Robert P Mecham

List of Publications by Citations

113 papers	8,482 citations	52 h-index	91 g-index
115 ext. papers	9,365 ext. citations	7.7 avg, IF	6.05 L-index

#	Paper	IF	Citations
113	Vascular extracellular matrix and arterial mechanics. *Physiological Reviews*, **2009**, 89, 957-89	47.9	632
112	Elastin is an essential determinant of arterial morphogenesis. *Nature*, **1998**, 393, 276-80	50.4	625
111	Elastin fragments drive disease progression in a murine model of emphysema. *Journal of Clinical Investigation*, **2006**, 116, 753-9	15.9	345
110	New insights into elastic fiber assembly. *Birth Defects Research Part C: Embryo Today Reviews*, **2007**, 81, 229-40		298
109	Elastin in large artery stiffness and hypertension. *Journal of Cardiovascular Translational Research*, **2012**, 5, 264-73	3.3	254
108	Lysyl oxidase is required for vascular and diaphragmatic development in mice. *Journal of Biological Chemistry*, **2003**, 278, 14387-93	5.4	236
107	TGF-beta-dependent pathogenesis of mitral valve prolapse in a mouse model of Marfan syndrome. *Journal of Clinical Investigation*, **2004**, 114, 1586-92	15.9	231
106	Hypertension and prolonged vasoconstrictor signaling in RGS2-deficient mice. *Journal of Clinical Investigation*, **2003**, 111, 445-52	15.9	220
105	Receptors for laminin on mammalian cells. *FASEB Journal*, **1991**, 5, 2538-46	0.9	207
104	Developmental adaptation of the mouse cardiovascular system to elastin haploinsufficiency. *Journal of Clinical Investigation*, **2003**, 112, 1419-28	15.9	186
103	Elastin degradation by matrix metalloproteinases. Cleavage site specificity and mechanisms of elastolysis. *Journal of Biological Chemistry*, **1997**, 272, 18071-6	5.4	184
102	Dexamethasone induction of hypertension and diabetes is PPAR-alpha dependent in LDL receptor-null mice. *Nature Medicine*, **2003**, 9, 1069-75	50.5	173
101	Elastin binds to a multifunctional 67-kilodalton peripheral membrane protein. *Biochemistry*, **1989**, 28, 3716-22	3.2	168
100	Elastic fiber formation: a dynamic view of extracellular matrix assembly using timer reporters. *Journal of Cellular Physiology*, **2006**, 207, 87-96	7	142
99	Effects of elastin haploinsufficiency on the mechanical behavior of mouse arteries. *American Journal of Physiology - Heart and Circulatory Physiology*, **2005**, 289, H1209-17	5.2	141
98	Vascular extracellular matrix and aortic development. *Current Topics in Developmental Biology*, **2004**, 62, 153-88	5.3	139
97	Cell-type Specific Recognition of RGD- and Non-RGD-containing Cell Binding Domains in Fibrillin-1. *Journal of Biological Chemistry*, **1996**, 271, 4916-4922	5.4	136

96	Activation of the 92-kDa gelatinase by stromelysin and 4-aminophenylmercuric acetate. Differential processing and stabilization of the carboxyl-terminal domain by tissue inhibitor of metalloproteinases (TIMP). *Journal of Biological Chemistry*, **1995**, 270, 6351-6	5.4	134
95	Tropoelastin interacts with cell-surface glycosaminoglycans via its COOH-terminal domain. *Journal of Biological Chemistry*, **2005**, 280, 40939-47	5.4	128
94	Identification of an elastin cross-linking domain that joins three peptide chains. Possible role in nucleated assembly. *Journal of Biological Chemistry*, **1995**, 270, 17778-83	5.4	125
93	The microfibrillar proteins MAGP-1 and fibrillin-1 form a ternary complex with the chondroitin sulfate proteoglycan decorin. *Molecular Biology of the Cell*, **2000**, 11, 1499-507	3.5	122
92	Domains in tropoelastin that mediate elastin deposition in vitro and in vivo. *Journal of Biological Chemistry*, **2003**, 278, 18491-8	5.4	108
91	Interaction of tropoelastin with the amino-terminal domains of fibrillin-1 and fibrillin-2 suggests a role for the fibrillins in elastic fiber assembly. *Journal of Biological Chemistry*, **2000**, 275, 24400-6	5.4	105
90	The Pro-regions of lysyl oxidase and lysyl oxidase-like 1 are required for deposition onto elastic fibers. *Journal of Biological Chemistry*, **2005**, 280, 42848-55	5.4	104
89	Altered vascular remodeling in fibulin-5-deficient mice reveals a role of fibulin-5 in smooth muscle cell proliferation and migration. *Proceedings of the National Academy of Sciences of the United States of America*, **2005**, 102, 2946-51	11.5	101
88	Loss of function mutation in LOX causes thoracic aortic aneurysm and dissection in humans. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 8759-64	11.5	100
87	Action of tropoelastin and synthetic elastin sequences on vascular tone and on free Ca2+ level in human vascular endothelial cells. *Circulation Research*, **1998**, 82, 328-36	15.7	100
86	New insights into the pathogenesis of autosomal-dominant cutis laxa with report of five ELN mutations. *Human Mutation*, **2011**, 32, 445-55	4.7	98
85	The stumbling block in lung repair of emphysema: elastic fiber assembly. *Proceedings of the American Thoracic Society*, **2006**, 3, 428-33		98
84	A site on laminin alpha 5, AQARSAASKVKVSMKF, induces inflammatory cell production of matrix metalloproteinase-9 and chemotaxis. *Journal of Immunology*, **2003**, 171, 398-406	5.3	97
83	Developmental expression of latent transforming growth factor beta binding protein 2 and its requirement early in mouse development. *Molecular and Cellular Biology*, **2000**, 20, 4879-87	4.8	96
82	Reduced vessel elasticity alters cardiovascular structure and function in newborn mice. *Circulation Research*, **2009**, 104, 1217-24	15.7	82
81	Neutrophil elastase cleaves laminin-332 (laminin-5) generating peptides that are chemotactic for neutrophils. *Journal of Biological Chemistry*, **2008**, 283, 9513-22	5.4	80
80	Increased fibulin-5 and elastin in S100A4/Mts1 mice with pulmonary hypertension. *Circulation Research*, **2005**, 97, 596-604	15.7	80
79	Elastic fiber macro-assembly is a hierarchical, cell motion-mediated process. *Journal of Cellular Physiology*, **2006**, 207, 97-106	7	76

78	Fibulin-5 mutations: mechanisms of impaired elastic fiber formation in recessive cutis laxa. *Human Molecular Genetics*, **2006**, 15, 3379-86	5.6	75
77	Methods in elastic tissue biology: elastin isolation and purification. *Methods*, **2008**, 45, 32-41	4.6	74
76	Functional rescue of elastin insufficiency in mice by the human elastin gene: implications for mouse models of human disease. *Circulation Research*, **2007**, 101, 523-31	15.7	74
75	Elastin production by cultured calf pulmonary artery endothelial cells. *Journal of Cellular Physiology* , **1983**, 116, 282-8	7	74
74	Overview of extracellular matrix. *Current Protocols in Cell Biology*, **2012**, Chapter 10, Unit 10.1	2.3	71
73	Elastin protein levels are a vital modifier affecting normal lung development and susceptibility to emphysema. *American Journal of Physiology - Lung Cellular and Molecular Physiology*, **2007**, 292, L778-87	5.8	71
72	Deficiency in microfibril-associated glycoprotein-1 leads to complex phenotypes in multiple organ systems. *Journal of Biological Chemistry*, **2008**, 283, 25533-25543	5.4	69
71	Fibrillin-1 and -2 contain heparin-binding sites important for matrix deposition and that support cell attachment. *Biochemical Journal*, **2003**, 375, 425-32	3.8	69
70	Mouse models of genetic diseases resulting from mutations in elastic fiber proteins. *Matrix Biology*, **2000**, 19, 481-8	11.4	69
69	A functional mutation in the terminal exon of elastin in severe, early-onset chronic obstructive pulmonary disease. *American Journal of Respiratory Cell and Molecular Biology*, **2005**, 33, 355-62	5.7	66
68	Elastin in lung development and disease pathogenesis. *Matrix Biology*, **2018**, 73, 6-20	11.4	63
67	Discrete contributions of elastic fiber components to arterial development and mechanical compliance. *Arteriosclerosis, Thrombosis, and Vascular Biology*, **2009**, 29, 2083-9	9.4	62
66	Elastin haploinsufficiency induces alternative aging processes in the aorta. *Rejuvenation Research*, **2008**, 11, 97-112	2.6	60
65	Decreased aortic diameter and compliance precedes blood pressure increases in postnatal development of elastin-insufficient mice. *American Journal of Physiology - Heart and Circulatory Physiology*, **2011**, 301, H221-9	5.2	59
64	Fibulin-2 is dispensable for mouse development and elastic fiber formation. *Molecular and Cellular Biology*, **2008**, 28, 1061-7	4.8	55
63	Comparative biology of decellularized lung matrix: Implications of species mismatch in regenerative medicine. *Biomaterials*, **2016**, 102, 220-30	15.6	53
62	Elastin haploinsufficiency results in progressive aortic valve malformation and latent valve disease in a mouse model. *Circulation Research*, **2010**, 107, 549-57	15.7	52
61	The importance of elastin to aortic development in mice. *American Journal of Physiology - Heart and Circulatory Physiology*, **2010**, 299, H257-64	5.2	52

60	Three-dimensional organization of extracellular matrix in elastic cartilage as viewed by quick freeze, deep etch electron microscopy. *Connective Tissue Research*, **1990**, 24, 83-93	3.3	50
59	Desmosine radioimmunoassay as a means of studying elastogenesis in cell culture. *Connective Tissue Research*, **1981**, 8, 255-8	3.3	44
58	Microfibril-associated MAGP-2 stimulates elastic fiber assembly. *Journal of Biological Chemistry*, **2007**, 282, 800-8	5.4	43
57	Sterilization of Lung Matrices by Supercritical Carbon Dioxide. *Tissue Engineering - Part C: Methods*, **2016**, 22, 260-9	2.9	42
56	Smooth muscle protein 22alpha-mediated patchy deletion of Bmpr1a impairs cardiac contractility but protects against pulmonary vascular remodeling. *Circulation Research*, **2008**, 102, 380-8	15.7	39
55	Microfibril-associated glycoprotein 2 (MAGP2) loss of function has pleiotropic effects in vivo. *Journal of Biological Chemistry*, **2013**, 288, 28869-80	5.4	38
54	Relation between outer and luminal diameter in cannulated arteries. *American Journal of Physiology - Heart and Circulatory Physiology*, **1999**, 277, H1745-53	5.2	38
53	Oxidative and nitrosative modifications of tropoelastin prevent elastic fiber assembly in vitro. *Journal of Biological Chemistry*, **2010**, 285, 37396-404	5.4	36
52	Mice lacking the extracellular matrix protein MAGP1 display delayed thrombotic occlusion following vessel injury. *Blood*, **2008**, 111, 4137-44	2.2	33
51	Elastin insufficiency predisposes to elevated pulmonary circulatory pressures through changes in elastic artery structure. *Journal of Applied Physiology*, **2008**, 105, 1610-9	3.7	33
50	A fiber-based constitutive model predicts changes in amount and organization of matrix proteins with development and disease in the mouse aorta. *Biomechanics and Modeling in Mechanobiology*, **2013**, 12, 497-510	3.8	32
49	Fibulin-4 E57K Knock-in Mice Recapitulate Cutaneous, Vascular and Skeletal Defects of Recessive Cutis Laxa 1B with both Elastic Fiber and Collagen Fibril Abnormalities. *Journal of Biological Chemistry*, **2015**, 290, 21443-59	5.4	32
48	Elastic fiber ultrastructure and assembly. *Matrix Biology*, **2019**, 84, 31-40	11.4	30
47	Essential role for fibrillin-2 in zebrafish notochord and vascular morphogenesis. *Developmental Dynamics*, **2008**, 237, 2844-61	2.9	30
46	Identification of a major microfibril-associated glycoprotein-1-binding domain in fibrillin-2. *Journal of Biological Chemistry*, **2004**, 279, 23045-51	5.4	29
45	Deficient Circumferential Growth Is the Primary Determinant of Aortic Obstruction Attributable to Partial Elastin Deficiency. *Arteriosclerosis, Thrombosis, and Vascular Biology*, **2017**, 37, 930-941	9.4	27
44	Crosslinked elastic fibers are necessary for low energy loss in the ascending aorta. *Journal of Biomechanics*, **2017**, 61, 199-207	2.9	27
43	FGF receptors control alveolar elastogenesis. *Development (Cambridge)*, **2017**, 144, 4563-4572	6.6	27

42	Altered reactivity of resistance vasculature contributes to hypertension in elastin insufficiency. *American Journal of Physiology - Heart and Circulatory Physiology*, **2014**, 306, H654-66	5.2	26
41	Genetic modifiers of cardiovascular phenotype caused by elastin haploinsufficiency act by extrinsic noncomplementation. *Journal of Biological Chemistry*, **2011**, 286, 44926-36	5.4	25
40	Tropoelastin inhibits vascular calcification via 67-kDa elastin binding protein in cultured bovine aortic smooth muscle cells. *Journal of Atherosclerosis and Thrombosis*, **2004**, 11, 159-66	4	25
39	Greater impairments in cerebral artery compared with skeletal muscle feed artery endothelial function in a mouse model of increased large artery stiffness. *Journal of Physiology*, **2015**, 593, 1931-43	3.9	23
38	Alternative splicing and tissue-specific elastin misassembly act as biological modifiers of human elastin gene frameshift mutations associated with dominant cutis laxa. *Journal of Biological Chemistry*, **2012**, 287, 22055-67	5.4	23
37	Oxidative modifications of the C-terminal domain of tropoelastin prevent cell binding. *Journal of Biological Chemistry*, **2011**, 286, 13574-82	5.4	22
36	Domains 16 and 17 of tropoelastin in elastic fibre formation. *Biochemical Journal*, **2007**, 402, 63-70	3.8	22
35	Mechanical behavior and matrisome gene expression in the aneurysm-prone thoracic aorta of newborn lysyl oxidase knockout mice. *American Journal of Physiology - Heart and Circulatory Physiology*, **2017**, 313, H446-H456	5.2	21
34	Functionally Distinct Tendons From Elastin Haploinsufficient Mice Exhibit Mild Stiffening and Tendon-Specific Structural Alteration. *Journal of Biomechanical Engineering*, **2017**, 139,	2.1	21
33	Heterogeneous Cellular Contributions to Elastic Laminae Formation in Arterial Wall Development. *Circulation Research*, **2019**, 125, 1006-1018	15.7	21
32	Microfibril-associated glycoprotein-1, an extracellular matrix regulator of bone remodeling. *Journal of Biological Chemistry*, **2010**, 285, 23858-67	5.4	21
31	Mechanisms of emphysema in autosomal dominant cutis laxa. *Matrix Biology*, **2010**, 29, 621-8	11.4	21
30	Modification and functional inactivation of the tropoelastin carboxy-terminal domain in cross-linked elastin. *Matrix Biology*, **2008**, 27, 631-9	11.4	21
29	Extracellular matrix gene expression in the developing mouse aorta. *Advances in Developmental Biology (Amsterdam, Netherlands)*, **2005**, 15, 81-128		21
28	Pro-elastogenic effects of bone marrow mesenchymal stem cell-derived smooth muscle cells on cultured aneurysmal smooth muscle cells. *Journal of Tissue Engineering and Regenerative Medicine*, **2017**, 11, 679-693	4.4	20
27	Elastin-insufficient mice show normal cardiovascular remodeling in 2K1C hypertension despite higher baseline pressure and unique cardiovascular architecture. *American Journal of Physiology - Heart and Circulatory Physiology*, **2007**, 293, H574-82	5.2	20
26	Fibulin-4 is essential for maintaining arterial wall integrity in conduit but not muscular arteries. *Science Advances*, **2017**, 3, e1602532	14.3	18
25	Mechanical factors direct mouse aortic remodelling during early maturation. *Journal of the Royal Society Interface*, **2015**, 12, 20141350	4.1	17

24	Chronic hypoxia augments uterine artery distensibility and alters the circumferential wall stress-strain relationship during pregnancy. *Journal of Applied Physiology*, **2006**, 100, 1842-50	3.7	17
23	Chronic antihypertensive treatment improves pulse pressure but not large artery mechanics in a mouse model of congenital vascular stiffness. *American Journal of Physiology - Heart and Circulatory Physiology*, **2015**, 309, H1008-16	5.2	15
22	A matricellular protein fibulin-4 is essential for the activation of lysyl oxidase. *Science Advances*, **2020**, 6,	14.3	13
21	Downregulation of Lysyl Oxidase Protects Retinal Endothelial Cells From High Glucose-Induced Apoptosis **2017**, 58, 2725-2731		11
20	Elastin **2011**, 267-301		9
19	Elastin purification and solubilization. *Methods in Cell Biology*, **2018**, 143, 207-222	1.8	9
18	Decreased lysyl oxidase level protects against development of retinal vascular lesions in diabetic retinopathy. *Experimental Eye Research*, **2019**, 184, 221-226	3.7	8
17	Stem cell derived extracellular vesicles for vascular elastic matrix regenerative repair. *Acta Biomaterialia*, **2020**, 113, 267-278	10.8	8
16	Identification of the growth factor-binding sequence in the extracellular matrix protein MAGP-1. *Journal of Biological Chemistry*, **2020**, 295, 2687-2697	5.4	8
15	Whole exome sequencing in patients with Williams-Beuren syndrome followed by disease modeling in mice points to four novel pathways that may modify stenosis risk. *Human Molecular Genetics*, **2020**, 29, 2035-2050	5.6	7
14	Elastin Insufficiency Predisposes Mice to Impaired Glucose Metabolism. *Journal of Molecular and Genetic Medicine: an International Journal of Biomedical Research*, **2014**, 8,	2.5	6
13	Characterization of metabolic health in mouse models of fibrillin-1 perturbation. *Matrix Biology*, **2016**, 55, 63-76	11.4	6
12	Elastin haploinsufficiency in mice has divergent effects on arterial remodeling with aging depending on sex. *American Journal of Physiology - Heart and Circulatory Physiology*, **2020**, 319, H1398-H1408	5.2	5
11	Maintaining Elastogenicity of Mesenchymal Stem Cell-Derived Smooth Muscle Cells in Two-Dimensional Culture. *Tissue Engineering - Part A*, **2018**, 24, 979-989	3.9	4
10	Intracellular retention of mutant lysyl oxidase leads to aortic dilation in response to increased hemodynamic stress. *JCI Insight*, **2019**, 5,	9.9	4
9	Inhibition of NOX1 Mitigates Blood Pressure Increases in Elastin Insufficiency. *Function*, **2021**, 2, zqab015	6.1	4
8	Vascular Smooth Muscle Cell Subpopulations and Neointimal Formation in Mouse Models of Elastin Insufficiency. *Arteriosclerosis, Thrombosis, and Vascular Biology*, **2021**, 41, 2890-2905	9.4	4
7	Characterization of erectile function in elastin haploinsufficicent mice. *Journal of Sexual Medicine*, **2011**, 8, 3075-85	1.1	2

6	Captopril treatment during development alleviates mechanically induced aortic remodeling in newborn elastin knockout mice. *Biomechanics and Modeling in Mechanobiology*, **2020**, 19, 99-112	3.8	2
5	Extracellular Determinants of Arterial Morphogenesis, Growth, and Homeostasis. *Current Topics in Developmental Biology*, **2018**, 130, 193-216	5.3	2
4	Loss of Angiotensin II Type 2 Receptor Improves Blood Pressure in Elastin Insufficiency. *Frontiers in Cardiovascular Medicine*, **2021**, 8, 782138	5.4	1
3	Passive biaxial mechanical behavior of newborn mouse aorta with and without elastin. *Journal of the Mechanical Behavior of Biomedical Materials*, **2021**, 126, 105021	4.1	0
2	Deletion of type VIII collagen reduces blood pressure, increases carotid artery functional distensibility and promotes elastin deposition. *Matrix Biology Plus*, **2021**, 12, 100085	5.1	0
1	Tissue-specific smooth muscle cell subtypes identified by transcriptional profiling. *International Journal of Biochemistry and Cell Biology*, **2021**, 139, 106055	5.6	