Laura E Niklason

List of Publications by Year
in descending order

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146 papers	13,135 citations	34076 52 h-index	25770 108 g-index
152 all docs	152 docs citations	152 times ranked	13594 citing authors

#	Article	IF	Citations
1	Scaffold-free vascular tissue engineering using bioprinting. Biomaterials, 2009, 30, 5910-5917.	5.7	1,193
2	Tissue-Engineered Lungs for in Vivo Implantation. Science, 2010, 329, 538-541.	6.0	1,062
3	Repair and Regeneration of the Respiratory System: Complexity, Plasticity, and Mechanisms of Lung Stem Cell Function. Cell Stem Cell, 2014, 15, 123-138.	5.2	748
4	Acellular Normal and Fibrotic Human Lung Matrices as a Culture System for <i>In Vitro</i> Investigation. American Journal of Respiratory and Critical Care Medicine, 2012, 186, 866-876.	2.5	552
5	Engineering of human brain organoids with a functional vascular-like system. Nature Methods, 2019, 16, 1169-1175.	9.0	551
6	Readily Available Tissue-Engineered Vascular Grafts. Science Translational Medicine, 2011, 3, 68ra9.	5.8	468
7	Decellularized Native and Engineered Arterial Scaffolds for Transplantation. Cell Transplantation, 2003, 12, 659-666.	1.2	342
8	Decellularized tissue-engineered blood vessel as an arterial conduit. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 9214-9219.	3.3	316
9	Surface hydrolysis of poly(glycolic acid) meshes increases the seeding density of vascular smooth muscle cells. , 1998, 42, 417-424.		307
10	Bioengineered human acellular vessels for dialysis access in patients with end-stage renal disease: two phase 2 single-arm trials. Lancet, The, 2016, 387, 2026-2034.	6.3	291
11	Smallâ€diameter human vessel wall engineered from bone marrowâ€derived mesenchymal stem cells (hMSCs). FASEB Journal, 2008, 22, 1635-1648.	0.2	284
12	Morphologic and mechanical characteristics of engineered bovine arteries. Journal of Vascular Surgery, 2001, 33, 628-638.	0.6	237
13	Human iPS cellÃ¢â,¬â€œderived alveolar epithelium repopulates lung extracellular matrix. Journal of Clinical Investigation, 2013, 123, 4950-4962.	3.9	214
14	Blood vessels engineered from human cells. Lancet, The, 2005, 365, 2122-2124.	6.3	211
15	Development of Decellularized Human Umbilical Arteries as Small-Diameter Vascular Grafts. Tissue Engineering - Part A, 2009, 15, 2665-2676.	1.6	202
16	Extracellular matrix in lung development, homeostasis and disease. Matrix Biology, 2018, 73, 77-104.	1.5	200
17	Matrix Composition and Mechanics of Decellularized Lung Scaffolds. Cells Tissues Organs, 2012, 195, 222-231.	1.3	194
18	Advances in tissue engineering of blood vessels and other tissues. Transplant Immunology, 1997, 5, 303-306.	0.6	190

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19	Integrated Single-Cell Atlas of Endothelial Cells of the Human Lung. Circulation, 2021, 144, 286-302.	1.6	181
20	Single-cell longitudinal analysis of SARS-CoV-2 infection in human airway epithelium identifies target cells, alterations in gene expression, and cell state changes. PLoS Biology, 2021, 19, e3001143.	2.6	180
21	Human arteries engineered in vitro. EMBO Reports, 2003, 4, 633-638.	2.0	177
22	Single-cell connectomic analysis of adult mammalian lungs. Science Advances, 2019, 5, eaaw3851.	4.7	156
23	Bioengineered human acellular vessels recellularize and evolve into living blood vessels after human implantation. Science Translational Medicine, 2019, 11, .	5.8	145
24	Quantification of Extracellular Matrix Proteins from a Rat Lung Scaffold to Provide a Molecular Readout for Tissue Engineering. Molecular and Cellular Proteomics, 2015, 14, 961-973.	2.5	131
25	Mechanical Properties and Compositions of Tissue Engineered and Native Arteries. Annals of Biomedical Engineering, 2007, 35, 348-355.	1.3	121
26	Bioengineered human blood vessels. Science, 2020, 370, .	6.0	120
27	A short discourse on vascular tissue engineering. Npj Regenerative Medicine, 2017, 2, .	2.5	116
28	Implantable tissue-engineered blood vessels from human induced pluripotent stem cells. Biomaterials, 2016, 102, 120-129.	5.7	111
29	Allogeneic human tissue-engineered blood vessel. Journal of Vascular Surgery, 2012, 55, 790-798.	0.6	106
30	Targeted proteomics effectively quantifies differences between native lung and detergent-decellularized lung extracellular matrices. Acta Biomaterialia, 2016, 46, 91-100.	4.1	103
31	Single-cell multi-omics reveals dyssynchrony of the innate and adaptive immune system in progressive COVID-19. Nature Communications, 2022, 13, 440.	5.8	100
32	Decellularized native and engineered arterial scaffolds for transplantation. Cell Transplantation, 2003, 12, 659-66.	1.2	100
33	Engineering of arteries in vitro. Cellular and Molecular Life Sciences, 2014, 71, 2103-2118.	2.4	99
34	Tissue-Engineered Vascular Grafts with Advanced Mechanical Strength from Human iPSCs. Cell Stem Cell, 2020, 26, 251-261.e8.	5.2	96
35	Arterial specification of endothelial cells derived from human induced pluripotent stem cells in a biomimetic flow bioreactor. Biomaterials, 2015, 53, 621-633.	5.7	94
36	Novel Utilization of Serum in Tissue Decellularization. Tissue Engineering - Part C: Methods, 2010, 16, 173-184.	1.1	93

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37	Alveolar epithelial differentiation of human induced pluripotent stem cells in a rotating bioreactor. Biomaterials, 2014, 35, 699-710.	5.7	85
38	Influence of Culture Medium on Smooth Muscle Cell Differentiation from Human Bone Marrowâ€"Derived Mesenchymal Stem Cells. Tissue Engineering - Part A, 2009, 15, 319-330.	1.6	77
39	Influence of pH on Extracellular Matrix Preservation During Lung Decellularization. Tissue Engineering - Part C: Methods, 2014, 20, 1028-1036.	1.1	74
40	Characterization of the COPD alveolar niche using single-cell RNA sequencing. Nature Communications, 2022, 13, 494.	5.8	74
41	Enabling tools for engineering collagenous tissues integrating bioreactors, intravital imaging, and biomechanical modeling. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 3335-3339.	3.3	72
42	Extracellular Matrix as a Driver for Lung Regeneration. Annals of Biomedical Engineering, 2015, 43, 568-576.	1.3	68
43	Comparative biology of decellularized lung matrix: Implications of species mismatch in regenerative medicine. Biomaterials, 2016, 102, 220-230.	5.7	68
44	Click-coated, heparinized, decellularized vascular grafts. Acta Biomaterialia, 2015, 13, 177-187.	4.1	65
45	Biaxial Stretch Improves Elastic Fiber Maturation, Collagen Arrangement, and Mechanical Properties in Engineered Arteries. Tissue Engineering - Part C: Methods, 2016, 22, 524-533.	1.1	63
46	Effect of Pulse Rate on Collagen Deposition in the Tissue-Engineered Blood Vessel. Tissue Engineering, 2003, 9, 579-586.	4.9	62
47	Bioengineered Vascular Grafts: Can We Make Them Off-the-Shelf?. Trends in Cardiovascular Medicine, 2011, 21, 83-89.	2.3	62
48	Epithelial Cell Differentiation of Human Mesenchymal Stromal Cells in Decellularized Lung Scaffolds. Tissue Engineering - Part A, 2014, 20, 1735-1746.	1.6	62
49	Understanding the Extracellular Matrix to Enhance Stem Cell-Based Tissue Regeneration. Cell Stem Cell, 2018, 22, 302-305.	5.2	62
50	Arterial reconstruction with human bioengineered acellular blood vessels in patients with peripheral arterial disease. Journal of Vascular Surgery, 2020, 72, 1247-1258.	0.6	59
51	Future prospects for tissue engineered lung transplantation. Organogenesis, 2014, 10, 196-207.	0.4	58
52	Vascular tissue engineering: building perfusable vasculature for implantation. Current Opinion in Chemical Engineering, 2014, 3, 68-74.	3.8	58
53	Production of decellularized porcine lung scaffolds for use in tissue engineering. Integrative Biology (United Kingdom), 2015, 7, 1598-1610.	0.6	58
54	Transplantation of bioengineered rat lungs recellularized with endothelial and adipose-derived stromal cells. Scientific Reports, 2017, 7, 8447.	1.6	58

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55	Blood Vessels Engineered from Human Cells. Trends in Cardiovascular Medicine, 2006, 16, 153-156.	2.3	57
56	Bioreactor for the Long-Term Culture of Lung Tissue. Cell Transplantation, 2011, 20, 1117-1126.	1.2	55
57	Tissue-Engineered Vascular Grafts Created From Human Induced Pluripotent Stem Cells. Stem Cells Translational Medicine, 2014, 3, 1535-1543.	1.6	55
58	Challenges and novel therapies for vascular access in haemodialysis. Nature Reviews Nephrology, 2020, 16, 586-602.	4.1	54
59	An Ultrastructural Analysis of Collagen in Tissue Engineered Arteries. Annals of Biomedical Engineering, 2007, 35, 1749-1755.	1.3	52
60	Construction of Tissue-Engineered Small-Diameter Vascular Grafts in Fibrin Scaffolds in 30 Days. Tissue Engineering - Part A, 2014, 20, 1499-1507.	1.6	52
61	Microfluidic artificial â€œvesselsâ€• for dynamic mechanical stimulation of mesenchymal stem cells. Integrative Biology (United Kingdom), 2012, 4, 1487-1497.	0.6	51
62	Netrinâ€1 Regulates Fibrocyte Accumulation in the Decellularized Fibrotic Sclerodermatous Lung Microenvironment and in Bleomycinâ€Induced Pulmonary Fibrosis. Arthritis and Rheumatology, 2016, 68, 1251-1261.	2.9	51
63	Sterilization of Lung Matrices by Supercritical Carbon Dioxide. Tissue Engineering - Part C: Methods, 2016, 22, 260-269.	1.1	51
64	Computation and visualization of cellâ€“cell signaling topologies in single-cell systems data using Connectome. Scientific Reports, 2022, 12, 4187.	1.6	50
65	Strategies for Whole Lung Tissue Engineering. IEEE Transactions on Biomedical Engineering, 2014, 61, 1482-1496.	2.5	49
66	Expression of the transcription factor PU.1 induces the generation of microglia-like cells in human cortical organoids. Nature Communications, 2022, 13, 430.	5.8	49
67	Improving inÂvivo outcomes of decellularized vascular grafts via incorporation of a novel extracellular matrix. Biomaterials, 2017, 141, 63-73.	5.7	48
68	Historical Perspective and Future Direction of Blood Vessel Developments. Cold Spring Harbor Perspectives in Medicine, 2018, 8, a025742.	2.9	47
69	Clonal Population of Adult Stem Cells: Life Span and Differentiation Potential. Cell Transplantation, 2004, 13, 93-101.	1.2	45
70	Relevance and safety of telomerase for human tissue engineering. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 2500-2505.	3.3	43
71	Effects of Mechanical Stretch on Collagen and Cross-Linking in Engineered Blood Vessels. Cell Transplantation, 2009, 18, 915-921.	1.2	43
72	Mesenchymal stromal cells form vascular tubes when placed in fibrin sealant and accelerate wound healing inÂvivo. Biomaterials, 2015, 40, 61-71.	5.7	43

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73	A Novel Flow Bioreactor for<i>In Vitro</i>Microvascularization. Tissue Engineering - Part C: Methods, 2010, 16, 1191-1200.	1.1	39
74	Vascular smooth muscle cells derived from inbred swine induced pluripotent stem cells for vascular tissue engineering. Biomaterials, 2017, 147, 116-132.	5.7	38
75	Vascularization of Natural and Synthetic Bone Scaffolds. Cell Transplantation, 2018, 27, 1269-1280.	1.2	36
76	Bioengineered lungs generated from human i <scp>PSC</scp> sâ€derived epithelial cells on native extracellular matrix. Journal of Tissue Engineering and Regenerative Medicine, 2018, 12, e1623-e1635.	1.3	35
77	Fibroblast engraftment in the decellularized mouse lung occurs via a Î²1-integrin-dependent, FAK-dependent pathway that is mediated by ERK and opposed by AKT. American Journal of Physiology - Lung Cellular and Molecular Physiology, 2014, 306, L463-L475.	1.3	34
78	Platform Effects on Regeneration by Pulmonary Basal Cells as Evaluated by Single-Cell RNA Sequencing. Cell Reports, 2020, 30, 4250-4265.e6.	2.9	33
79	Glycocalyxâ€Like Hydrogel Coatings for Small Diameter Vascular Grafts. Advanced Functional Materials, 2020, 30, 1908963.	7.8	33
80	Susceptibility of ePTFE vascular grafts and bioengineered human acellular vessels to infection. Journal of Surgical Research, 2018, 221, 143-151.	0.8	31
81	Smooth Muscle and Other Cell Sources for Human Blood Vessel Engineering. Cells Tissues Organs, 2012, 195, 15-25.	1.3	30
82	Ventilation-Based Decellularization System of the Lung. BioResearch Open Access, 2016, 5, 118-126.	2.6	30
83	Engineered Tissueâ€"Stent Biocomposites as Tracheal Replacements. Tissue Engineering - Part A, 2016, 22, 1086-1097.	1.6	30
84	Design and Use of a Novel Bioreactor for Regeneration of Biaxially Stretched Tissue-Engineered Vessels. Tissue Engineering - Part C: Methods, 2015, 21, 841-851.	1.1	29
85	Biomimetic Culture Reactor for Whole-Lung Engineering. BioResearch Open Access, 2016, 5, 72-83.	2.6	27
86	Microvessel Network Formation and Interactions with Pancreatic Islets in Three-Dimensional Chip Cultures. Tissue Engineering - Part A, 2020, 26, 556-568.	1.6	27
87	Use of Human Mesenchymal Stem Cells as Alternative Source of Smooth Muscle Cells in Vessel Engineering. Methods in Molecular Biology, 2011, 698, 279-294.	0.4	27
88	Bioengineering Human Tissues and the Future of Vascular Replacement. Circulation Research, 2022, 131, 109-126.	2.0	27
89	Procedure for Lung Engineering. Journal of Visualized Experiments, 2011, , .	0.2	26
90	Impaired von Willebrand factor adhesion and platelet response in thrombospondin-2 knockout mice. Blood, 2016, 128, 1642-1650.	0.6	25

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91	Utilization of Natural Detergent Potassium Laurate for Decellularization in Lung Bioengineering. Tissue Engineering - Part C: Methods, 2019, 25, 459-471.	1.1	25
92	Modular design of a tissue engineered pulsatile conduit using human induced pluripotent stem cell-derived cardiomyocytes. Acta Biomaterialia, 2020, 102, 220-230.	4.1	25
93	Fate of Distal Lung Epithelium Cultured in a Decellularized Lung Extracellular Matrix. Tissue Engineering - Part A, 2015, 21, 1916-1928.	1.6	24
94	Engineering porcine arteries: Effects of scaffold modification. Journal of Biomedical Materials Research Part B, 2003, 67A, 303-311.	3.0	23
95	A Microstructurally Motivated Model of the Mechanical Behavior of Tissue Engineered Blood Vessels. Annals of Biomedical Engineering, 2008, 36, 1782-1792.	1.3	22
96	Efficient intratracheal delivery of airway epithelial cells in mice and pigs. American Journal of Physiology - Lung Cellular and Molecular Physiology, 2015, 308, L221-L228.	1.3	22
97	Epac agonist improves barrier function in iPSC-derived endothelial colony forming cells for whole organ tissue engineering. Biomaterials, 2019, 200, 25-34.	5.7	22
98	Efficient Differentiation of Human Induced Pluripotent Stem Cells into Endothelial Cells under Xenogeneic-free Conditions for Vascular Tissue Engineering. Acta Biomaterialia, 2021, 119, 184-196.	4.1	22
99	PCH-2 regulates Caenorhabditis elegans lifespan. Aging, 2015, 7, 1-13.	1.4	21
100	Cellular lifespan and regenerative medicine. Biomaterials, 2007, 28, 3751-3756.	5.7	20
101	Engineering Biological-Based Vascular Grafts Using a Pulsatile Bioreactor. Journal of Visualized Experiments, 2011, , .	0.2	20
102	Strategies for lung regeneration. Materials Today, 2011, 14, 196-201.	8.3	20
103	Development of Lung Epithelium from Induced Pluripotent Stem Cells. Current Transplantation Reports, 2015, 2, 81-89.	0.9	20
104	The Use of Optical Clearing and Multiphoton Microscopy for Investigation of Three-Dimensional Tissue-Engineered Constructs. Tissue Engineering - Part C: Methods, 2014, 20, 570-577.	1.1	19
105	An Ex Vivo Vessel Injury Model to Study Remodeling. Cell Transplantation, 2018, 27, 1375-1389.	1.2	19
106	The History of Engineered Tracheal Replacements: Interpreting the Past and Guiding the Future. Tissue Engineering - Part B: Reviews, 2021, 27, 341-352.	2.5	19
107	New Functional Tools for Antithrombogenic Activity Assessment of Live Surface Glycocalyx. Arteriosclerosis, Thrombosis, and Vascular Biology, 2016, 36, 1847-1853.	1.1	18
108	Efficient and Functional Endothelial Repopulation of Whole Lung Organ Scaffolds. ACS Biomaterials Science and Engineering, 2017, 3, 2000-2010.	2.6	18

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109	Arterial Venous Differentiation for Vascular Bioengineering. Annual Review of Biomedical Engineering, 2018, 20, 431-447.	5.7	18
110	Arterial shear stress reduces eph-b4 expression in adult human veins. Yale Journal of Biology and Medicine, 2014, 87, 359-71.	0.2	18
111	Engineered Microvasculature in PDMS Networks Using Endothelial Cells Derived from Human Induced Pluripotent Stem Cells. Cell Transplantation, 2017, 26, 1365-1379.	1.2	17
112	Bioengineering the Bloodâ€gas Barrier. , 2020, 10, 415-452.		17
113	Human Pluripotent Stem Cells (iPSC) Generation, Culture, and Differentiation to Lung Progenitor Cells. Methods in Molecular Biology, 2016, 1576, 55-92.	0.4	16
114	Controlled gas exchange in whole lung bioreactors. Journal of Tissue Engineering and Regenerative Medicine, 2018, 12, e119-e129.	1.3	15
115	Five Year Outcomes in Patients with End Stage Renal Disease Who Received a Bioengineered Human Acellular Vessel for Dialysis Access. EJVES Vascular Forum, 2022, 54, 58-63.	0.2	15
116	Small diameter vascular graft engineered using human embryonic stem cell-derived mesenchymal cells. Tissue Engineering - Part A, 2013, 20, 131015043635000.	1.6	14
117	Fas ligand and nitric oxide combination to control smooth muscle growth while sparing endothelium. Biomaterials, 2019, 212, 28-38.	5.7	14
118	A Rotating Bioreactor for Scalable Culture and Differentiation of Respiratory Epithelium. Cell Medicine, 2015, 7, 109-121.	5.0	13
119	Neuropilin-1 Mediated Arterial Differentiation of Murine Pluripotent Stem Cells. Stem Cells and Development, 2018, 27, 441-455.	1.1	13
120	Non-invasive and real-time measurement of microvascular barrier in intact lungs. Biomaterials, 2019, 217, 119313.	5.7	12
121	Lung regeneration. Current Opinion in Anaesthesiology, 2017, 30, 23-29.	0.9	11
122	Xenogeneic-free generation of vascular smooth muscle cells from human induced pluripotent stem cells for vascular tissue engineering. Acta Biomaterialia, 2021, 119, 155-168.	4.1	11
123	Development of a Bioartificial Vascular Pancreas. Journal of Tissue Engineering, 2021, 12, 204173142110277.	2.3	10
124	An ex vivo physiologic and hyperplastic vessel culture model to study intra-arterial stent therapies. Biomaterials, 2021, 275, 120911.	5.7	9
125	Readily Available Tissue-Engineered Vascular Grafts Derived From Human Induced Pluripotent Stem Cells. Circulation Research, 2022, 130, 925-927.	2.0	5
126	Tissue Engineering and Regenerative Medicine. , 0, , 950-971.		4

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127	Surface hydrolysis of poly(glycolic acid) meshes increases the seeding density of vascular smooth muscle cells. Journal of Biomedical Materials Research Part B, 1998, 42, 417-424.	3.0	4
128	Bmk-1 regulates lifespan in<i>Caenorhabditis elegans</i>by activating hsp-16. Oncotarget, 2015, 6, 18790-18799.	0.8	4
129	A Pulmonary Vascular Model From Endothelialized Whole Organ Scaffolds. Frontiers in Bioengineering and Biotechnology, 2021, 9, 760309.	2.0	4
130	Flow Preservation of Umbilical Vein for Autologous Shunt and Cardiovascular Reconstruction. Annals of Thoracic Surgery, 2018, 105, 1809-1818.	0.7	3
131	Lung Tissue Engineering: Toward a More Deliberate Approach. ACS Biomaterials Science and Engineering, 2022, 8, 4625-4628.	2.6	3
132	Engineered Lung Tissues Prepared from Decellularized Lung Slices. Journal of Visualized Experiments, 2022, , .	0.2	3
133	Pressure-Regulated Ventilator Splitting for Disaster Relief: Design, Testing, and Clinical Experience. Anesthesia and Analgesia, 2022, 134, 1094-1105.	1.1	3
134	A therapeutic vascular conduit to support in vivo cell-secreted therapy. Npj Regenerative Medicine, 2021, 6, 40.	2.5	2
135	A Call to Craft. Science Translational Medicine, 2014, 6, 218fs1.	5.8	1
136	Tissue-Engineered Microvasculature to Reperfuse Isolated Renal Glomeruli. Tissue Engineering - Part A, 2015, 21, 2673-2679.	1.6	1
137	Tissue engineering and regenerative medicine. , 2016, , 488-504.		1
138	Reduced patency in left-sided arteriovenous grafts in a porcine model. Journal of Vascular Surgery, 2020, 72, 305-317.e6.	0.6	1
139	Microvascular fluid flow in ex vivo and engineered lungs. Journal of Applied Physiology, 2021, 131, 1444-1459.	1.2	1
140	In-vitro blood vessel regeneration. , 0, , 603-620.		0
141	Tissue-Engineered Stem Cell Models of Cardiovascular Diseases. , 2019, , 1-18.		0
142	Lung tissue engineering. , 2020, , 1273-1285.		0
143	Engineered microvasculature in PDMS networks using endothelial cells derived from human induced pluripotent stem cells. Cell Transplantation, 2017, , .	1.2	0
144	Perfusion Bioreactors for Lung Engineering Applications. , 2019, , 189-189.		0

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145	Bioengineered Human Acellular Vessels. , 2020, , 1-26.		0
146	Bioengineered Human Acellular Vessels. , 2020, , 549-574.		0