WEI TAN, Ph.D.

POSITIONS AND ACADEMIC APPOINTMENTS

8/13 –Present	Associate Professor (tenured), Department of Mechanical Engineering, University of Colorado at Boulder, Boulder, CO
9/14 – Present	Associate Professor (Adjunct), Department of Pediatrics, University of Colorado at Denver, Aurora, CO
8/05 – 8/13	Assistant Professor, Department of Mechanical Engineering University of Colorado at Boulder, Boulder, CO
8/05 – 6/14	Assistant Professor, Department of Pediatrics – Cardiology University of Colorado at Denver, Aurora, CO
3/03 – 8/05	Postdoc Research Associate, Beckman Institute University of Illinois at Urbana-Champaign, Champaign, IL
1/03 – 3/03	Visiting Scientist, Department of Biomedical Engineering Boston University, Boston, MA
1/99 – 1/03	Graduate Research Assistant, Department of Bioengineering University of Illinois at Chicago, Chicago, IL

AWARDS

2015	International Atherosclerosis Society (IAS), Visiting Fellowship Award
2012	Burroughs Welcome Fund (BWF), Collaborative Research Travel Award
2010	National Institute of Health (NIH), Quantitative Research Career Transition Award
2009	American Heart Association (AHA), Scientist Development Award
2009	Colorado Clinical and Translational Science Institute (CCTSI), Research Scholar Award
2008	Defense Advanced Research Projects Agency (DAPRA), Young Investigator Award,
2007	The Children's Hospital (TCH), Research Scholar Development Award
2006	Junior Faculty Development Award, University of Colorado at Boulder
2002	American Vacuum Society (AVS), Russell & Sigurd Varian Fellowship

EDUCATION

01/1999-01/2003	**Ph.D. in Bioengineering,** University of Illinois at Chicago
01/1999-07/2001	**M.S. in Bioengineering,** University of Illinois at Chicago
09/1993-07/1997	**B.S. in Biochemical Engineering**, East China University of Science and Technology

MEMBERSHIP/PROFESSIONAL AFFILIATIONS

American Heart Association (AHA), American Society for Mechanical Engineers (ASME) – Bioengineering Division, Biomedical Engineering Society (BMES), Society for Biomaterials (SFB), Material Research Society (MRS),

PEER-REVIEWED REFEREED PUBLICATIONS

(Trainees highlighted in CAPS)

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Chapters in Books:

1. W. Tan; T.A. Desai. "Microscale tissue engineering", *Encyclopedia of Biomaterials and Biomedical Engineering*, New York: Marcel Dekker, Inc., 2004, pp. 1580-1593
2. W. Tan**;** W. BONANI; K. MADHAVAN**.** "Nanofibrous Materials for Vascular Tissue Engineering and Regeneration", *Nanotechnology in Tissue Engineering and Regenerative Medicine*, CRC Press, Taylor and Francis, 2010, pp. 12,1-26
3. D.E. SCOTT, W. Tan, J.S. Lee, O. J.T. McCarty; M.T. Hinds. "Vascular Cell Physiology Under Shear Flow: Role of Cell Mechanics and Mechanotransduction", *Mechanical and Chemical Signaling in Angiogenesis. Studies in Mechanobiology, Tissue Engineering and Biomaterials*, 12, 121-141, 2013
4. W. ELLIOTT, A. Keshmiri, W. Tan**.** "Exploitation of Mechanobiology for Cardiovascular Therapy." In book: *Mechanobiology: Exploitation for Medical Benefit*, John Wiley & Sons, Inc. 2016. pp.373 – 400.
5. P. BOODAGH, Z. Tao, S. Keyser, W. Tan. "Exploitation of Vascular Mechanobiology for Therapy Innovations" In book: *Mechanobiology in vascular physiology and disease*. For the series of "Cardiac and Vascular Biology", Springer Inc., Switzerland AG, March 2021

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6. T. A. Desai; J. Deutsch; D. Motlagh; W. Tan; B. Russel. "Microtextured cell culture platforms: biomimetic substrates for the growth of cardiac myocytes and fibroblasts", ***Biomedical Microdevices***, 2:2, 123-9, 1999
7. W. Tan; R. Krishnaraj; T. A. Desai. "Evaluation of nanostructured composite collagen-chitosan matrices for tissue engineering", ***Tissue Engineering***, 7:2, 203-210, 2001
8. W. Tan; T. A. Desai. "Microfluidic patterning of cells in extracellular matrix biopolymers: Effects of channel size, cell type, and matrix composition on pattern integrity", ***Tissue Engineering***, 9:2, 255-267, 2003 2001
9. W. Tan; T. A. Desai. "Microfluidic patterning of cellular biopolymer matrices", ***Journal of the Association for Lab Automation***, 8:3,40-43, 2003
10. W. Tan; T. A. Desai. "Microfluidic patterning of cellular biopolymer matrices for biomimetic three-dimensional structures", ***Biomedical Microdevices***, 5(3), 235-244, 2003
11. W. Tan; T. A. Desai. "Layer-by-layer microfluidics for biomimetic three-dimensional structures", ***Biomaterials***, 25, 1355-1364, 2004
12. W. Tan; A. Sendemir-Urkmez; J.A. Fahrner; R.D. Jamison; D. Leckband; S A. Boppart. "Structural and functional optical imaging of three-dimensional engineered tissue development". ***Tissue Engineering***, 10, 1747-1756, 2004
13. W. Tan; T. A. Desai. "Microscale multilayer cocultures for biomimetic blood vessels", ***Journal of Biomedical Material Research***, 72A(2), 146-160, 2005
14. S. Sharma; W. Tan; T. A. Desai. "Improving the integrity of three-dimensional vascular patterns by poly(ethylene glycol) conjugation". ***Bioconjugate Chemistry***, 16, 18-22, 2005
15. W. Tan; A. Oldenburg; J. Norman; T. Desai; S. A. Boppart. "Optical coherence tomography of cell dynamics in three-dimensional tissue models". ***Optics Express***, 14(16): 7159-7171, 2006
16. H. Ko; W. Tan; R. Stack; S. A. Boppart. "Optical coherence elastography of engineered and developing tissue", ***Tissue Engineering***, 12: 63-73, 2006
17. C. Vinegoni; T. Ralston; W. Tan; W. Luo; D. L. Marks; S. A. Boppart. "Integrated structural and functional optical imaging combining spectral-domain optical coherence and multiphoton microscopy", ***Applied Physics Letters***, 88, 053901, 1-4, 2006

18. C.Y. Xu; C. Vinegoni; T. Ralston; W. Luo; W. Tan; S. A. Boppart. “Spectroscopic spectral-domain optical coherence microscopy”. ***Optics Letters***, 31: 1079-1081, 2006
19. W. Tan; A. Oldenburg; J. Norman; T. Desai; S.A. Boppart. “Imaging Cellular Responses to Mechanical Stimuli within Three-Dimensional Tissue Constructs" ***Microscopy Research and Technique***. 70:361–371, 2007
20. W. Tan, D.E. SCOTT, D. BELCHENKO, H Qi, L. Xiao. ”Development and Evaluation of Microdevices For Studying Anisotropic Biaxial Cyclic Stretch on Cells”, ***Biomedical Microdevices****,* 10 (6): 869-882, 2008
21. M. LI, K. Stenmark, R. Shandas, W. Tan**.** “Effects of pathologic flow on pulmonary artery endothelial production of vasoactive mediators and growth factors.” ***Journal of Vascular Research***, 46:561-571; 2009
22. M. LI, D.E. SCOTT, K. Stenmark, R. Shandas, W. Tan**.** “High pulsatility flow induces adhesion molecule and cytokine mRNA expression in distal pulmonary artery endothelial cells.” ***Annals of Biomedical Engineering***, 37 (6): 1082-1092, 2009
23. D.J. GUO, J. Wang, W. Tan, S.J. Xiao, Z.D. Dai. “Macro-porous silicon templated from silicon nano-crystallite and functionalized Si-H reactive group for grafting organic monolayer.” ***Journal of Colloid and Interface Science***, 336: 723–729, 2009
24. W. Tan, J.R. TWOMEY, D.J. GUO, K. MADHAVAN, M. LI. “Evaluation of nanostructural, mechanical and biological properties of collagen-nanotube composites.” ***IEEE Transactions on Nanobioscience***, 9(2): 111-120, 2010
25. K. MADHAVAN, D. BELCHENKO, A. Motta, W. Tan**.** “Evaluation of composition and crosslinking effects on collagen-based composite constructs.” ***Acta Biomaterialia***, 6(4):1413-22, 2010
26. H. Zhou, D. Dehn, J.K. Kepa, D. Siegel, D.E. SCOTT, W. Tan, D. Ross. “NAD(P)H:quinone oxidoreductase 1-Compromised human bone marrow endothelial cells exhibit decreased adhesion molecule expression and CD34+ hematopoietic cell adhesion.” ***Journal of Pharmacology and Experimental Therapeutics***, 334 (1) 260-268, 2010
27. D.J. GUO, A. Abdulagatov, D. Rourke, K. Bertness, S. George, Y.C. Lee, W. Tan. “Functionalized GaN nanowire by using atomic layer deposition techniques for enhanced immobilization of biomolecules”. ***Langmuir***, 26(23):18382-91, 2010
28. D.J. GUO, S.J. Fu*,* W. Tan, Z.D. Dai. “A highly porous Nafion membrane templated from polyoxometalates-based supramolecule composite for ion-exchange polymer-metal composite actuator.” ***Journal of Materials Chemistry***, 20, 10159-10168, 2010
29. K. MADHAVAN, D. BELCHENKO, W. Tan. “Role of genipin crosslinking and biomolecule conditioning in collagen based biopolymer: Potential for vascular media regeneration.” ***Journal of Biomedical Material Research B***, 97A, 16-26, 2011
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31. K. WINGATE, W. BONANI, Y. TAN, S.J. Bryant, W. Tan. “Compressive elasticity of three-dimensional nanofiber matrix directs mesenchymal stem cell differentiation to vascular cells with endothelial or smooth muscle cell markers.” ***Acta Biomaterialia****,* 8(4), 1440-1449*,* 2012. (PMID: 22266031)
32. S. Lammers, D.E. SCOTT, K. Hunter, W. Tan, R.S. Shandas, K.R. Stenmark. “Mechanics and function of the pulmonary vasculature: implications for pulmonary vascular disease and right ventricular function”. ***Comprehensive Physiology***, 2:295-319, 2012
33. Y. Ding, Z. Jiao, D.J. GUO, S.J. Xiao, W. Tan, Z.D. Dai. “Tunable cohesion and water lubrication of PEG-g-PMHS-c-PMVS copolymer membranes.” ***Colloids and Surface* A**, 395: 199–206, 2012
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35. W. BONANI, A. Motta, C. Migliaresi, W. Tan. “Biomolecule gradient in micropatterned nanofibrous scaffold for spatio-temporal release”. ***Langmuir***, 28(38):13675-87, 2012
36. K. MADHAVAN, W. ELLIOTT, W. BONANI, E. Monnet, W Tan**.** “Mechanical and biocompatible

characterizations of a readily available multilayer vascular graft". ***Journal of Biomedical Material Research,*** 101(4):506-19, 2013 (PMID:23165922)

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38. M. LI, Y. TAN, K.R. Stenmark, W. Tan. "High Pulsatility Flow Induces Endothelial Inflammation through Overpolarizing Cells to Activate NF-<kappa>B". ***Cardiovascular Engineering and Technology***, 4(1):26-38, 2013. (PMID: 23667401)
39. Z. Su, K. Hunter, **W. Tan**, R. Shandas. "Influence of distal resistance and proximal stiffness on hemodynamics and RV afterload in progression and treatments of pulmonary hypertension: a computational study with validation using animal models", ***Computational and Mathematical Methods in Medicine,*** 618326: 1-12, 2013
40. K. WINGATE, M. FLOREN, Y. TAN, P-O. TSENG, W Tan. "Synergism of matrix stiffness and vascular endothelial growth factor on mesenchymal stem cells for vascular endothelial regeneration", ***Tissue Engineering Part A****.* 20(17-18):2503-12, 2014. (PMID: 247020)
41. W Tan, K. MADHAVAN, D. Park, K.R. Stenmark. "Vascular Stiffening in Pulmonary Hypertension: Cause or Effect?**" *Pulmonary Circulation***, 4(4): 560-580, 2014
42. M. FLOREN, W Tan. "Three-dimensional, soft neotissue arrays as high throughput platforms for the interrogation of engineered tissue environments", ***Biomaterials****,* 59: 39-52, 2015 (PMID: 25956850)
43. D.J. Guo, Z.Y. Wei, H. Zhang, S. M. Fang, W. ELLIOTT, W Tan. "Reverse adhesion of a gecko-inspired synthetic adhesive switched by an ion-exchange polymer-metal composite actuator". ***ACS Applied Materials & Interfaces*****,** *7* (9), 5480–5487, 2015 (PMID: 25676143)
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45. W. ELLIOTT, W. Bonani, D. Maniglio, A. Motta, W Tan, C. Migliaresi. "Silk Hydrogels of Tunable Structure and Viscoelastic Properties using Different Chronological Orders of Genipin and Physical Crosslinking", ***ACS Applied Materials & Interfaces,*** 7 (22), 12099–12108, 2015. (PMID: 25978549)
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47. M. FLOREN, W. BONANI, A DHARMARAJAN, A. Motta, C. Migliaresi, W Tan. "Human Mesenchymal Stem Cells Cultured on Silk Hydrogels with Variable Stiffness and Growth Factor Differentiate into Mature Smooth Muscle Cell Phenotype", ***Acta Biomaterialia****,* 31: 156–166, 2016 (PMID: 26621695)
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49. D.J. Guo, Z.Y. Wei, B. Shi, L.Z. Wang, S.W. Wang, W Tan**,** S. M. Fang. "Copper nanoparticles spaced 3D graphene films for lithium-storing electrodes without current collector", ***Journal of Materials Chemistry A****,* 4 (21): 8466-8477, 2016.
50. Y. Fan, X. Pan, K. Wang, S. Wu, H. Han, P. Yang, R. Luo, H. Wang, N. Huang, W. Tan, Y. WENG. "Influence of chirality on catalytic generation of nitric oxide and platelet behavior on selenocystine immobilized TiO_2 films" ***Colloids and Surfaces B: Biointerfaces,*** *145: 122-129. 2016*
51. P. Boodagh, D.J. Guo, N. NAGIAH, W. Tan. "Evaluation of Electrospun PLLA/PEGDMA Polymer Coatings for Vascular Stent Material". ***J. Biomater Sci, Polym Ed.*** *27 (11): 1086–1099, 2016*
52. Y. DING, M. FLOREN, W. Tan, "Mussel-Inspired Polydopamine for Bio-Surface Functionalization", ***Biosurface and Biotribology***, 2 (4): 121-136, 2016.
53. Y. DING, M. FLOREN, W. Tan, "High-Throughput Screening of Vascular Endothelium-Destructive or -Protective Microenvironments: Cooperative Actions of Extracellular Matrix

Composition, Stiffness, and Structure", ***Advanced Healthcare Materials.*** *6: 1601426, 2017*

54. S. Sharma, M. FLOREN, Y. DING, KR Stenmark, W. Tan, S. Bryant *. "A photoclickable peptide microarray platform for facile and rapid screening of 3-D tissue microenvironments." ***Biomaterials***.143:17-28, 2017.
55. B.S. Hays, M. Baker, A. Laib, W. Tan, B.H. Goldstein, S.P. Sanders, A.R. Opotowsky, G.R. Veldtman. "Histopathologic abnormalities in the central arteries and veins of Fontan subjects". ***Heart***. 104:324--331, 2018
56. D.J. Guo*, R. Liu, Y. Li, W. ELLIOTT, J.P. Du, H. Zhang, Y. Ding, W Tan**,** S. M. Fang***. "***Polymer Actuators of Fluorene Derivatives with Enhanced Inner Channels and Mechanical Performance." ***Sensors & Actuators: B,*** 255 (1): 791-799, 2018
57. A. DHARMAJAN, M. FLOREN, R. JOHNSON, L Cox, Y. Ding, W. Tan**.** "Mechanochemical Effect on Extracellular Signal-Regulated Kinase Dynamics in Stem Cell Differentiation". ***Tissue Eng Par A,*** *24: 1179-1189, 2018*
58. Y. DING, M. FLOREN, S. Sharma, KR Stenmark, S. Bryant, W. Tan, "Biomimetic soft fibrous hydrogels for contractile and pharmacologically responsive smooth muscle". ***Acta Biomaterialia,*** *74: 121-130, 2018*
59. K. MADHAVAN, W. ELLIOTT, Y. TAN**,** E. Monnet, W. Tan. "Performance of a mesenchymal stem cell-seeded small-caliber multilayer vascular graft in a senescent sheep model", ***Biomedical Materials****, 13: 055004, 2018*
60. D.J. Guo, Y. Han, Y. DING, S. M. Fang, W Tan. "Prestrain-free electrostrictive film sandwiched by asymmetric electrodes for out-of-plane actuation", ***Chemical Engineering Journal,*** *352: 876-885, 2018*.
61. H. YIN, Y. DING, Y. H., Zhai, W. Tan***,** X. Yin*. "Orthogonal programming of Heterogeneous Micro-mechano-environments and Geometries in Three-Dimensional Bio-stereolithography." ***Nature Communication,*** *9: 4096,* 2018
62. M. RAFUSE, X. Xu, K. Stenmark, C. P. Neu, X. Yin, W. Tan**.** "Layer-specific arterial micromechanics and microstructure: influences of age, anatomical location, and processing Technique". ***J. Biomech.*** *88, 113-121,* 2019
63. W. ELLIOTT, D.J. GUO, G. R. Veldtman, W. Tan. "Effect of viscoelasticity on arterial-like pulsatile flow dynamics and energy", ***Journal of Biomechanical Engineering,*** 142(4): 041001, 2020
64. M. IGLESIAS-ECHEVARRIA, L. DURANTE, R. JOHNSON, M. RAFUSE, Y. DING, W. Bonani, D. Maniglio, W. Tan "Coaxial PCL/PEG-thiol-ene microfiber with tunable physico-chemical properties for regenerative scaffolds." ***Biomaterials Sci.***, 7, 3640-3651, 2019
65. P. BOODAGH, R. JOHNSON, C MALY, Y. DING, W. Tan. "Soft-Sheath, Stiff-Core Microfiber Hydrogel for Vascular Implants." ***Colloids and Surfaces B,*** 183, 110395, 2019
66. R. JOHNSON, Y. DING, N. NAGIAH, E. Monnet, W. Tan. "Coaxially-structured fibres with tailored material properties for vascular graft implant." ***Mater Sci Eng C*** *(Mater Biol Appl.)* 97:1-11, 2019.
67. Y. DING, R. JOHNSON, S. Sharma, X. Ding, S.J. Bryant, W. Tan, "Tethering transforming growth factor1 to soft hydrogels guides vascular smooth muscle commitment from human mesenchymal stem cells". ***Acta Biomaterialia,*** 105:68-77, 2020doi:
68. M. IGLESIAS-ECHEVARRIA, R. JOHNSON, M. RAFUSE, Y. DING, W. Tan, "Vascular Grafts with Tailored Stiffness and a Ligand Environment via Multiarmed Polymer Sheath for Expeditious Regeneration". ***ACS Appl. Bio Mater***. 4, 1, 545-558, 2021.
69. R. JOHNSON, M. RAFUSE, P. PARTHIBAN SELVAKUMAR, W. Tan. "Effects of Recipient Age, Heparin Release and Allogeneic Bone Marrow-derived Stromal Cells on Vascular Graft Remodeling". ***Acta Biomaterialia***, 125, 172-182, 2021.

Peer-Reviewed, Referred/Archival Conference Proceedings or Papers:

70. W. Tan, R. Krishnaraj, T. A. Desai, "Influence of chitosan on cell viability and proliferation in three-

dimensional collagen gels", ***Proceedings of the IEEE Engineering in Medicine and Biology***, 2: 1509-1524, 2000

71. L. J. Fahrner, W. Tan, C. Vinegoni, T. E. Eurell, S.A. Boppart. "Structural and Functional Imaging of Engineered Tissue Development using an Integrated OCT and Multi-Photon Microscope", ***Proc. SPIE***. 5319: 1-10, 2004
72. W. Tan; A. Sendemir-Urkmez; J.A. Fahrner; R Jamison; D. Leckband; S A. Boppart. "Multi-modality three-dimensional optical imaging of engineered tissues", ***Biomedical Optics***, Technical Digest, 2004
73. H. J. Ko, W. Tan, R. Stack, S. A. Boppart. "Optical coherence elastography of developing biological tissues", ***Biomedical Optics***, 5690: 187-194, 2005
74. W. Tan, T. A. Desai, D. A. Leckband, S. A. Boppart. "Optical coherence tomography of cell dynamics in three-dimensional engineered tissues", ***Proc. SPIE***, 5699: 102-110, 2005
75. S.A. Boppart, W. Tan, H.J. Ko, C. Vinegoni, "Optical coherence tomography of cell dynamics in three-dimensional engineered tissues", ***Proc. SPIE***, 5861: 193 – 200, 2006
76. C. Vinegoni, T. Ralston, W. Tan, W. Luo, D.L. Marks, S.A. Boppart, "Multi-modality imaging of structure and function combining spectral-domain optical coherence and multiphoton microscopy", ***Proc. SPIE***, 6079: 226-234, 2006
77. C.Y. Xu, P. S. Carney, W. Tan, S.A. Boppart. "Light-scattering spectroscopic optical coherence tomography for differentiating cells in 3D cell culture." ***Proc. SPIE***, 6088: 26- 33, 2006
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80. M. LI, R. Shandas, W. Tan. "Pulmonary Hypertension Related Shear Stress Induces Pulmonary Endothelial Dysfunction". ***Arterioscler Thromb Vasc Biol*** 27: e35-e137, 2007
81. W. Tan, J.R. TWOMEY, K. MADHAVAN. "Engineering carbon nanotube-collagen nanocomposite material for vascular grafts", ***Biomechanics Proceeding*** 580-058: 1-4, 2007
82. M. LI, D.E. SCOTT, R. Shandas, W. Tan. "Shear Stress Affects Smooth Muscle Cells Through Pulmonary Arterial Endothelial Cell Mechanotransduction", ***Circulation.*** 2007;116:II_60
83. M. LI, K. Stenmark, R. Shandas, W. Tan**.** "Flow Pulsation Affect Distal Pulmonary Artery Endothelial Cell mRNA Expression." ***Circulation***, 118: S 1037, 2008
84. W Tan. "Multi-modal Imaging of Cell-Biomaterial Interactions Under Dynamic Chemical and Mechanical Environments" ***Microscopy and Microanalysis***, 16: 1932-1933, 2010
85. D.E. SCOTT, R. Shandas, K.R. Stenmark, W. Tan. "High Pulsatility Flow Induces Nuclear Factor-Kappa B Activation in Pulmonary Artery Endothelial Cells Through Cytoskeletal Proteins", ***Am. J. Respir. Crit. Care Med***. 183: A1940, 2011
86. M Floren, A Flockton, W Tan, KR Stenmark,. "Dimensionality, Composition And Stiffness Influence Fibrosis In Healthy And Pathological Pulmonary Artery Adventitial Fibroblasts". ***Am J Respir Crit Care Med***, 195, A6411, 2017
87. M Floren, Y Ding, X Xu, S Sharma, S Bryant, C Neu, K Stenmark, W Tan. "Matrix Structure, Stiffness and Composition Regulate the Contractile Phenotype of Vascular Smooth Muscle Cells". ***Am J Respir Crit Care Med***, 197: A2918, 2018
88. Langford-Smith AWW, Floren M, Hasan A, Weston R, Edwards N, Rashid ST, Boulton A, Bowling F, Tan W, Wilkinson FL et al. Altered matrix adhesion, impaired function and mitochondrial hyperactivity in endothelial colony-forming cells isolated from patients with diabetic foot ulcers. Matrix Biology Europe Meeting, Manchester, ENGLAND, 21 Jul 2018 - 24 Jul 2018. INTERNATIONAL JOURNAL OF EXPERIMENTAL PATHOLOGY. WILEY. 99: A7-A8, 2018
89. Edwards N, Langford-Smith AWW, Floren M, Hasan A, Weston R, Rashid ST, Boulton A, Bowling F, Tan W, Wilkinson FL et al. Mitochondrial Hyperactivity, Impaired Matrix Adhesion and Functional Activity in Endothelial Colony Forming Cells Isolated from Patients with Diabetic Foot Ulcers. CARDIOVASCULAR DRUGS AND THERAPY. SPRINGER. 33: 273 (1 page). 01 Apr

2019

Patents:

"Microfluidic Patterning/Layering of Biopolymers for 3D Tissue Structures". W. Tan**;** T. A. Desai, filed for US patent, 10/535,588, 2006
"Bionanomaterial-based Arterial-like Vascular Graft", W. Tan**;** K. Madhavan; W. Bonani, filed for US patent, 12/714,162, 2016
"Nanofibrous photoclickable hydrogel microarrays". M. Floren; W. Tan, filed for US patent. 14/991,889, 2010
U.S. Patent Application US 62/692,209; UTCB-19399: "Pro-healing, pro-regenerative nanofibrous coating for medical implants". Filing Date: June 28, 2019. Inventors: Parnaz Boodagh, Wei Tan, Michael Floren

PROFESSIONAL PRESENTATIONS

1. W. Tan, R. Krishnaraj, T. A. Desai, "Influence of chitosan on cell viability and proliferation in three-dimensional collagen gels", *IEEE Engineering in Medicine and Biology*, Chicago IL, July 2000
2. W. Tan; M. Wettergreen; T.A. Desai, "Controlling cell interactions of endothelial cells and fibroblasts on biocompatible materials by cellular micropatterning in co-culture", Annals of Biomedical Engineering, *BMES Annual Meeting,* Oct 2000
3. W. Tan; T.A. Desai, "Microfluidic patterning of cellular matrices for biomimetic microenvironments", *BioMEMS & Biomedical Nanotechnology World 2001*, Columbus, OH, Sept 2001
4. W. Tan; T.A. Desai, "Microfluidic patterning of biopolymer matrices for cellular pattern integrity". *15th International Vacuum Congress/ AVS 48th International Symposium*, San Francisco, CA, April 2001
5. W. Tan; T.A. Desai, "Microfluidic patterning of cellular biopolymer matrices for biomimetic 3-D structure". *SmallTalk*, Palm Spring, CA, January 2002
6. W. Tan; T.A. Desai, "Microfluidic patterning of cells within biopolymer matrices for tissue engineering". *BioMEMS & Biomedical Nanotechnology World*, 2002
7. W. Tan; T.A. Desai, "Microfluidic patterning of cells within biopolymers for biomimetic layer structure". *BioMEMS 2002*, Columbus, OH, October 2002
8. W. Tan; T.A. Desai, "Three-dimensional micropatterned cell co-culture". *6th New Jersey Symposium on Biomaterials Science*, 2002
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14. W. Tan; A. Sendemir-Urkmez; J.A. Fahrner; R Jamison; D. Leckband; S A. Boppart. "Multi-modality three-dimensional optical imaging of engineered tissues", *Optical Society of America*, Miami, FL, April 2004
15. S.A. Boppart, W. Tan, H. Ko, C. Vinegoni. "Optical coherence tomography of cell dynamics in three-

dimensional engineered tissues" *European Conference on Biomedical Optics*, Munich, Germany, June 2005

16. V. TSVANSKI, D.E. SCOTT, C.J. ROCKNE, L. Xiao, H Qi, W. Tan. "Study of cell anisotropic micro/nanomechanics with a polymer MEMS-based device." *15th U.S. National Congress on Theoretical and Applied Mechanics*, Boulder, CO, June 2006
17. W. Tan, V. TSVANSKI, D.E. SCOTT, L. Xiao, H Qi, R Shandas. "Coordinated behaviors of tissue structural proteins". *GRC Conference on signal transduction by engineered extracellular matrices*, CN, July 2006
18. M. LI, R. Shandas, W. Tan. "Pulmonary Hypertension Related Shear Stress Induces Pulmonary Endothelial Dysfunction". *8th Annual Conference on Arteriosclerosis, Thrombosis, and Vascular Biology*, Chicago, IL, April 2007
19. M. LI, D.E. SCOTT, R. Shandas, W. Tan. "Shear Stress Affects Smooth Muscle Cells Through Pulmonary Arterial Endothelial Cell Mechanotransduction", *2007 AHA Scientific Sessions*, Orlando, FL, Nov 2007
20. W Tan, K. MADHAVAN, S. George, Y.C. Lee. "Universal platform for highly selective and stable biosensors". *2007 Nanoelectronic devices for defense and security conference*, Washington DC, June 2007
21. D. BELCHENKO, D.E. SCOTT, W. Tan. "Study of cell micro/nano mechanics with a polymer based device", *Proceedings of the ASME 2007 Summer Bioengineering Conference*, Keystone, CO, June 2007
22. J.R. TWOMEY, V. SUNDARAM, K. MADHAVAN, W. Tan. "Characterization of collagen-carbon nanotube composite extracellular mechanics". *Proceedings of the ASME Summer Bioengineering Conference*, Keystone, CO, June 2007
23. D.E. SCOTT, A. RICHMAN, C. Lanning, R. Shandas, W. Tan. "Development of a Cell Coculture Fluidic Shear Device for Mechano-transmission Study", *Proceedings of the ASME Summer Bioengineering Conference*, Keystone, CO, June 2007
24. J.R. TWOMEY, K. MADHAVAN, W. Tan "Nanotube-collagen biohybrid composite - a potential material for vascular access graft", *BMES Annual conference*, Los Angeles, CA, Sept 2007
25. D.E. SCOTT, A. RICHMAN, C. Lanning, R. Shandas, W. Tan. "Development of a Cell Coculture Microfluidic Shear Device for Mechano-transmission Study", *Lab Automation*, Palm Spring, CO, Jan 2007
26. M. LI, R. Shandas, D.E. SCOTT, W. Tan. "Mechanotranduction Studies of Shear Stress Effects in the Pulmonary Circulation Using Cell-Cell Interaction Models", *BMES conference*, Los Angeles, CA, November 2007
27. D.E. SCOTT, K. Hunter, R. Shandas, W. Tan. "Experimental and computational characterization of flow device for studying cell mechanobiology under pulsatile flow". *BMES Annual conference*, St Louis, MO, October 2008.
28. M. LI, K Stenmark, R Shandas, W Tan, "Flow Pulsation Affects Distal Pulmonary Artery Endothelial Cell mRNA Expression", *2008 AHA Scientific Sessions*, New Orleans, LA, November 2008
29. K. MADHAVAN, W. Tan. "Composite materials for vascular grafts made of collagen, chitosan and elastin". *Material Research Society Meeting*, Boston, MA, December, 2008
30. W. BONANI, A. Motta, W. Tan, C Migliaresi. "Electrospun Fibroin-based Nanocomposites as New Vascular Graft Materials". *Material Research Society Meeting*, Boston, MA, December, 2008
31. M. LI, D.E. SCOTT, R. Shandas, W. Tan. "Shear Stress Affects Smooth Muscle Cells Through Pulmonary Arterial Endothelial Cell Mechanotransduction", *AHA Scientific Sessions*, Orlando, FL, Nov 2007
32. M. LI, K. Stenmark, R. Shandas, W. Tan: "Flow Pulsation Affect Distal Pulmonary Artery Endothelial Cell mRNA Expression. *AHA Scientific Sessions*, New Orleans, LA, Nov 2008
33. K. MADHAVAN, D. BELCHENKO, W. Tan, "Effects of Crosslinking Condition on Mechanical and Biological Properties of Biomimetic Fibrous Composite Material for Arterial Medial Equivalent". *Nanotechnology Conference, NSTI-832*, Boston, MA, 2009
34. W. BONANI, A. Motta, C. Migliaresi, W Tan. "Compositional profile and degradation behavior of

novel electrospun nanocomposites for vascular applications". *ASME Summer Bioengineering Conference*, Lake Tahoe, CA, 2009

35. W. BONANI, C. Migliaresi, W. Tan. "Biomolecule-impregnated nanocomposite with spatiotemporal control over release and degradation kinetic for vascular engineering", *Proceeding of ASME Summer Bioengineering 2010*, Naples, FL, June 2010
36. D.E. SCOTT, R. Shandas, W. Tan. "Effect of Vessel Stiffening and High Pulsatility Flow on Contractile Function and Proliferation of Small Arterial Cells". *Proceeding of ASME-Bioengineering*, Naples, FL, June 2010
37. K. MADHAVAN, W. BONANI, C. Lanning, W. Tan. "Development and biomechanical characterization of a novel bilayer vascular graft ". Proceeding of ASME-Bioengineering 2010, Naples, FL, June 2010
38. K. WINGATE, W. BONANI, S. Bryant, W. Tan. "The Impact of Nanofiber Elasticity on Mesenchymal Stem Cell Spreading and Differentiation", *MRS Workshop: Functionalized Nanobiomaterials for Medical Applications*, Denver, CO, Oct 2010
39. W. BONANI, C. Migliaresi, W. Tan. "Functionalized Nanobiomaterials for Medical Applications". *MRS Workshop: Functionalized Nanobiomaterials for Medical Applications*, Denver, CO, Oct 2010
40. W Tan, W. BONANI, K. MADHAVAN. "Nanofiber gradient Pattern For Spatiotemporal Controlled Release of Biomolecules From Vascular Graft". *Society For Biomaterials 2011 Annual Meeting and Exposition*, Orlando, FL, April 2011
41. K. WINGATE, W. BONANI, D.E. SCOTT, S. Bryant, W. Tan. "Hydrogel Nanofiber Stiffness Influences Mesenchymal Stem Cell Spreading and Vascular Differentiation in 3D Matrix ", *Society For Biomaterials 2011 Annual Meeting and Exposition*, Orlando, FL, April 2011
42. W. BONANI, C Migliaresi, W Tan. "Nanofiber micropatterns for controlled release of biomolecules"
    Proceedings of the ASME Summer Bioengineering Conference, Famington, PA, June 2011
43. K. MADHAVAN, W. BONANI, W Tan. "Multilayer hybrid construct for vascular tissue engineering".
    Proceedings of the ASME Summer Bioengineering Conference, Famington, PA, June 2011
44. K. WINGATE, W. BONANI, D.E. SCOTT, S Bryant, W Tan. "Hydrogel nanofiber stiffness influences mesenchymal stem cell spreading and vascular differentiation in 3D matrix"
    Proceedings of the ASME Summer Bioengineering Conference, Famington, PA, June 2011
45. W. Tan, M. LI, K. Stenmark, D.E. SCOTT. "High pulsatility flow induces nuclear factor-Kappa B activation In pulmonary artery endothelial cells through cytoskeletal proteins". *ATS Annual Meeting*, Denver, CO, May 2011
46. K. WINGATE, Y. TAN, R. Nemenoff , W. Tan. “Combined effects of nanofiber matrix elasticity and VEGF-A on the differentiation of mesenchymal stem cells towards mature endothelial cells”.
    Proceedings of the ASME Summer Bioengineering Conference, San Juan, PR, June 2012
47. Y. TAN, W. Tan. “Reducing upstream compliance induces downstream high pulsatility flow-dependent inflammatory response in pulmonary endothelial Cells via TLR2/NF-kB pathway”.
    Proceedings of the ASME Summer Bioengineering Conference, San Juan, PR, June 2012
48. Y. Shiu, W. ELLIOTT, E. Monnet, A. Cheung, W. Tan. “Development of novel bioengineered grafts for hemodialysis vascular access", *American Society of Nephrology (ASN) Kidney Week 2012 – Annual Meeting*, San Diego, CA, November 2012
49. W. Tan. ‘‘MSCs Enhanced Endothelial Regeneration and Reduced Fibrosis on Bioengineered Vascular Graft”, *Society For Biomaterials 2013 - Annual Meeting and Exposition*, Boston, MA, April 2013
50. K. WINGATE, Y. TAN, W. Tan. The effects of mechanical and chemical stimuli on mesenchymal stem cell vascular trans-differentiation and paracrine signaling”, *Proceedings of the ASME Summer Bioengineering Conference*, Sun River, OR, June 2013
51. A DHARMARAJAN, M FLOREN, W Tan. High Temporal Resolution of ERK Activity in Response to Mechano-chemical Stimuli. Society For Biomaterials 2014 Annual Meeting and Exposition, Denver, CO, April 2014

52. M FLOREN, W BONANI, N. Tseng, C. Migliaresi, W Tan “Porous Silk Fibroin Hydrogels with Tunable Stiffness for Vascular Tissue Engineering.” Society For Biomaterials 2014 Annual Meeting and Exposition, Denver, CO, April 2014
53. M FLOREN, N. Tseng, S. Bryant, W Tan. “Synergy of Three-dimensional Soft Matrices with ECM Proteins Augments Stem Cell Differentiation towards Vascular Phenotypes”. Society For Biomaterials 2014 Annual Meeting and Exposition, Denver, CO, April 2014
54. M FLOREN, S. Bryant, W Tan. “Protein Laden Soft Matrices as High-Throughput Platforms to Engineer Stem Cell Microenvironments”, BMES Annual Meeting, San Antonio, TX, October 2014
55. A DHARMARAJAN, M FLOREN, W Tan. “High Spatio-temporal ERK Activity in Response to Mechano-chemical Stimuli in Rat Mesenchymal Stem Cells”, BMES Annual Meeting, San Antonio, TX, October 2014
56. N. NAGIAH, W Tan. “Coaxially electrospun biohybrid nanofibrous scaffolds for vascular regeneration”, BMES Annual Meeting, San Antonio, TX, October 2014
57. M FLOREN, W Tan. “Soft 3-Dimesional ECM Microarrays as High-Throughput Platforms for Optimizing Tissue Regenerative Microenvironments”, CMBE Annual Meeting, US Virginia Islands, January 2015
58. B. S. Hays, W.Tan, A. R. Opotowsky, S. P. Sanders, M. Baker, G. Veldtman “Vascular Adaptation in the Fontan Circulation”, 2015
59. S Sharma, M FLOREN, W Tan, S Bryant. “Electrospun Photoclickble Thio-ene Poly(ethylene glycol) Hydrogel Microarrays for Stem Cell Fate Optimization”. *Society For Biomaterials: 2015 Annual Meeting and Exposition*, Charlotte, NC, April 2015
60. M FLOREN, W Tan. “Neotissue Microarrays as High-Throughput Platforms”. *ASME Summer Bioengineering Conference*, Snowbird, Utah, June 2015
61. W ELLIOTT, W Bonani, D Maniglio, A Motta, W Tan, C Migliaresi. “Genipin cross-linking silk fibroin post-gelation increases gel mechanical stiffness”. *ASME Summer Bioengineering Conference*, Snowbird, Utah, June 2015
62. W ELLIOTT, W Bonani, D Maniglio, A Motta, W Tan, C Migliaresi. “Tuning Silk fibroin hydrogels: Genipin crosslinking pre-gelation decreases time-dependent properties”. *ASME Summer Bioengineering Conference*, Snowbird, Utah, June 2015
63. S Sharma, M FLOREN, W Tan, S Bryant. “Nanofibrous Photoclickble Hydrogel Microarrays for High-Throughput Screening of Cellular Microenvironments”. *Photopolymerization Fundamentals*, Boulder CO, September 2015
64. Y DING, W Tan. “A Platform with 3D Microtissue Array for High Content Screening of Vascular Drugs”. *SLAS2016,* San Diego, CA, January 2016
65. B. S. Hays, M. Baker, A. Laib, W. Tan, S. P. Sanders, A. R. Opotowsky, G.Veldtman “Vascular Abnormalities in the Fontan Circulation: Histomorphometric Changes in the Central Arteries and Veins” American Academy of Pediatrics - 2016 Section on Cardiology and Cardiac Surgery (SOCCS) San Francisco, CA, October 22–25, 2016.
66. Y DING, W Tan. “A 3D microtissue array platform for high content screening of vascular drugs”. *World Congress of Biomaterials*, Montreal, Canada, May 17-22, 2016
67. S Sharma, M FLOREN, W Tan, S Bryant. “Combinatorial Photoclickable Peptide Microarrays for High Throughput Screening of 3-D Cellular Microenvironments”. *World Congress of Biomaterials*, Montreal, Canada, May 17-22, 2016
68. M FLOREN, S Sharma, S Bryant, K Stenmark, W Tan. “Photoclickable peptide microarrays for high throughput screening and discovery in regenerative medicine and disease models” *ASME Summer Bioengineering Conference*, National Harbor, Virginia, June 2016
69. R ANDERSON, W Tan. “Dynamic Mechanical Properties of Synthetic biopolymers”, American Chemical Society (ACS) National Conference, Philadelphia, PA, August, 2016
70. M FLOREN, S Sharma, S Bryant, K Stenmark, W Tan. “Precisely Engineered Cellular Arrayed Microenvironments (CAMs) for Highly Selective Cellular Activation and Screening”. *SLAS 2017,* Washington DC, January 2017
71. S Sharma, M FLOREN, W Tan, S Bryant. “Combinatorial Photoclickable Peptide Microarrays for High Throughput Screening of 3-D Cellular Microenvironments”. *Society for Biomaterials*,

Minneapolis, MN, April 5-8, 2017

72. Y DING, W Tan. “A 3D microtissue array platform for high content screening of vascular drugs”. *ASME - Summer Bioengineering Conference*, June 17-22, Tuscon, Arizona, 2017
73. Y DING, H YING, X Yin, W Tan. “Orthogonally Programmable Stiffness and Geometry in 3D Hydrogel Microstructures by Digital Projection Stereolithography”, *Society for Biomaterials*, Atlanta, GA, April 11-14, 2018

INVITED SEMINARS (Since 2013):

“Microphysiological Vascular Systems: New Platforms for Studying Vascular Regeneration and Remodeling.” University of Illinois at Chicago, March 2013

“Microphysiological Vascular Systems: New Platforms for Studying Vascular Regeneration and Vascular Remodeling.” Colorado State University, April 2013

“Engineered Vascular Systems: Towards Understanding of Vascular Regenerative or Pathogenic Processes.” University of Cincinnati, September 2013

“Engineered Vascular Systems: Towards Understanding of Vascular Processes.” University of Texas at A &M, December 2013

“Engineered Vascular Systems: Towards Understanding of Vascular Regenerative or Pathogenic Processes.” CVP conference, February 2014

“Engineering Microenvironments To Regulate Cell Fate for Vascular Therapy”, Southwest Jiaotong University, November 2016

“Engineering Microenvironments To Regulate Cell Fate for Vascular Therapy”, Sichuan University, November 2016

‘Engineering Microenvironments To Regulate Cell Fate for Vascular Therapy’, University of Arizona, June 2017

RESEARCH AND EDUCATIONAL SUPPORT

Current and Past Research Support

NIH – NHLBI 2R01 HL119371-06A1 Role: PI
Title: Synthetic Mesenchymal Stem Cell Niches for Vascular Therapy
9 /1/2019 – 7/31/2024

American Heart Association – 19TPA34850168 Role: PI
Title: Transformation Project - Precision PAH model for treatment evaluation
7/1/2019 – 6/30/2022

(PAST)

NIH (NIGMS) - Wyoming INBRE Role: Mentor (PI: Maysam Mousaviraad)
Title: Computational FSI Modeling for Heart Failure Treatment with Titin Manipulation
05/01/18 – 04/30/19

NIH – NHLBI R01 HL119371 Role: PI
Title: Synthetic Mesenchymal Stem Cell Niches for Vascular Therapy
8/01/13 – 6/30/19 (NCE)

The Children’s Hospital Fund Role: PI
Title: Mimetic Fontan Circulation for Improved Surgical Design

08/15/17 – 08/15/18

American Heart Association – 12GRNT16990019 Role: PI
Title: Stiffening-induced Pulmonary Vascular Remodeling
7/01/13– 6/30/15

NIH – NHLBI K25 HL097246 Role: PI
Title: Mechanisms of Microvascular Response to Arterial Stiffening and Flow Pulsatility
6/1/10 - 5/31/15

UCB Innovation Seed Grant Role: PI
Title: Novel Toolset Using Dynamic Nano-featured Substrata for Cell Mechanotransduction Study
7/1/14 – 6/30/16

International Atherosclerosis Society - IAS Fellowship Award Role: PI
Title: Niche Environments for Fate of Endothelial Progenitor Cells in Atherosclerotic Artery
5/01/16– 8/30/16

Bioscience Discovery Evaluation Grant Role: PI
Title: Multilayer bionanocomposite vascular graft: early and long-term access for dialysis access
8/1/09 – 8/24/12

Burroughs Welcome Fund (BWF), Collaborative Research Travel Award Role: PI
Title: Nanomaterial-based Endothelial Regeneration for Hemodialysis Vascular Access
1/01/12– 12/31/12

American Heart Association – Scientist Development Award Role: PI
Title: Effects of proximal pulmonary arterial stiffening on distal microvascular endothelial cell activation
7/01/09 - 6/30/10 (Funded for 4 years, but I chose to exit earlier because of the AHA policy on co-funding with NIH)

NSF – IDBR Role: co-PI/collaborator (PI: R. Jimenez)
Title: Collaborative Research: Development of a high speed cell mechanical property testing cytometer
5/1/09 - 5/1/10

DARPA Young Faculty Award Role: PI
Title: Highly Selective, Stable and Manufacturable Nano-Bio-Sensor
5/1/08 – 10/30/09

The Children's Hospital and Colorado Clinical Translational Science Institute Role: PI
Title: Pulmonary Arterial Stiffening in Pulmonary Hypertension: Implications for Improved Diagnostics and Therapeutics
1/1/09 – 6/1/10

Butcher Foundation Award Role: multi-PI with R. Jimenez
Title: Novel High-throughput cell sorter based on mechanical deformability
5/1/08 – 4/30/10

The Children's Hospital: Research Scholar Development Award Role: PI
Title: Shear stress effects on pulmonary circulation
12/1/07 – 5/31/09

DARPA iMINT Center Seed Grant Role: PI (co-PI: Y.C. Lee)
Title: Highly selective and highly sensitive CNT biosensor
4/1/07 – 5/30/08

Past Education Support

Funding: Engineering Excellence Fund – UCB Role: PI
Title: Delivery of the NCF to Engineering Education (4/1/07-3/30/08)

Funding: Engineering Excellence Fund – UCB Role:co-PI (PI: Virginia Ferguson)
Title: Integration of new mechanical engineering biolab into bioengineering curriculum (5/1/2006 - 4/30/2007)

TEACHING ACTIVITIES

Courses instructed or developed:

- MCEN 4228/ 5228, *Materials in Medicine*, 3 credits
  Spring 2007 (44 students), Spring 2008 (36 students), Spring 2009 (41 students), Spring 2011 (20 students), Fall 2012 (20 students), Fall 2013 (7 students), Fall 2014 (17 students), Fall 2016 (35 students), Fall 2017 (36 students), Fall 2018 (25 students), Fall 2019 (19 students), Spring 2021
- MCEN 4228/MCEN 5228, *3D Bioprinting & Biomanufacturing*, 3 credits
  Summer 2017 (10 students), Summer 2018 (6 students), Summer 2019 (9 students), Summer 2020 (16 students)
- MCEN 4117/MCEN 5117, *Quantitative Physiology for Engineers*, 3 credits
  Spring 2017 (35 students), Spring 2018 (10 students), Spring 2020 (25 students), Fall 2020
- MCEN 4228/ 5228, *Anatomy, Physiology & Artificial Organs,* 3 credits
  Spring 2012 (16 students), Spring 2013 (16 students)
- GEEN 1400, First-year Engineering Project. 3 credits, Spring 2021
- MCEN 1024, *Chemistry for Mechanical Engineers*, 3 credits, Spring 2018 (63 students)
- MCEN 5636, *Microelectromechanical Systems I (MEMS),* 3 credits, Spring 2006 (24 students)
- MCEN 3037, *Data Analysis,* 3 credits, Spring 2015 (29 students)
- MCEN 4037, *Measurements Lab 1,* 2 credits, Fall 2008 (49 students),
- MCEN 4047, *Measurements Lab 2,* 2 credits, Spring 2015 (51 students)
- Independent study (3 credit hr) on specific topics, related to *Cardiovascular Flow Mechanics* or *Tissue Engineering Scaffold Manufacturing* (For Graduate/G -level or Undergraduate/UG-level): Devon Scott (G, Fall 2009), Kristopher Tung (UG, Spring 2011), Robert Dugan (UG, Spring 2012), Cody Laws (UG, Spring 2012), Tyler Ding (UG, Spring 2015), Davis Benz (G, Spring 2015), Matthew Brochin (G, Spring 2018)

Courses taught in other schools:

- University of Illinois at Chicago, *Tissue Engineering Lab,* Fall 2010-2011
- Harbin Institute of Technology, *Microelectromechanical Systems (MEMS), 4 credits,* Winter 2017

Mentor to Postdoctoral Researcher, Visiting Scholar Trainees or Faculty Trainee (NIH)

- **Min Li** (PhD), 2007-2009, Postdoc Research topics in Vascular Mechanobiology
  Current position: Instructor, University of Colorado at Denver
- **Dongjie Guo** (PhD), 2009 -2010, Postdoc Research topics in Advanced Biomaterials and Biosensors

Current position: Professor, Zhengzhou University of Light Industry (China)

- **Naveen Nagiah** (PhD), 2014-2015, Postdoc Research topics in Grafts for Vascular Regeneration
  Current position: Scientist, Mayo Clinic
- **Yonghui Ding** (PhD), 2015 – 2018, Postdoc Research topics in HTP array for cardiovascular drug screening
  Current position: Research Assistant Professor, Northwest University
- **Mike Floren**, (PhD), 2016 – 2019, Postdoc Research topics in effect of mechanical properties of pulmonary artery in hypertensive conditions
  Current position: Senior Scientist, ALLOSOURCE INNOVATION CENTER
- **Zewei Tao** (MD/PhD), 2020, Postdoc
- **Yan Tan** (M.D/PhD), 2011-2013, Visiting Scholar Research topics in Vascular Mechanobiology.
- **Yajun Weng** (PhD), 2015 – 2016, Visiting Scholar Research topics in Chitosan Nanoparticles for controlled release of biomolecules for vascular grafts
- **Ansha Zhao**(PhD), 2016 – 2017, Visiting Scholar Research topics in Bio-functional Coatings for Cardiovascular Stents
- **Yanqiu Liu**, (PhD), 2016 – 2017, Visiting Scholar Research topics in Mechano-biology of endothelium under regenerative microenvironments
- **Maysam Mousaviraad,** (PhD, Assistant Professor at the University of Wyoming), 2018 – 2019 , Faculty Trainee in flow-structure interactions related to vascular diseases.

Principal PhD Dissertation Advisor to PhD Students

- **Devon Scott -Drechsel**, Jan 2007 – August 2010; *PhD Dissertation Project*: Effects of high flow pulsatility on vascular cell co-culture
  Current position: Principal Development Engineer, Covidien, Ltd. (Medtronic Minimally Invasive Therapies Group)
- **Walter Bonani**, Aug 2008 – May 2012; *PhD Dissertation Project*: A multicomponent bioactive tissue-engineered blood vessel
  Current position: Scientist, EU - Joint Research Centre
- **Kathryn Wingate**, Aug 2009 – Aug 2013; *PhD Dissertation Project*: Effects of material stiffness on vascular differentiation of mesenchymal stem cells
  Current position: Instructor, Department of Aerospace Engineering, University of Colorado at Boulder
- **Michael Floren**, Aug 2012 – Dec 2015; PhD Dissertation topic in Advanced biomaterials for high- throughput screening for stem cell differentiation niches
  Current position: Senior Scientist, ALLOSOURCE INNOVATION CENTER
- **Winston Elliott**, Aug 2011 – Jan 2017; PhD Dissertation topic in Vascular mechanobiology and regeneration
  Current position: Research Fellow at Brigham and Women's Hospital
- **Parnaz Boodagh**, July 2013 – Dec 2016; PhD Dissertation topic in Nanofibrous coating for pro- healing vascular stent
  Current position: Postdoc, Yale University
- **Krishna Madhavan**, Jan 2007 – Dec 2011; *PhD Dissertation Project*: Design and development of multilayer vascular graft
  Current position: Research Associate, University of Colorado at Denver
- **Michael Rafuse,** Aug 2015 - Present; PhD Dissertation topic in Vascular biomechanics

Master Thesis Advisor to M.S. Students

- **John Twomey**, MS student, Dec 05 - Dec 07; Thesis Title: Characterization of Nanocomposite Scaffolds Composed of Collagen and Functionalized Carbon Nanotubes for Tissue Engineering

Applications
Current position: *Medical Device Design and Consultant, Twomey Consulting*
Staff Development Engineer, Covidien Ltd.

- **Hang Yin** (co-advisee)**,** Aug 2015 – May 2017; MS student, Thesis Topic: Three-dimensional printing for microvascular engineering
  Current position: *Automation Engineer, Tamaki Control*
- **Monica Iglesias,** Aug 2016 – Dec 2018; MS student, Thesis topic: Coaxially Structured PEG-PCL Composite for Vascular Grafting
  Current position: *Engineer, TerumoBCT*

Mentors to Undergraduate Researchers (through UROP, SMART, HHMI, or other programs)

Christoper Rochne (2005-2006), Aaron Richman (2006-2007), Vadim Tsvanskin (2006-2007), Allen Ruan (2007), Dmitry Belcheko (2007-2008), Daniel Cohn, Robert Dugan, Cody Laws, Kristopher Tung, Daniel Cohn, Andrea Rolong, Anirudh Dharmarajan (2012-2013), Anna Iisa (2014-2015), Cristian DeLaCotera (2014), Roy Anderson (2015), Elsa Kelley (2015-2016), Cassidy Maly (2016-2018), Daniel Ho (2016-2018)

Student Honors and Accomplishments

- Roy Anderson, Honorable mentions, NSF graduate fellowship
- Mike Floren, Tony B. Academic Travel Award, Lab Automation 2017
- Yonghui Ding, Tony B. Academic Travel Award, Lab Automation 2015
- Kathryn Wingate, 2012 ARCS Scholarship, 2012 Graduate Summer Fellowship
- Krishna Madhavan, 2012 Graduate Fellowship, 2011 Graduate Summer Fellowship
- John Twomey, "Outstanding Undergraduate for Research" & "Outstanding Undergraduate", 2007
- Devon Scott, Lab Automation Conference Travel Award, 2007
- Aaron Richman, “HHMI Undergraduate Research Award”, 2006

SERVICES

Service to Scholarly or Professional Organizations

Editorial Service:

Newsletter Editor, American Society of Mechanical Engineering (ASME) - Bioengineering Division (BED) (2015 - 2018)
Associate Editor, “Frontiers in Bioengineering and Biotechnology” (2015 -)
Academic Editor, “Applied Bionics and Biomechanics” (2015 -)

Conference Organizer and Chair Services:

Organizing committee and chair, 15th U.S. National Congress on Theoretical and Applied Mechanics, 2006
Technical Committee member and Session Chair, IASTED-Biomechanics 2007
Co-Organizer & Chair, MRS workshop on Functionalized Nanobiomaterials for Medical Applications, 2010
Chair, “Biotransport” theme for *ASME-Bioengineering Conferences*, 2010-2013
Chair, “Mechanobiology” session on *BMES* Annual Meeting, *2013*
Organizer and Chair, “Mechanobiology for Biomaterials Design” Symposium, *Society For Biomaterials Annual Meeting & Exposition,* 2014
Chair, “Blood Vessel Tissue Engineering” and “Mechanics of Biomaterials” Sessions, BMES Annual Meeting 2014

Session chair in “Tissue and Cellular Engineering”, *ASME-Bioengineering Conferences*, 2011- 2017

Grant Review Service for funding agencies:

NIH study sections: ZRG1 SBIB-V (2009), ZHL1 CSR-P (2013), ZRG1 BST-T02 (2016), ZRG1 SBIB (20152016), BMBI (2017), ZHL1 CSR-I (2018)
NSF panels: BES (2005), CEBT (2007), SBIR/STIR Biomaterials(2010), SBIR/STTR, Tissue Engineering and Regenerative Medicine (2012-2017)
Other Funding Agencies: Kansas City Area Life Sciences Institute, Florida Department of Health, James and Esther King Biomedical Research Program, Bankhead-Coley Cancer Research Program

Service to Peer Review of Manuscripts or Conferences

Peer review of journal publications for: Hypertension, Tissue Engineering, Biomaterials, Biomacromolecules, Langmuir, Macromolecules, Materials Today, Integrated Biology, Journal of Biomechanical Engineering, Journal of Biomedical Materials Research, Biomechanics and Modeling in Mechanobiology, Cellular and Molecular Bioengineering, Acta Biomaterialia, Journal of Biomechanics, ASME-Bioengineering, BioInterfaces, Journal of Bioactive and Compatible Polymer, Sensor & Actuator, Biointerfaces, ACS Biomaterials etc.

Peer review of conference papers or abstracts for: ASME-Bioengineering, Society for Biomaterials, BMES Society

Service to the Department, College or University

Service to the Department:
Graduate Committee (2007-2008, 2013-2015, 2018-2019)
Faculty Search Committee (2009-2010, 2012-2013, 2014-2015, 2016-2017, 2019-2020)
Advisor to Undergraduates in the Biomechanical Engineering track (2010 - 2016)
Undergraduate Student Affairs Committee (2011- 2012, 2016-2017)
Undergraduate Scholarship Committee (2008 – Present)
Bioengineering Minor Task force (2014-2015)
Personnel Committee (2017-2018, 2019-2020)
Task force to initiate Bioengineering Program (2018-2019)

Service to the College and campus of CU-Boulder:
EPRC Committee (2020-)
Affiliated Member on the Material Science and Engineering Program (2013–)
IQ Biology Admissions Committee (2013–)
Search Committee for the Bioengineering position in EECS (2012–2013)
Task Force Member of Biofrontier Institute (2013–2016)

Service to the School of Medicine and the UCD campus:
Bioengineering Primary Unit - Tenure & Promotion Committee (2014 - 2015)
Member on the Vascular Initiative (2013 - 2017)
Fellow on the Translational Cardiovascular Biology (2005 - 2016)
Member on the Colorado Clinical and Translational Science Institute (mainly involved in reviewing proposals)