Robert M Nerem

List of Publications by Year
in descending order

127 papers	9,287 citations	41339 49 h-index	38392 95 g-index
130 all docs	130 docs citations	130 times ranked	8129 citing authors

#	Article	IF	Citations
1	Oscillatory and Steady Laminar Shear Stress Differentially Affect Human Endothelial Redox State. Circulation Research, 1998, 82, 1094-1101.	4.5	567
2	Oscillatory Shear Stress Stimulates Adhesion Molecule Expression in Cultured Human Endothelium. Circulation Research, 1998, 82, 532-539.	4.5	481
3	Dynamic Mechanical Conditioning of Collagen-Gel Blood Vessel Constructs Induces Remodeling In Vitro. Annals of Biomedical Engineering, 2000, 28, 351-362.	2.5	480
4	Vascular Tissue Engineering. Annual Review of Biomedical Engineering, 2001, 3, 225-243.	12.3	398
5	Phosphorylation of Endothelial Nitric Oxide Synthase in Response to Fluid Shear Stress. Circulation Research, 1996, 79, 984-991.	4.5	385
6	Endothelial cellular response to altered shear stress. American Journal of Physiology - Lung Cellular and Molecular Physiology, 2001, 281, L529-L533.	2.9	314
7	Tissue Engineering: From Biology to Biological Substitutes. Tissue Engineering, 1995, 1, 3-13.	4.6	305
8	Properties of engineered vascular constructs made from collagen, fibrin, and collagenâ€"fibrin mixtures. Biomaterials, 2004, 25, 3699-3706.	11.4	276
9	Unique Morphology and Focal Adhesion Development of Valvular Endothelial Cells in Static and Fluid Flow Environments. Arteriosclerosis, Thrombosis, and Vascular Biology, 2004, 24, 1429-1434.	2.4	251
10	Mechanical, biochemical, and extracellular matrix effects on vascular smooth muscle cell phenotype. Journal of Applied Physiology, 2005, 98, 2321-2327.	2.5	242
11	Shear stress modulates endothelial cell morphology and F-actin organization through the regulation of focal adhesion-associated proteins. Journal of Cellular Physiology, 1995, 163, 179-193.	4.1	230
12	Phenotype Modulation in Vascular Tissue Engineering Using Biochemical and Mechanical Stimulation. Annals of Biomedical Engineering, 2003, 31, 391-402.	2.5	186
13	Valvular Endothelial Cells Regulate the Phenotype of Interstitial Cells in Co-culture: Effects of Steady Shear Stress. Tissue Engineering, 2006, 12, 905-915.	4.6	185
14	Altered response of vascular smooth muscle cells to exogenous biochemical stimulation in two- and three-dimensional culture. Experimental Cell Research, 2003, 283, 146-155.	2.6	179
15	Transcriptional Profiles of Valvular and Vascular Endothelial Cells Reveal Phenotypic Differences. Arteriosclerosis, Thrombosis, and Vascular Biology, 2006, 26, 69-77.	2.4	172
16	Mechanical Strain-Stimulated Remodeling of Tissue-Engineered Blood Vessel Constructs. Tissue Engineering, 2003, 9, 657-666.	4.6	158
17	The Study of the Influence of Flow on Vascular Endothelial Biology. American Journal of the Medical Sciences, 1998, 316, 169-175.	1.1	158
18	Cellular engineering. Annals of Biomedical Engineering, 1991, 19, 529-545.	2.5	151

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19	A biological hybrid model for collagen-based tissue engineered vascular constructs. Biomaterials, 2003, 24, 1241-1254.	11.4	148
20	Hemodynamics and the Vascular Endothelium. Journal of Biomechanical Engineering, 1993, 115, 510-514.	1.3	141
21	Transport of ¹⁴ C-4-Cholesterol between Serum and Wall in the Perfused Dog Common Carotid Artery. Circulation Research, 1973, 32, 187-205.	4.5	140
22	Tissue Engineering: The Hope, the Hype, and the Future. Tissue Engineering, 2006, 12, 1143-1150.	4.6	137
23	The Role of Matrix Metalloproteinase-2 in the Remodeling of Cell-Seeded Vascular Constructs Subjected to Cyclic Strain. Annals of Biomedical Engineering, 2001, 29, 923-934.	2.5	130
24	Bone Marrowâ€“Derived Mesenchymal Stem Cells Promote Angiogenic Processes in a Time- and Dose-Dependent Manner<i>In Vitro</i>. Tissue Engineering - Part A, 2009, 15, 2459-2470.	3.1	127
25	Valvular endothelial cells and the mechanoregulation of valvular pathology. Philosophical Transactions of the Royal Society B: Biological Sciences, 2007, 362, 1445-1457.	4.0	112
26	Progress in tissue engineering and regenerative medicine. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 3285-3286.	7.1	112
27	Quantitative study of the rabbit aortic endothelium using vascular casts. Atherosclerosis, 1980, 35, 321-337.	0.8	110
28	Incorporation of Intact Elastin Scaffolds in Tissue-Engineered Collagen-Based Vascular Grafts. Tissue Engineering, 2004, 10, 1526-1535.	4.6	109
29	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.	0.5	105
30	A Novel Single-Step Self-Assembly Approach for the Fabrication of Tissue-Engineered Vascular Constructs. Tissue Engineering - Part A, 2010, 16, 1737-1747.	3.1	100
31	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-H867.	3.2	96
32	Tissue engineering a blood vessel: Regulation of vascular biology by mechanical stresses. Journal of Cellular Biochemistry, 1994, 56, 204-209.	2.6	93
33	The Impact of Biomechanics in Tissue Engineering and Regenerative Medicine. Tissue Engineering - Part B: Reviews, 2009, 15, 477-484.	4.8	87
34	Hot-Film Anemometer Velocity Measurements of Arterial Blood Flow in Horses. Circulation Research, 1974, 34, 193-203.	4.5	83
35	Poly(glycerol sebacate) supports the proliferation and phenotypic protein expression of primary baboon vascular cells. Journal of Biomedical Materials Research - Part A, 2007, 83A, 1070-1075.	4.0	80
36	Vessel Wallâ€“Embedded Dendritic Cells Induce T-Cell Autoreactivity and Initiate Vascular Inflammation. Circulation Research, 2008, 102, 546-553.	4.5	79

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37	Fluid Shear Stress Promotes an Endothelial-Like Phenotype During the Early Differentiation of Embryonic Stem Cells. Tissue Engineering - Part A, 2010, 16, 3547-3553.	3.1	77
38	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.	1.5	74
39	Hemodynamic Influences on Vascular Endothelial Biology*. Toxicologic Pathology, 1990, 18, 572-582.	1.8	69
40	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.	2.5	67
41	Tissue engineering a blood vessel substitute: the role of biomechanics. Yonsei Medical Journal, 2000, 41, 735.	2.2	65
42	The study of rheological effects on vascular endothelial cells in culture. Biorheology, 1989, 26, 345-357.	0.4	62
43	Effects of shear on endothelial cell calcium in the presence and absence of ATP. FASEB Journal, 1995, 9, 968-973.	0.5	61
44	Differentiation Patterns of Embryonic Stem Cells in Two- versus Three-Dimensional Culture. Cells Tissues Organs, 2013, 197, 399-410.	2.3	61
45	The tissue engineering of blood vessels and the heart. American Journal of Transplantation, 2004, 4, 36-42.	4.7	58
46	Vascular casting A new method for the study of the arterial endothelium. Atherosclerosis, 1979, 34, 457-467.	0.8	57
47	Use of Embryonic Stem Cell-Derived Endothelial Cells as a Cell Source to Generate Vessel Structures<i>in Vitro</i>. Tissue Engineering, 2005, 11, 497-505.	4.6	56
48	Biomanufacturing of Therapeutic Cells: State of the Art, Current Challenges, and Future Perspectives. Annual Review of Chemical and Biomolecular Engineering, 2016, 7, 455-478.	6.8	56
49	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-1Î± (Hypoxia-Inducible Factor-1Î±) Pathway in Endothelial Cells. Arteriosclerosis, Thrombosis, and Vascular Biology, 2019, 39, 467-481.	2.4	54
50	Equibiaxial strain stimulates fibroblastic phenotype shift in smooth muscle cells in an engineered tissue model of the aortic wall. Biomaterials, 2006, 27, 5252-5258.	11.4	53
51	Embryonic Stem Cell-Derived Endothelial Cells May Lack Complete Functional Maturation in vitro. Journal of Vascular Research, 2006, 43, 411-421.	1.4	49
52	Regenerative medicine: the emergence of an industry. Journal of the Royal Society Interface, 2010, 7, S771-5.	3.4	48
53	Role of mechanics in vascular tissue engineering. Biorheology, 2003, 40, 281-7.	0.4	48
54	Endothelial Connexin 37, Connexin 40, and Connexin 43 Respond Uniquely to Substrate and Shear Stress. Endothelium: Journal of Endothelial Cell Research, 2007, 14, 215-226.	1.7	47

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55	Fluid-Induced Shear Stress Stimulates Chondrocyte Proliferation Partially Mediated via TGF-Î²1. Tissue Engineering, 2002, 8, 581-590.	4.6	46
56	Cyclic Strain Improves Strength and Function of a Collagen-Based Tissue-Engineered Vascular Media. Tissue Engineering - Part A, 2010, 16, 3149-3157.	3.1	46
57	Hot film coronary artery velocity measurements in horses. Cardiovascular Research, 1976, 10, 301-313.	3.8	45
58	FLUID DYNAMICS AS A FACTOR IN THE LOCALIZATION OF ATHEROGENESIS. Annals of the New York Academy of Sciences, 1983, 416, 709-719.	3.8	43
59	Cell-based therapies: From basic biology to replacement, repair, and regeneration. Biomaterials, 2007, 28, 5074-5077.	11.4	43
60	Identification of side- and shear-dependent microRNAs regulating porcine aortic valve pathogenesis. Scientific Reports, 2016, 6, 25397.	3.3	43
61	The Study of the Influence of Flow on Vascular Endothelial Biology. American Journal of the Medical Sciences, 1998, 316, 169-175.	1.1	40
62	Effects of shear stress on germ lineage specification of embryonic stem cells. Integrative Biology (United Kingdom), 2012, 4, 1263-1273.	1.3	39
63	Purified and Proliferating Endothelial Cells Derived and Expanded In Vitro from Embryonic Stem Cells. Endothelium: Journal of Endothelial Cell Research, 2003, 10, 329-336.	1.7	37
64	Viscoelastic Testing Methodologies for Tissue Engineered Blood Vessels. Journal of Biomechanical Engineering, 2005, 127, 1176-1184.	1.3	37
65	Fluid dynamic aspects of arterial disease. Atherosclerosis, 1976, 23, 253-261.	0.8	36
66	Mesenchymal Stem Cells Overexpressing Ephrin-B2 Rapidly Adopt an Early Endothelial Phenotype with Simultaneous Reduction of Osteogenic Potential. Tissue Engineering - Part A, 2010, 16, 2755-2768.	3.1	36
67	Potential of baboon endothelial progenitor cells for tissue engineered vascular grafts. Journal of Biomedical Materials Research - Part A, 2008, 86A, 804-812.	4.0	34
68	Fluid Shear Stress Alters the Hemostatic Properties of Endothelial Outgrowth Cells. Tissue Engineering - Part A, 2012, 18, 127-136.	3.1	33
69	A method-of-characteristics calculation of coronary blood flow. Journal of Fluid Mechanics, 1977, 82, 429-448.	3.4	32
70	Arterial Fluid Dynamics and Interactions with the Vessel Walls. , 1981, , 719-835.		32
71	Maintenance of a Functional Endothelial Cell Monolayer on a Fibroblast/Polymer Substrate under Physiologically Relevant Shear Stress Conditions. Tissue Engineering, 2002, 8, 695-708.	4.6	30
72	Differences in valvular and vascular cell responses to strain in osteogenic media. Biomaterials, 2011, 32, 2885-2893.	11.4	30

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73	Quantitative study of the localization of sudanophilic coeliac lesions in the White Carneau pigeon. Atherosclerosis, 1980, 35, 103-110.	0.8	29
74	In vitro human tissue models â€” moving towards personalized regenerative medicine. Advanced Drug Delivery Reviews, 2011, 63, 195-196.	13.7	28
75	In Vitro Derivation and Expansion of Endothelial Cells From Embryonic Stem Cells. , 2006, 330, 287-302.		21
76	Fluid Shear Stress Pre-Conditioning Promotes Endothelial Morphogenesis of Embryonic Stem Cells Within Embryoid Bodies. Tissue Engineering - Part A, 2014, 20, 954-965.	3.1	20
77	Human Mesenchymal Stem Cells Form Multicellular Structures in Response to Applied Cyclic Strain. Annals of Biomedical Engineering, 2009, 37, 783-793.	2.5	19
78	Engineering the Emergence of Stem Cell Therapeutics. Science Translational Medicine, 2013, 5, 207ed17.	12.4	19
79	Engineering as a new frontier for translational medicine. Science Translational Medicine, 2015, 7, 281fs13.	12.4	19
80	Polarized secretion of IGF-I and IGF-I binding protein activity by cultured aortic endothelial cells. Journal of Cellular Physiology, 1993, 154, 139-142.	4.1	17
81	Strain Magnitude-Dependent Calcific Marker Expression in Valvular and Vascular Cells. Cells Tissues Organs, 2013, 197, 372-383.	2.3	16
82	Tissue Engineering: From Basic Science to Products: A Preface. Tissue Engineering, 1995, 1, 147-149.	4.6	15
83	Genetic Modification of Smooth Muscle Cells to Control Phenotype and Function in Vascular Tissue Engineering. Tissue Engineering, 2004, 10, 189-199.	4.6	15
84	Atherosclerosis and the Role of Wall Shear Stress. , 1995, , 300-319.		15
85	<i>Maturing EPCs into endothelial cells: may the force be with the EPCs</i>. Focus on â€œFluid shear stress induces differentiation of circulating phenotype endothelial progenitor cellsâ€• American Journal of Physiology - Cell Physiology, 2012, 303, C589-C591.	4.6	14
86	THE CHALLENGE OF IMITATING NATURE. , 2000, , 9-15.		14
87	Parametric analysis of flow in the intramyocardial circulation. Annals of Biomedical Engineering, 1990, 18, 347-365.	2.5	12
88	Dynamic Shear Stress Regulation of Inflammatory and Thrombotic Pathways in Baboon Endothelial Outgrowth Cells. Tissue Engineering - Part A, 2013, 19, 1573-1582.	3.1	12
89	miR-214 is Stretch-Sensitive in Aortic Valve and Inhibits Aortic Valve Calcification. Annals of Biomedical Engineering, 2019, 47, 1106-1115.	2.5	12
90	Purified and Proliferating Endothelial Cells Derived and Expanded In Vitro from Embryonic Stem Cells. Endothelium: Journal of Endothelial Cell Research, 2003, 10, 329-336.	1.7	12

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91	The Challenge of Imitating Nature. , 2014, , 9-24.		11
92	Tissue Engineering: Confronting the Transplantation Crisis. Advances in Experimental Medicine and Biology, 2003, 534, 1-9.	1.6	11
93	Bioengineering: 25 years of progressâ€"but still only a beginning. Technology in Society, 2004, 26, 415-431.	9.4	10
94	Critical issues in vascular tissue engineering. International Congress Series, 2004, 1262, 122-125.	0.2	8
95	Tissue engineering of a collagen-based vascular media. Organogenesis, 2010, 6, 204-211.	1.2	8
96	Bioengineering and the cardiovascular system. Global Cardiology Science & Practice, 2013, 2013, 5.	0.4	8
97	Stem Cell Engineering. Tissue Engineering - Part A, 2014, 20, 893-894.	3.1	7
98	A Global Assessment of Stem Cell Engineering. Tissue Engineering - Part A, 2014, 20, 2575-2589.	3.1	7
99	The Cardiovascular Technology Industry: Past, Present, and Future. Cardiovascular Engineering and Technology, 2010, 1, 4-9.	1.6	6
100	Influence of Mesenchymal Stem Cells on the Response of Endothelial Cells to Laminar Flow and Shear Stress. Cells Tissues Organs, 2013, 198, 289-299.	2.3	6
101	Shear Stress Effects on the Morphology and Cytomatrix of Cultured Vascular Endothelial Cells. , 1993, , 193-222.		6
102	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.	2.4	4
103	Functional Requirements for the Engineering of a Blood Vessel Substitute. , 2003, , 87-95.		3
104	The Challenge of Imitating Nature. , 2007, , 7-14.		3
105	Implementation of a Biomedical Engineering Research Experience for Africanâ€"American High School Students at a Tier One Research University. Journal of Biomechanical Engineering, 2018, 140, .	1.3	3
106	Cells into Systems. Mechanical Engineering, 2010, 132, 30-34.	0.1	3
107	Shear- and Side-dependent microRNAs and Messenger RNAs in Aortic Valvular Endothelium. , 2012, , .		3
108	Blood Vessel Substitute. , 2002, , 891-903.		3

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109	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.	1.5	2
110	Tissue Engineering and the Cardiovascular System. , 1998, , 561-579.		2
111	Engineering more physiologic in vitro models for the study of vascular biology. Progress in Pediatric Cardiology, 2006, 21, 201-210.	0.4	2
112	Tissue Engineering: The Hope, the Hype, and the Future. Tissue Engineering, 2006, .	4.6	1
113	Tissue Engineering: From Basic Biology to Cell-Based Applications. , 2011, , 1-11.		1
114	Medical and biological engineering: Research strategies in the united states. , 1992, , .		0
115	Development of Vascular Substitutes. Materials Research Society Symposia Proceedings, 1998, 550, 293.	0.1	0
116	A Tribute to Shu Chienâ€™s Scientific Achievement. Cellular and Molecular Bioengineering, 2011, 4, 507-508.	2.1	0
117	Blood Vessel Tissue Engineering. , 2013, , 1237-1246.		0
118	A Brief History of USNCB: Motivation and Formation. Journal of Biomechanical Engineering, 2014, 136, 060301.	1.3	0
119	Biomechanics and Its Impact on Human Life: From Gene Expression to Organ Physiology. , 2000, , 13-19.		0
120	STEM CELLS, BIOMECHANICS, AND Y. C. FUNG. , 2009, , 185-192.		0
121	Coronary Hemodynamics: Measurements and Theoretical Studies. , 1982, , 241-261.		0
122	A method for calculating time-dependent epicardial coronary blood flow. Developments in Cardiovascular Medicine, 1985, , 244-257.	0.1	0
123	Influence of Fluid Mechanical Stresses on Vascular Cell Adhesion. , 1990, , 283-292.		0
124	Effects of Shear Stress on Endothelial Cell Functions. The Journal of Japan Atherosclerosis Society, 1993, 21, 473-477.	0.0	0
125	The Active Response of an Endothelial Cell to the Onset of Flow. , 1994, , 369-391.		0
126	Blood Vessel Substitutes. , 0, , 998-1008.		0

#	Article	IF	Citations
127	Blood Vessel Substitutes. , 2017, , 237-247.		0