular Biology*, **2019**, 39, 467-481	9.4	32
62	Mesenchymal stem cells overexpressing ephrin-b2 rapidly adopt an early endothelial phenotype with simultaneous reduction of osteogenic potential. *Tissue Engineering - Part A*, **2010**, 16, 2755-68	3.9	31
61	Identification of side- and shear-dependent microRNAs regulating porcine aortic valve pathogenesis. *Scientific Reports*, **2016**, 6, 25397	4.9	31
60	Potential of baboon endothelial progenitor cells for tissue engineered vascular grafts. *Journal of Biomedical Materials Research - Part A*, **2008**, 86, 804-12	5.4	29
59	Maintenance of a functional endothelial cell monolayer on a fibroblast/polymer substrate under physiologically relevant shear stress conditions. *Tissue Engineering*, **2002**, 8, 695-708		27
58	Fluid shear stress alters the hemostatic properties of endothelial outgrowth cells. *Tissue Engineering - Part A*, **2012**, 18, 127-36	3.9	26
57	In vitro human tissue models--moving towards personalized regenerative medicine. *Advanced Drug Delivery Reviews*, **2011**, 63, 195-6	18.5	26
56	Arterial Fluid Dynamics and Interactions with the Vessel Walls **1981**, 719-835		25
55	A method-of-characteristics calculation of coronary blood flow. *Journal of Fluid Mechanics*, **1977**, 82, 429-448	3.7	24
54	Fluid dynamics as a factor in the localization of atherogenesis. *Annals of the New York Academy of Sciences*, **1983**, 416, 709-19	6.5	23

53	Quantitative study of the localization of sudanophilic coeliac lesions in the White Carneau pigeon. *Atherosclerosis*, **1980**, 35, 103-10	3.1	22
52	Differences in valvular and vascular cell responses to strain in osteogenic media. *Biomaterials*, **2011**, 32, 2885-93	15.6	21
51	In vitro derivation and expansion of endothelial cells from embryonic stem cells. *Methods in Molecular Biology*, **2006**, 330, 287-301	1.4	20
50	Fluid shear stress pre-conditioning promotes endothelial morphogenesis of embryonic stem cells within embryoid bodies. *Tissue Engineering - Part A*, **2014**, 20, 954-65	3.9	18
49	Human mesenchymal stem cells form multicellular structures in response to applied cyclic strain. *Annals of Biomedical Engineering*, **2009**, 37, 783-93	4.7	17
48	Genetic modification of smooth muscle cells to control phenotype and function in vascular tissue engineering. *Tissue Engineering*, **2004**, 10, 189-99		15
47	Strain magnitude-dependent calcific marker expression in valvular and vascular cells. *Cells Tissues Organs*, **2013**, 197, 372-83	2.1	14
46	Engineering as a new frontier for translational medicine. *Science Translational Medicine*, **2015**, 7, 281fs13	17.5	13
45	Polarized secretion of IGF-I and IGF-I binding protein activity by cultured aortic endothelial cells. *Journal of Cellular Physiology*, **1993**, 154, 139-42	7	13
44	Atherosclerosis and the Role of Wall Shear Stress **1995**, 300-319		13
43	Tissue engineering: from basic science to products: a preface. *Tissue Engineering*, **1995**, 1, 147-9		12
42	Parametric analysis of flow in the intramyocardial circulation. *Annals of Biomedical Engineering*, **1990**, 18, 347-65	4.7	12
41	THE CHALLENGE OF IMITATING NATURE **2000**, 9-15		12
40	Dynamic shear stress regulation of inflammatory and thrombotic pathways in baboon endothelial outgrowth cells. *Tissue Engineering - Part A*, **2013**, 19, 1573-82	3.9	11
39	miR-214 is Stretch-Sensitive in Aortic Valve and Inhibits Aortic Valve Calcification. *Annals of Biomedical Engineering*, **2019**, 47, 1106-1115	4.7	10
38	Purified and Proliferating Endothelial Cells Derived and Expanded In Vitro from Embryonic Stem Cells		9
37	The Study of the Influence of Flow on Vascular Endothelial Biology. *American Journal of the Medical Sciences*, **1998**, 316, 169-175	2.2	8
36	Stem cell engineering. *Tissue Engineering - Part A*, **2014**, 20, 893-4	3.9	7

35	Tissue engineering of a collagen-based vascular media: Demonstration of functionality. *Organogenesis*, **2010**, 6, 204-11	1.7	7
34	Bioengineering: 25 years of progressBut still only a beginning. *Technology in Society*, **2004**, 26, 415-431	6.3	7
33	Influence of mesenchymal stem cells on the response of endothelial cells to laminar flow and shear stress. *Cells Tissues Organs*, **2013**, 198, 289-99	2.1	6
32	Bioengineering and the cardiovascular system. *Global Cardiology Science & Practice*, **2013**, 2013, 29-36	0.7	6
31	Critical issues in vascular tissue engineering. *International Congress Series*, **2004**, 1262, 122-125		6
30	Tissue engineering: confronting the transplantation crisis. *Advances in Experimental Medicine and Biology*, **2003**, 534, 1-9	3.6	6
29	A global assessment of stem cell engineering. *Tissue Engineering - Part A*, **2014**, 20, 2575-89	3.9	5
28	The Challenge of Imitating Nature **2014**, 9-24		5
27	The Cardiovascular Technology Industry: Past, Present, and Future. *Cardiovascular Engineering and Technology*, **2010**, 1, 4-9	2.2	4
26	Shear Stress Effects on the Morphology and Cytomatrix of Cultured Vascular Endothelial Cells **1993** , 193-222		4
25	The role of demineralized bone particle in a PLGA scaffold designed to create a media equivalent for a tissue engineered blood vessel. *Macromolecular Research*, **2015**, 23, 986-993	1.9	3
24	The Challenge of Imitating Nature **2007**, 7-14		3
23	Functional Requirements for the Engineering of a Blood Vessel Substitute **2003**, 87-95		3
22	Cells into Systems. *Mechanical Engineering*, **2010**, 132, 30-34	0.9	3
21	Shear- and Side-dependent microRNAs and Messenger RNAs in Aortic Valvular Endothelium **2012**,		3
20	Implementation of a Biomedical Engineering Research Experience for African-American High School Students at a Tier One Research University. *Journal of Biomechanical Engineering*, **2018**, 140,	2.1	2
19	Engineering more physiologic in vitro models for the study of vascular biology. *Progress in Pediatric Cardiology*, **2006**, 21, 201-210	0.4	2
18	Tissue Engineering and the Cardiovascular System **1998**, 561-579		2

17	An In Vitro Study of Transendothelial Albumin Transport in a Steady State Pipe Flow at High Shear Rates. *Journal of Fluids Engineering, Transactions of the ASME*, **1976**, 98, 488-493	2.1	2
16	Blood Vessel Substitute **2002**, 891-903		2
15	Tissue Engineering: The Hope, the Hype, and the Future. *Tissue Engineering*, **2006**, 060518070820001		1
14	Tissue Engineering: From Basic Biology to Cell-Based Applications **2011**, 1-11		0
13	FOSTERING INTEGRITY IN RESEARCH. *Special Publications*, **2017**, 15-28		
12	Blood Vessel Tissue Engineering **2013**, 1237-1246		
11	A Tribute to Shu Chien's Scientific Achievement. *Cellular and Molecular Bioengineering*, **2011**, 4, 507-508	3.9	
10	Development of Vascular Substitutes. *Materials Research Society Symposia Proceedings*, **1998**, 550, 293		
9	Biomechanics and Its Impact on Human Life: From Gene Expression to Organ Physiology **2000**, 13-19		
8	Influence of Fluid Mechanical Stresses on Vascular Cell Adhesion **1990**, 283-292		
7	Effects of Shear Stress on Endothelial Cell Functions. *The Journal of Japan Atherosclerosis Society*, **1993**, 21, 473-477		
6	The Active Response of an Endothelial Cell to the Onset of Flow **1994**, 369-391		
5	Blood Vessel Substitutes998-1008		
4	Blood Vessel Substitutes **2017**, 237-247		
3	STEM CELLS, BIOMECHANICS, AND Y. C. FUNG **2009**, 185-192		
2	Coronary Hemodynamics: Measurements and Theoretical Studies **1982**, 241-261		
1	A method for calculating time-dependent epicardial coronary blood flow. *Developments in Cardiovascular Medicine*, **1985**, 244-257		