CURRICULUM VITAE: Joe Y. Tien

Boston University
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Born August 1, 1976, in Boston, MA

EDUCATION AND TRAINING

2019	Princeton University, Department of Chemical and Biological Engineering Visiting fellow (with Celeste M. Nelson)
2013	Columbia University Medical Center, Department of Orthopaedic Surgery Training course in microsurgery (with Yelena Akelina)
2008-2009	Princeton University, Department of Chemical Engineering Visiting fellow (with Celeste M. Nelson)
1999-2001	Johns Hopkins School of Medicine, Department of Biomedical Engineering Postdoctoral fellow (with Christopher S. Chen)
1993-1999	Harvard University Ph.D., physics (with George M. Whitesides) A.M., physics (1995)
1990-1993	University of California, Irvine B.S., physics, *summa cum laude* (with Gordon L. Shaw) B.S., mathematics, *summa cum laude*

PROFESSIONAL POSITIONS

2002-present	Boston University Affiliated faculty, Division of Materials Science and Engineering (2008-present) Associate Professor of Biomedical Engineering (tenured) (2008-present) Member, Program in Molecular Biology, Cell Biology, and Biochemistry (2003-present) Assistant Professor of Biomedical Engineering (2002-2008)

HONORS AND AWARDS

Boston University College of Engineering Award for Teaching Excellence (2018), Boston University College of Engineering Outstanding Professor of the Year (2013), NIH/NIBIB Edward C. Nagy New Investigator Award (2006), Boston University Provost's Innovation Award (2002-2003), NIH/NHLBI National Research Service Award (2001-2002), Johns Hopkins University Distinguished Postdoctoral Fellow (1999-2001), NSF Fellow (1993-1996), Sigma Xi (1993), UC Irvine Herbert H. Chen Award (1992), Barry Goldwater Fellow (1991-1993), UC Irvine Campuswide Honors Program (1990-1993), UC Regents Scholar (1990-1993), National Merit Scholar (1990), Tandy Technology Scholar (1990)

RESEARCH FOCUS

Microvascular tissue engineering; vascularization of biomaterials; quantitative physiology of engineered tissues; biomaterials for microsurgical applications; lymphatics; interstitial transport; inverse problems in vascular imaging; vascular biophysics; vessel-tissue interactions in cancer and obesity

PUBLICATIONS

70. Leggett, S.E., Brennan, M.C., Martinez, S., Tien, J. & Nelson, C.M., Relatively rare populations of invasive cells drive progression of heterogeneous tumors. *Cell. Mol. Bioeng.*, in press.

69. Tien, J. & Dance, Y.W. Protein-based microfluidic models for biomedical applications. In *Handbook of the Extracellular Matrix: Biologically-Derived Materials* (eds. Maia, F.R., Reis, R.L. & Oliveira, J.M.), pp. 17.1-17.28 (Springer, Berlin, 2023).

68. Dance, Y.W., Obenreder, M.C., Seibel, A.J., Meshulam, T., Ogony, J.W., Lahiri, N., Pacheco-Spann, L., Radisky, D.C., Layne, M.D., Farmer, S.R., Nelson, C.M. & Tien, J., Adipose cells induce escape from an engineered human breast microtumor independently of their obesity status. *Cell. Mol. Bioeng.* **16**, 23-39 (2023).

67. Seibel, A.J., Kelly, O.M., Dance, Y.W., Nelson, C.M. & Tien, J., Role of lymphatic endothelium in vascular escape of engineered human breast microtumors. *Cell. Mol. Bioeng.* **15**, 553-569 (2022).

66. Dance, Y.W., Meshulam, T., Seibel, A.J., Obenreder, M.C., Layne, M.D., Nelson, C.M. & Tien, J., Adipose stroma accelerates the invasion and escape of human breast cancer cells from an engineered microtumor. *Cell. Mol. Bioeng.* **15**, 15–29 (2022).

65. Tien, J. & Ghani, U. Methods for forming human lymphatic microvessels in vitro and assessing their drainage function. In *Biomedical Engineering Technologies, Volume 2 (Methods in Molecular Biology, vol. 2394)* (eds. Rasooly, A., Baker, H. & Ossandon, M.R.), pp. 651-668 (Humana Press, Totowa, NJ, 2022).

64. Tien, J., Dance, Y.W., Ghani, U., Seibel, A.J. & Nelson, C.M., Interstitial hypertension suppresses escape of human breast tumor cells via convection of interstitial fluid. *Cell. Mol. Bioeng.* **14**, 147-159 (2021).

63. Tien, J. & Dance, Y.W., Microfluidic biomaterials. *Adv. Healthcare Mater.* **10**, 2001028 (2021).

62. Rabie, E.M., Zhang, S.X., Kourouklis, A.P., Kilinc, A.N., Simi, A.K., Radisky, D.C., Tien, J. & Nelson, C.M., Matrix degradation and cell proliferation are coupled to promote invasion and escape from an engineered human breast microtumor. *Integr. Biol.* **13**, 17-29 (2021).

61. Tien, J., Li, X., Linville, R.M. & Feldman, E.J., Comparison of blind deconvolution- and Patlak analysis-based methods for determining vascular permeability. *Microvasc. Res.* **133**, 104102 (2021).

60. Tien, J., Ghani, U., Dance, Y.W., Seibel, A.J., Karakan, M.C., Ekinci, K.L. & Nelson, C.M., Matrix pore size governs escape of human breast cancer cells from a microtumor to an empty cavity. *iScience* **23**, 101673 (2020).

59. Li, X., Xu, J., Bartolák-Suki, E., Jiang, J. & Tien, J., Evaluation of 1-mm-diameter endothelialized dense collagen tubes in vascular microsurgery. *J. Biomed. Mater. Res. B* **108**, 2441–2449 (2020).

58. Tien, J., Tissue engineering of the microvasculature. *Compr. Physiol.* **9**, 1155-1212 (2019).

57. Li, X., Xia, J., Nicolescu, C.T., Massidda, M.W., Ryan, T.J. & Tien, J., Engineering of

microscale vascularized fat that responds to perfusion with lipoactive hormones. *Biofabrication* **11**, 014101 (2019).

56. Thompson, R.L., Margolis, E.A., Ryan, T.J., Coisman, B.J., Price, G.M., Wong, K.H.K. & Tien, J., Design principles for lymphatic drainage of fluid and solutes from collagen scaffolds. *J. Biomed. Mater. Res. A* **106**, 106-114 (2018).

55. Li, X., Xu, J., Nicolescu, C.T., Marinelli, J.T. & Tien, J., Generation, endothelialization, and microsurgical suture anastomosis of strong 1-mm-diameter collagen tubes. *Tissue Eng. A* **23**, 335-344 (2017).

54. Piotrowski-Daspit, A.S., Simi, A.K., Pang, M.-F., Tien, J. & Nelson, C.M. A three-dimensional culture model to study how fluid pressure and flow affect the behavior of aggregates of epithelial cells. In *Mammary Gland Development (Methods in Molecular Biology, vol. 1501)* (eds. Martin, F., Stein, T. & Howlin, J.), pp. 245-257 (Humana Press, New York, NY, 2017).

53. Piotrowski-Daspit, A.S., Tien, J. & Nelson, C.M., Interstitial fluid pressure regulates collective invasion in engineered human breast tumors *via* Snail, vimentin, and E-cadherin. *Integr. Biol.* **8**, 319-331 (2016).

52. Linville, R.M., Boland, N.F., Covarrubias, G., Price, G.M. & Tien, J., Physical and chemical signals that promote vascularization of capillary-scale channels. *Cell. Mol. Bioeng.* **9**, 73-84 (2016).

51. Tien, J., Li, L., Ozsun, O. & Ekinci, K.L., Dynamics of interstitial fluid pressure in extracellular matrix hydrogels in microfluidic devices. *J. Biomech. Eng.* **137**, 091009 (2015).

50. Ozsun, O., Thompson, R.L., Ekinci, K.L. & Tien, J., Non-invasive mapping of interstitial fluid pressure in microscale tissues. *Integr. Biol.* **6**, 979-987 (2014).

49. Tien, J., Microfluidic approaches for engineering vasculature. *Curr. Opin. Chem. Eng.* **3**, 36-41 (2014).

48. Chan, K.L.S., Khankhel, A.H., Thompson, R.L., Coisman, B.J., Wong, K.H.K., Truslow, J.G. & Tien, J., Crosslinking of collagen scaffolds promotes blood and lymphatic vascular stability. *J. Biomed. Mater. Res. A* **102**, 3186-3195 (2014).

47. Tien, J. & Nelson, C.M., Microstructured extracellular matrices in tissue engineering and development, an update. *Ann. Biomed. Eng.* **42**, 1413-1423 (2014).

46. Wong, K.H.K., Truslow, J.G., Khankhel, A.H. & Tien, J. Biophysical mechanisms that govern the vascularization of microfluidic scaffolds. In *Vascularization: Regenerative Medicine and Tissue Engineering* (ed. Brey, E.M.), pp. 109-124 (CRC Press, Boca Raton, FL, 2014).

45. Truslow, J.G. & Tien, J., Determination of vascular permeability coefficients under slow lumenal filling. *Microvasc. Res.* **90**, 117-120 (2013).

44. Wong, K.H.K., Truslow, J.G., Khankhel, A.H., Chan, K.L.S. & Tien, J., Artificial lymphatic drainage systems for vascularized microfluidic scaffolds. *J. Biomed. Mater. Res. A* **101**, 2181-2190 (2013).

43. Tien, J., Wong, K.H.K. & Truslow, J.G. Vascularization of microfluidic hydrogels. In *Microfluidic Cell Culture Systems* (eds. Bettinger, C.J., Borenstein, J.T. & Tao, S.L.), pp. 205-221 (Elsevier, Oxford, U.K., 2013).

42. Tien, J., Truslow, J.G. & Nelson, C.M., Modulation of invasive phenotype by interstitial pressure-driven convection in aggregates of human breast cancer cells. *PLoS One* **7**, e45191 (2012).

41. Leung, A.D., Wong, K.H.K. & Tien, J., Plasma expanders stabilize human microvessels in microfluidic scaffolds. *J. Biomed. Mater. Res. A* **100**, 1815–1822 (2012).

40. Wong, K.H.K., Chan, J.M., Kamm, R.D. & Tien, J., Microfluidic models of vascular functions. *Annu. Rev. Biomed. Eng.* **14**, 205–230 (2012).

39. Truslow, J.G. & Tien, J., Perfusion systems that minimize vascular volume fraction in engineered tissues. *Biomicrofluidics* **5**, 022201 (2011).

38. Price, G.M. & Tien, J. Methods for forming human microvascular tubes in vitro and measuring their macromolecular permeability. In *Biological Microarrays (Methods in Molecular Biology, vol. 671)* (eds. Khademhosseini, A., Suh, K.-Y. & Zourob, M.), pp. 281-293 (Humana Press, Totowa, NJ, 2011).

37. Price, G.M., Wong, K.H.K., Truslow, J.G., Leung, A.D., Acharya, C. & Tien, J., Effect of mechanical factors on the function of engineered human blood microvessels in microfluidic collagen gels. *Biomaterials* **31**, 6182-6189 (2010).

36. Wong, K.H.K., Truslow, J.G. & Tien, J., The role of cyclic AMP in normalizing the function of engineered human blood microvessels in microfluidic collagen gels. *Biomaterials* **31**, 4706-4714 (2010).

35. Truslow, J.G., Price, G.M. & Tien, J., Computational design of drainage systems for vascularized scaffolds. *Biomaterials* **30**, 4435-4443 (2009).

34. Price, G.M. & Tien, J. Subtractive methods for forming microfluidic gels of extracellular matrix proteins. In *Microdevices in Biology and Engineering* (eds. Bhatia, S.N. & Nahmias, Y.), pp. 235-248 (Artech House, Boston, MA, 2009).

33. Price, G.M., Chu, K.K., Truslow, J.G., Tang-Schomer, M.D., Golden, A.P., Mertz, J. & Tien, J., Bonding of macromolecular hydrogels using perturbants. *J. Am. Chem. Soc.* **130**, 6664-6665 (2008).

32. Price, G.M., Chrobak, K.M. & Tien, J., Effect of cyclic AMP on barrier function of human lymphatic microvascular tubes. *Microvasc. Res.* **76**, 46-51 (2008).

31. Golden, A.P. & Tien, J., Fabrication of microfluidic hydrogels using molded gelatin as a sacrificial element. *Lab Chip* **7**, 720-725 (2007).

30. Nelson, C.M. & Tien, J., Microstructured extracellular matrices in tissue engineering and development. *Curr. Opin. Biotechnol.* **17**, 518-523 (2006).

29. Chrobak, K.M., Potter, D.R. & Tien, J., Formation of perfused, functional microvascular tubes in vitro. *Microvasc. Res.* **71**, 185-196 (2006).

28. Tien, J., Golden, A.P. & Tang, M.D. Engineering of blood vessels. In *Microvascular Research: Biology and Pathology*, Vol. 2 (eds. Shepro, D. & D'Amore, P.A.), pp. 1087-1093 (Elsevier Academic Press, San Diego, CA, 2006).

27. Tang, M.D., Golden, A.P. & Tien, J., Fabrication of collagen gels that contain patterned, micrometer-scale cavities. *Adv. Mater.* **16**, 1345-1348 (2004).

26. Gray, D.S., Tien, J. & Chen, C.S., High conductivity elastomeric electronics. *Adv. Mater.* **16**, 393-397 (2004).

25. Chen, C.S., Tan, J.L. & Tien, J., Mechanotransduction at cell-matrix and cell-cell contacts. *Annu. Rev. Biomed. Eng.* **6**, 275-302 (2004).

24. Tang, M.D., Golden, A.P. & Tien, J., Molding of three-dimensional microstructures of gels. *J. Am. Chem. Soc.* **125**, 12988-12989 (2003).

23. Gray, D.S., Tien, J. & Chen, C.S., Repositioning of cells by mechanotaxis on surfaces with micropatterned Young's modulus. *J. Biomed. Mater. Res. A* **66**, 605-614 (2003).

22. Tan, J.L., Tien, J., Pirone, D.M., Gray, D.S., Bhadriraju, K. & Chen, C.S., Cells lying on a bed of microneedles: an approach to isolate mechanical force. *Proc. Natl. Acad. Sci. USA* **100**, 1484-1489 (2003).

21. Clark, T.D., Ferigno, R., Tien, J., Paul, K.E. & Whitesides, G.M., Template-directed self-assembly of 10-μm-sized hexagonal plates. *J. Am. Chem. Soc.* **124**, 5419-5426 (2002).

20. Tien, J., Nelson, C.M. & Chen, C.S., Fabrication of aligned microstructures with a single elastomeric stamp. *Proc. Natl. Acad. Sci. USA* **99**, 1758-1762 (2002).

19. Tien, J. & Chen, C.S., Patterning the cellular microenvironment. *IEEE Eng. Med. Biol.* **21**, 95-98 (2002).

18. Tan, J.L., Tien, J. & Chen, C.S., Microcontact printing of proteins on mixed self-assembled monolayers. *Langmuir* **18**, 519-523 (2002).

17. Tien, J. & Chen, C.S. Microarrays of cells. In *Methods of Tissue Engineering* (eds. Atala, A. & Lanza, R.), pp. 113-120 (Academic Press, San Diego, CA, 2001).

16. Bowden, N., Tien, J., Huck, W.T.S. & Whitesides, G.M. Mesoscale self-assembly: the assembly of micron- and millimeter-sized objects using capillary forces. In *Supramolecular Organization and Materials Design* (eds. Jones, W. & Rao, C.N.R.), pp. 103-145 (Cambridge University Press, New York, NY, 2001).

15. Clark, T.D., Tien, J., Duffy, D.C., Paul, K.E. & Whitesides, G.M., Self-assembly of 10-μm-sized objects into ordered three-dimensional arrays. *J. Am. Chem. Soc.* **123**, 7677-7682 (2001).

14. Gracias, D.H., Tien, J., Breen, T.L., Hsu, C. & Whitesides, G.M., Forming electrical networks in three dimensions by self-assembly. *Science* **289**, 1170-1172 (2000).

13. Dike, L.E., Chen, C.S., Mrksich, M., Tien, J., Whitesides, G.M. & Ingber, D.E., Geometric control of switching between growth, apoptosis, and differentiation during angiogenesis using micropatterned substrates. *In Vitro Cell. Dev. Biol. Anim.* **35**, 441-448 (1999).

12. Deng, T., Tien, J., Xu, B. & Whitesides, G.M., Using patterns in microfiche as photomasks in 10-μm-scale microfabrication. *Langmuir* **15**, 6575-6581 (1999).

11. Breen, T.L., Tien, J., Oliver, S.R.J., Hadzic, T. & Whitesides, G.M., Design and self-assembly of open, regular, 3D mesostructures. *Science* **284**, 948-951 (1999).

10. Lahiri, J., Isaacs, L., Tien, J. & Whitesides, G.M., A strategy for the generation of surfaces presenting ligands for studies of binding based on an active ester as a common reactive intermediate. *Anal. Chem.* **71**, 777-790 (1999).

9. Tien, J., Breen, T.L. & Whitesides, G.M., Crystallization of millimeter-scale objects with use of capillary forces. *J. Am. Chem. Soc.* **120**, 12670-12671 (1998).

8. Huck, W.T.S., Tien, J. & Whitesides, G.M., Three-dimensional mesoscale self-assembly. *J. Am. Chem. Soc.* **120**, 8267-8268 (1998).

7. Marzolin, C., Terfort, A., Tien, J. & Whitesides, G.M., Patterning of a polysiloxane precursor to silicate glasses by microcontact printing. *Thin Solid Films* **315**, 9-12 (1998).

6. Tien, J., Xia, Y. & Whitesides, G.M. Microcontact printing of SAMs. In *Self-Assembled Monolayers of Thiols*, Vol. 24 (ed. Ulman, A.), pp. 227-254 (Academic Press, San Diego, CA, 1998).

5. Xia, Y., Venkateswaran, N., Qin, D., Tien, J. & Whitesides, G.M., Use of electroless silver as the substrate in microcontact printing of alkanethiols and its application in microfabrication. *Langmuir* **14**, 363-371 (1998).

4. Mrksich, M., Dike, L.E., Tien, J., Ingber, D.E. & Whitesides, G.M., Using microcontact printing to pattern the attachment of mammalian cells to self-assembled monolayers of alkanethiolates on transparent films of gold and silver. *Exp. Cell Res.* **235**, 305-313 (1997).

3. Tien, J., Terfort, A. & Whitesides, G.M., Microfabrication through electrostatic self-assembly. *Langmuir* **13**, 5349-5355 (1997).

2. Xia, Y., Tien, J., Qin, D. & Whitesides, G.M., Non-photolithographic methods for fabrication of elastomeric stamps for use in microcontact printing. *Langmuir* **12**, 4033-4038 (1996).

1. Shaw, G.L. & Tien, J., Energy levels of quark atoms. *Phys. Rev. D* **47,** 5075-5078 (1993).

SEMINARS AND PRESENTED PAPERS

I. Invited seminars

55. "Engineering perfusable human adipose-on-a-chip systems", Boston University School of Medicine, Boston Nutrition Obesity Research Center Adipose and Metabolic Tissues Seminar Series (Boston, MA; 2022)

54. "Engineering vascularized, perfused tissues with microfluidic biomaterials", 2019 Diabetic Lower Extremity Symposium (Boston, MA; 2019)

53. "Interstitial mechanics in human microphysiological systems", Massachusetts Institute of Technology, Department of Mechanical Engineering (Cambridge, MA; 2019)

52. "Microfluidic vascularization", Boston University, Research on Tap series (Boston, MA; 2018)

51. "Physical approaches to vascularization of biomaterials", 5th Annual Workshop on Micro- and Nanotechnologies for Medicine: Emerging Frontiers and Applications (Cambridge, MA; 2017)

50. "Physical approaches to vascularization of biomaterials", Princeton University, Department of Mechanical and Aerospace Engineering (Princeton, NJ; 2017)

49. "Vascularization of micropatterned scaffolds", 3rd Annual Workshop on Micro- and Nanotechnologies for Medicine: Emerging Frontiers and Applications (Cambridge, MA; 2015)

48. "Physical principles that govern vascularization of scaffolds", Experimental Biology 2015 Meeting (Boston, MA; 2015)

47. "How interstitial pressure affects the behavior of microscale tissues", Harvard Medical School and Massachusetts General Hospital, Center for Engineering in Medicine (Boston, MA; 2014)

46. "Mechanics of vascularization", Princeton University, Department of Chemical and Biological Engineering (Princeton, NJ; 2014)

45. "Mechanics of vascularization", Boston University, Department of Biomedical Engineering (Boston, MA; 2013)

44. "Microfluidic approaches to vascularization", Johns Hopkins University, Department of Materials Science and Engineering (Baltimore, MD; 2013)

43. "Microfluidic approaches to vascularization", National Science Foundation workshop on Micro- and Nanotechnologies for Medicine: Emerging Frontiers and Applications (Cambridge, MA; 2013)

42. "Physical principles that govern vascularization of scaffolds", Harvard University, School of Engineering and Applied Sciences (Cambridge, MA; 2013)
41. "Vascularization of microfluidic hydrogels", Brandeis University, Department of Chemistry (Waltham, MA; 2013)
40. "Biophysical mechanisms underlying vascularization of micropatterned biomaterials", ASME 2nd Global Congress on Nanoengineering for Medicine and Biology (Boston, MA; 2013)
39. "Physical principles that govern vascularization of scaffolds", New Jersey Institute of Technology, Department of Biomedical Engineering (Newark, NJ; 2013)
38. "Physical principles that govern vascularization of scaffolds", Brigham & Women's Hospital, Department of Pathology, Vascular Research Division (Boston, MA, 2012)
37. "Functional vascularization of microfluidic scaffolds", New Jersey Institute of Technology, Department of Biomedical Engineering (Newark, NJ; 2011)
36. "Scaffolds and mechanics as mediators of angiogenesis", 13th Annual Boston Angiogenesis Meeting (Cambridge, MA; 2011)
35. "Functional vascularization of microfluidic scaffolds", 33rd Annual International Conference of the Engineering in Medicine and Biology Society (Boston, MA; 2011)
34. "Engineering functional human microvessels in vitro", Gordon Research Conference on Signal Transduction by Engineered Extracellular Matrices (Biddeford, ME; 2010)
33. "Engineering functional human microvessels in vitro", Rensselaer Polytechnic Institute, Department of Biomedical Engineering (Troy, NY; 2010)
32. "Engineering functional human microvessels in vitro", Princeton University, Department of Chemical Engineering (Princeton, NJ; 2009)
31. "Engineering functional human microvessels in vitro", Harvard University, School of Engineering and Applied Sciences (Cambridge, MA; 2009)
30. "Vascularization of microfluidic type I collagen gels", Tissue Engineering and Regenerative Medicine International Society (TERMIS) 2008 Annual Conference (San Diego, CA; 2008)
29. "Engineering functional human microvessels in vitro", University at Buffalo, Department of Chemical and Biological Engineering (Buffalo, NY; 2008)
28. "Microfluidic gels for microvascular tissue engineering", Center for Integration of Medicine and Innovative Technology (CIMIT) Summer Education Series (Boston, MA; 2008)
27. "Microfluidic gels for microvascular tissue engineering", Rutgers University, Department of Chemistry and Chemical Biology (New Brunswick, NJ; 2008)
26. "Engineering functional human microvessels in vitro", University of Virginia, Department of Biomedical Engineering (Charlottesville, VA; 2008)
25. "Engineering functional human microvessels in vitro", University of California, Irvine, Department of Biomedical Engineering (Irvine, CA; 2008)
24. "Engineering functional human microvessels in vitro", City College of New York, Department of Biomedical Engineering (New York, NY; 2008)
23. "Engineering functional human microvessels in vitro", Harvard Medical School and Massachusetts General Hospital, Center for Engineering in Medicine (Boston, MA; 2008)
22. "Engineering functional human microvessels in vitro", Rutgers University, Department of

Biomedical Engineering (New Brunswick, NJ; 2008)

21. "Microstructured gels for microvascular tissue engineering", University of Massachusetts, Lowell, Center for Nanomanufacturing Research (Lowell, MA; 2008)
20. "Engineering functional microvessels in vitro", Biomedical Engineering Society 2007 Annual Meeting, Session on "Vascular Tissue Engineering" (Los Angeles, CA; 2007)
19. "Experiences of young investigators at the interface of life and physical sciences", National Institutes of Health/National Institute of Biomedical Imaging and Bioengineering 5th Anniversary Symposium, Nagy Awardees Panel (Bethesda, MD; 2007)
18. "Microstructured gels for microvascular tissue engineering", University of Washington, Center for Nanotechnology (Seattle, WA; 2007)
17. "Engineering functional microvessels in vitro", Experimental Biology 2007 Annual Meeting, Symposium on "Engineering Vascular Cell Function using Nanoscale Cues" (Washington, DC; 2007)
16. "Engineering functional microvessels in vitro", Boston University, Department of Biomedical Engineering (Boston, MA; 2007)
15. "Engineering functional microvessels in vitro", Yale University School of Medicine, Program in Vascular Biology and Transplantation (New Haven, CT; 2007)
14. "Engineering functional microvessels in vitro", University of Virginia, Department of Biomedical Engineering (Charlottesville, VA; 2007)
13. "Engineering functional microvessels in vitro", University of Pennsylvania, Department of Bioengineering (Philadelphia, PA; 2006)
12. "Microstructured gels for microvascular tissue engineering", Roger Williams Medical Center, Department of Dermatology & Skin Surgery (Providence, RI; 2006)
11. "Engineering functional microvessels in vitro", 28th Annual International Conference of the Engineering in Medicine and Biology Society (New York, NY; 2006)
10. "Engineering functional microvessels in vitro", Gordon Research Conference on Endothelial Cell Phenotypes in Health and Disease (Biddeford, ME; 2006)
9. "Microvascular tissue engineering", Louisiana Tech University, Biomedical Engineering Program (Shreveport, LA; 2006)
8. "Microvascular tissue engineering", Center for Integration of Medicine and Innovative Technology (CIMIT) Forum (Boston, MA; 2006)
7. "3D gels for microvascular tissue engineering", University of Windsor, Department of Chemistry (Windsor, ON; 2006)
6. "In vitro synthesis of a microvascular network", National Institutes of Health/National Institute of Biomedical Imaging and Bioengineering Grantees Meeting (Bethesda, MD; 2005)
5. Boston University Medical Center, Pulmonary Section (Boston, MA; 2004)
4. Boston University Medical Center, Rheumatology Section (Boston, MA; 2004)
3. "In vitro synthesis of a microvascular network", National Institutes of Health/National Institute of Biomedical Imaging and Bioengineering Grantees Meeting (Bethesda, MD; 2004)
2. Harvard Medical School and Massachusetts General Hospital, Center for Engineering in Medicine (Boston, MA; 2002)

1. Boston University, Department of Chemistry (Boston, MA; 2002)

II. Conference abstracts (presenting authors underlined)

85. Leggett, S., Wong, I., Nelson, C., Brennan, M., Patel, M., Franck, C., Martinez, S., Tien, J., Gamboa, L., Valentin, T., Khoo, A. & Williams, E.K., "Deciphering tumor heterogeneity in triple-negative breast cancer: the crucial role of dynamic cell-cell and cell-matrix interactions" [abstract], American Physical Society March Meeting (Minneapolis, MN; 2024, planned).

84. Seibel, A.J., Kelly, O.M., Dance, Y.W. & Tien, J., "Improving the stability of engineered lymphatic vessels under fluid-draining conditions" [poster], 49th Annual Northeast Bioengineering Conference (Philadelphia, PA; 2023).

83. Dance, Y.W., Obenreder, M.C., Seibel, A.J., Meshulam, T., Ogony, J.W., Lahiri, N., Radisky, D.C., Layne, M.D., Farmer, S.R., Nelson, C.M. & Tien, J., "An engineered 3D microfluidic model to assess how adipocyte hypertrophy alters breast cancer escape" [poster], Biomedical Engineering Society 2022 Annual Meeting (San Antonio, TX; 2022).

82. Seibel, A.J., Kelly, O.M., Dance, Y.W., Nelson, C.M. & Tien, J., "Tumor cells ablate lymphatic endothelium during vascular escape of engineered breast microtumors" [poster], Biomedical Engineering Society 2022 Annual Meeting (San Antonio, TX; 2022).

81. Seibel, A.J., Kelly, O.M., Dance, Y.W., Nelson, C.M. & Tien, J., "Lymphatic endothelium slows invasion and vascular escape of engineered human breast microtumors" [poster], National Institutes of Health/National Cancer Institute Cancer Tissue Engineering Collaborative Investigators Meeting (Madison, WI; 2022).

80. Seibel, A.J., Kelly, O.M., Dance, Y.W., Nelson, C.M. & Tien, J., "Role of lymphatic endothelium in vascular escape of engineered human breast microtumors" [poster], 48th Annual Northeast Bioengineering Conference (New York, NY; 2022).

79. Dance, Y.W., Obenreder, M.C., Seibel, A.J., Meshulam, T., Ogony, J.W., Radisky, D.C., Layne, M.D., Nelson, C.M. & Tien, J., "Escape of human breast cancer cells through a 3D adipose stroma derived from lean or obese donors" [poster], 48th Annual Northeast Bioengineering Conference (New York, NY; 2022).

78. Seibel, A.J., Kelly, O.M., Dance, Y.W., Nelson, C.M. & Tien, J., "Lymphovascular escape of engineered human breast microtumors" [talk], Biomedical Engineering Society 2021 Annual Meeting (Orlando, FL; 2021).

77. Dance, Y.W., Obenreder, M.C., Seibel, A.J., Ogony, J.W., Meshulam, T., Radisky, D.C., Nelson, C.M. & Tien, J., "How obesity affects human breast cancer cell invasion and escape in a 3D microfluidic model" [talk], Biomedical Engineering Society 2021 Annual Meeting (Orlando, FL; 2021).

76. Tien, J., Nelson, C.M., Radisky, D.C., Ekinci, K.L. & Nassar, A., "Engineering invasive human breast tumors with integrated capillaries and lymphatics" [poster], National Institutes of Health/National Cancer Institute Physical Sciences-Oncology Network Annual Investigators Meeting (virtual; 2021).

75. Tien, J., Nelson, C.M., Radisky, D.C., Ekinci, K.L. & Nassar, A., "Engineering invasive human breast tumors with integrated capillaries and lymphatics" [talk], National Institutes of Health/National Cancer Institute Cancer Tissue Engineering Collaborative Investigators Meeting (virtual; 2021).

74. Dance, Y.W., Obenreder, M.C., Seibel, A.J., Ogony, J.W., Meshulam, T., Radisky, D.C., Nelson,

C.M. & Tien, J., "How the obesity-associated microenvironment affects invasion and escape of engineered human breast microtumors" [poster], National Institutes of Health/National Cancer Institute Cancer Tissue Engineering Collaborative Investigators Meeting (virtual; 2021).

73. Seibel, A.J., Kelly, O.M., Dance, Y.W., Nelson, C.M. & Tien, J., "Lymphatic endothelium slows tumor progression in a tissue-engineered model of human breast cancer" [poster], National Institutes of Health/National Cancer Institute Cancer Tissue Engineering Collaborative Investigators Meeting (virtual; 2021).

72. Seibel, A.J., Dance, Y.W., Kelly, O.M., Nelson, C.M. & Tien, J., "Lymphovascular escape of human breast microtumors" [poster], 47th Annual Northeast Bioengineering Conference (virtual; 2021).

71. Dance, Y.W., Meshulam, T., Seibel, A.J., Obenreder, M.C., Layne, M.D., Nelson, C.M. & Tien, J., "Invasion and escape of human breast cancer cells through an adipose stroma" [poster], 47th Annual Northeast Bioengineering Conference (virtual; 2021).

70. Dance, Y.W., Meshulam, T., Ghani, U., Parikh, N., Nelson, C.M. & Tien, J., "A 3D microfluidic model of human breast tumor invasion and escape through fibro-fatty stroma" [poster], Biomedical Engineering Society 2020 Annual Meeting (virtual; 2020).

69. Dance, Y.W., Meshulam, T., Ghani, U., Parikh, N., Nelson, C.M. & Tien, J., "A 3D microfluidic model of human breast tumor invasion and escape through adipose stroma" [poster], National Institutes of Health/National Cancer Institute Physical Sciences-Oncology Network Annual Investigators Meeting (virtual; 2020).

68. Tien, J., Nelson, C.M., Radisky, D.C., Ekinci, K.L. & Nassar, A., "Engineering invasive human breast tumors with integrated capillaries and lymphatics" [poster], National Institutes of Health/National Cancer Institute Physical Sciences-Oncology Network Annual Investigators Meeting (virtual; 2020).

67. Nelson, C.M., Ghani, U., Dance, Y.W. & Tien, J., "Interstitial fluid pressure controls invasion and escape of metastatic human breast cancer cells" [talk], Biomedical Engineering Society 2019 Annual Meeting (Philadelphia, PA; 2019).

66. Ghani, U., Dance, Y.W., Nelson, C.M. & Tien, J., "Effect of matrix concentration on breast cancer cell escape from a microtumor into an empty cavity" [poster], Biomedical Engineering Society 2019 Annual Meeting (Philadelphia, PA; 2019).

65. Dance, Y.W., Nelson, C.M. & Tien, J., "A 3D breast tumor-on-a-chip for analysis of tumor cell escape under flow" [poster], Biomedical Engineering Society 2019 Annual Meeting (Philadelphia, PA; 2019).

64. Tien, J., Nelson, C.M., Radisky, D.C., Ekinci, K.L. & Nassar, A., "Engineering invasive human breast tumors with integrated capillaries and lymphatics" [poster], National Institutes of Health/National Cancer Institute Physical Sciences-Oncology Network Annual Investigators Meeting (Minneapolis, MN; 2019).

63. Tien, J., Ghani, U., Dance, Y.W. & Nelson, C.M., "Interstitial hypertension suppresses escape in human breast tumors" [poster & talk], National Institutes of Health/National Cancer Institute Cancer Tissue Engineering Collaborative Investigators Meeting (Cambridge, MA; 2019).

62. Ghani, U., Dance, Y.W., Nelson, C.M. & Tien, J., "Matrix concentration affects the rate at which breast cancer cells escape from an engineered microtumor into a cavity" [poster], National Institutes of Health/National Cancer Institute Cancer Tissue Engineering Collaborative Investigators Meeting (Cambridge, MA; 2019).

61. Rabie, E.M., Zhang, S.X., Kourouklis, A.P., Kilinc, A.N., Tien, J. & Nelson, C.M., "Matrix

remodeling is required for invasion and escape from an engineered human breast microtumor" [poster], National Institutes of Health/National Cancer Institute Cancer Tissue Engineering Collaborative Investigators Meeting (Cambridge, MA; 2019).

60. Kourouklis, A.P., Ghani, U., Han, S., Dance, Y., Simi, A.K., Tien, J. & Nelson, C.M., "Tumor invasion and escape from an engineered solid-like aggregate of human breast cancer cells into a cavity" [talk], American Association for Cancer Research 2019 Annual Meeting (Atlanta, GA; 2019).

59. Ghani, U., Simi, A.K., Kourouklis, A.P., Han, S., Margolis, E.A., Nelson, C.M. & Tien, J., "*In vitro* model of invasion and intravasation from a solid breast tumor into a micro-lymphatic vessel" [poster], Biomedical Engineering Society 2018 Annual Meeting (Atlanta, GA; 2018).

58. Ghani, U., Liu, C. & Tien, J., "Formation of epithelial tubes from human mammary epithelial cell lines" [poster], Biomedical Engineering Society 2018 Annual Meeting (Atlanta, GA; 2018).

57. Li, X., Nicolescu, C.T., Massidda, M.W., Xia, J., Ryan, T.J. & Tien, J., "Engineering small-scale perfused vascularized adipose tissues" [poster], Biomedical Engineering Society 2018 Annual Meeting (Atlanta, GA; 2018).

56. Li, X., Xu, J., Bartolák-Suki, E., Jiang, J. & Tien, J., "In vivo evaluation of endothelialized dense collagen tubes as interpositional vascular grafts" [poster], Biomedical Engineering Society 2018 Annual Meeting (Atlanta, GA; 2018).

55. Margolis, E.A., Chua, C.M. & Tien, J., "How lymphatic endothelial conductivity depends on transendothelial flow conditions and substrate stiffness" [talk], Biomedical Engineering Society 2018 Annual Meeting (Atlanta, GA; 2018).

54. Tien, J., Nelson, C.M., Radisky, D.C., Ekinci, K.L. & Nassar, A., "Engineering invasive human breast tumors with integrated capillaries and lymphatics" [poster & talk], National Institutes of Health/National Cancer Institute Physical Sciences-Oncology Network Annual Investigators Meeting (Bethesda, MD; 2018).

53. Kourouklis, A.P., Han, S., Simi, A.K., Tien, J. & Nelson, C.M., "Interstitial fluid pressure signals through YAP to direct invasion of engineered human breast tumors" [poster], National Institutes of Health/National Cancer Institute Physical Sciences-Oncology Network Annual Investigators Meeting (Bethesda, MD; 2018).

52. Ghani, U., Simi, A.K., Kourouklis, A.P., Han, S., Margolis, E.A., Nelson, C.M. & Tien, J., "A model of invasion and intravasation from a solid breast tumor into a micro-lymphatic vessel" [poster], National Institutes of Health/National Cancer Institute Physical Sciences-Oncology Network Annual Investigators Meeting (Bethesda, MD; 2018).

51. Kourouklis, A.P., Simi, A.K., Piotrowski-Daspit, A.S., Tien, J. & Nelson, C.M., "The relationship between interstitial fluid pressure, collective invasion and YAP activation in engineered human breast tumors" [poster], American Association for Cancer Research 2018 Annual Meeting (Chicago, IL; 2018).

50. Simi, A.K., Kourouklis, A.P., Piotrowski-Daspit, A.S., Tien, J. & Nelson, C.M., "The role of pressure-driven flow in invasion and chemoresistance of cancer cells in an engineered breast tumor model" [poster], American Association for Cancer Research 2018 Annual Meeting (Chicago, IL; 2018).

49. Li, X., Nicolescu, C.T., Massidda, M.W., Xia, J., Ryan, T.J. & Tien, J., "Response of engineered fat to perfusion with lipoactive hormones" [poster], 44th Annual Northeast Bioengineering Conference (Philadelphia, PA; 2018).

48. Margolis, E.A., Chua, C.M. & Tien, J., "A constitutive flow relation for lymphatic endothelium"

[poster], 62nd Annual Meeting of the Biophysical Society (San Francisco, CA; 2018).

47. Tien, J., Nelson, C.M., Radisky, D.C., Ekinci, K.L. & Nassar, A., "Engineering invasive human breast tumors with integrated capillaries and lymphatics" [poster], National Institutes of Health/National Cancer Institute Physical Sciences-Oncology Network Annual Investigators Meeting (Cambridge, MA; 2017).

46. Tien, J., Thompson, R.L., Margolis, E.A., Ryan, T.J., Coisman, B.J., Price, G.M. & Wong, K.H.K., "How endothelialization enhances solute drainage in engineered lymphatics" [talk], Biomedical Engineering Society 2017 Annual Meeting (Phoenix, AZ; 2017).

45. Li, X., Ryan, T.J., Nicolescu, C.T., Massidda, M.W. & Tien, J., "Engineering microscale, perfused vascularized fat in vitro" [talk], Biomedical Engineering Society 2017 Annual Meeting (Phoenix, AZ; 2017).

44. Li, X., Xu, J., Nicolescu, C.T., Marinelli, J.T. & Tien, J., "Strong 1-mm-diameter collagen tubes for microsurgical applications" [poster], Biomedical Engineering Society 2016 Annual Meeting (Minneapolis, MN; 2016).

43. Tien, J., Li, X., Linville, R.M. & Feldman, E.J., "Determination of vascular permeability without knowledge of an arterial input function" [talk], Biomedical Engineering Society 2016 Annual Meeting (Minneapolis, MN; 2016).

42. Piotrowski-Daspit, A.S., Tien, J. & Nelson, C.M., "Interstitial fluid pressure alters cell motility and collective invasion via EMT marker expression in an engineered model of a human breast tumor" [poster], American Association for Cancer Research 2016 Annual Meeting (New Orleans, LA; 2016).

41. Thompson, R.L., Coisman, B.J., Price, G.M., Wong, K.H.K. & Tien, J., "Design principles for engineered lymphatics that drain type I collagen scaffolds" [poster], Biomedical Engineering Society 2015 Annual Meeting (Tampa, FL; 2015).

40. Boland, N.F., Linville, R.M., Covarrubias, G. & Tien, J., "Generation of capillaries in patterned type I collagen gels in vitro" [poster], Biomedical Engineering Society 2015 Annual Meeting (Tampa, FL; 2015).

39. Piotrowski, A.S., Tien, J. & Nelson, C.M., "Interstitial fluid pressure drives collective invasion via expression of epithelial-mesenchymal transition (EMT) markers in an engineered model of a human breast tumor" [poster], Biomedical Engineering Society 2015 Annual Meeting (Tampa, FL; 2015).

38. Tien, J., Li, L., Ozsun, O. & Ekinci, K.L., "Interstitial fluid pressure dynamics in microfluidic devices" [talk], Biomedical Engineering Society 2015 Annual Meeting (Tampa, FL; 2015).

37. Piotrowski, A.S., Tien, J. & Nelson, C.M., "Interstitial fluid pressure regulates collective invasion via Snail1, vimentin, and E-cadherin in an engineered human breast tumor model" [poster], Cold Spring Harbor Laboratory Meeting on Biology of Cancer: Microenvironment, Metastasis, and Therapeutics (Cold Spring Harbor, NY; 2015).

36. Boland, N.F., Linville, R.M., Covarrubias, G. & Tien, J., "Vascularization of capillary-scale channels in type I collagen gels" [talk], 41st Annual Northeast Bioengineering Conference (Troy, NY; 2015).

35. Ozsun, O., Thompson, R.L., Tien, J. & Ekinci, K.L., "Non-invasive measurement of interstitial fluid pressure in microscale gels and tissues" [poster], Biomedical Engineering Society 2014 Annual Meeting (San Antonio, TX; 2014).

34. Boland, N.F., Covarrubias, G. & Tien, J., "Physical signals that promote vascularization of

capillary-scale channels" [talk], Biomedical Engineering Society 2014 Annual Meeting (San Antonio, TX; 2014).

33. Thompson, R.L., Coisman, B.J. & Tien, J., "Functional lymphatics that drain collagen-based scaffolds" [poster], Biomedical Engineering Society 2014 Annual Meeting (San Antonio, TX; 2014).

32. Coisman, B.J., Thompson, R.L. & Tien, J., "Engineering lymphatics that drain scaffolds" [poster], 40th Annual Northeast Bioengineering Conference (Boston, MA; 2014).

31. Chan, K.L.S., Khankhel, A.H., Thompson, R.L., Coisman, B.J., Wong, K.H.K., Truslow, J.G. & Tien, J., "Crosslinking of collagen scaffolds promotes vascular stability" [poster], 40th Annual Northeast Bioengineering Conference (Boston, MA; 2014).

30. Piotrowski, A.S., Tien, J. & Nelson, C.M., "Engineering the host and tumor microenvironment" [talk], Materials Research Society 2013 Fall Meeting (Boston, MA; 2013).

29. Piotrowski, A.S., Tien, J. & Nelson, C.M., "Interstitial fluid pressure modulates gene expression in engineered models of breast tumors" [talk], American Institute of Chemical Engineers 2013 Annual Meeting (San Francisco, CA; 2013).

28. Chan, K.L.S., Khankhel, A.H., Thompson, R.L., Wong, K.H.K., Truslow, J.G., Coisman, B.J. & Tien, J., "Scaffold stiffening and vascular stability" [poster], Biomedical Engineering Society 2013 Annual Meeting (Seattle, WA; 2013).

27. Piotrowski, A.S., Tien, J. & Nelson, C.M., "Interstitial fluid pressure modulates gene expression in engineered breast tumors" [poster], Biomedical Engineering Society 2013 Annual Meeting (Seattle, WA; 2013).

26. Piotrowski, A.S., Tien, J. & Nelson, C.M., "Modulation of the invasive phenotype of engineered breast tumors by the physical and cellular microenvironment" [poster], Biophysical Society 57th Annual Meeting (Philadelphia, PA; 2013).

25. Wong, K.H.K., Truslow, J.G., Khankhel, A.H., Chan, K.L.S. & Tien, J., "Artificial lymphatic drainage systems for vascularized fibrin scaffolds" [talk], Biomedical Engineering Society 2012 Annual Meeting (Atlanta, GA; 2012).

24. Tien, J., Truslow, J.G. & Nelson, C.M., "Interstitial hypertension and the phenotype of engineered human breast tumors" [talk], Biomedical Engineering Society 2012 Annual Meeting (Atlanta, GA; 2012).

23. Leung, A.D., Wong, K.H.K. & Tien, J., "Polymers stabilize engineered human microvessels in vitro" [poster], Biomedical Engineering Society 2011 Annual Meeting (Hartford, CT; 2011).

22. Wong, K.H.K. & Tien, J., "Drainage of vascularized microfluidic fibrin scaffolds" [poster], Biomedical Engineering Society 2011 Annual Meeting (Hartford, CT; 2011).

21. Tien, J., Lee, K. & Nelson, C.M., "A microfluidic device to control interstitial pressures within engineered tumors" [poster], Biomedical Engineering Society 2011 Annual Meeting (Hartford, CT; 2011).

20. Truslow, J.G. & Tien, J., "Computational design of perfusion systems for engineered tissues" [talk], Biomedical Engineering Society 2011 Annual Meeting (Hartford, CT; 2011).

19. Tien, J. & Nelson, C.M., "Effect of interstitial pressure on epithelial invasion from human mammary ducts" [poster], Department of Defense Breast Cancer Research Program, Era of Hope 2011 Conference (Orlando, FL; 2011).

18. Leung, A.D., Wong, K.H.K. & Tien, J., "Dextran stabilizes engineered human microvessels in

vitro" [poster], Biomedical Engineering Society 2010 Annual Meeting (Austin, TX; 2010).

17. Wong, K.H.K., Truslow, J.G. & Tien, J., "Normalization of microvascular physiology by cyclic AMP in engineered human blood microvessels" [poster], Biomedical Engineering Society 2010 Annual Meeting (Austin, TX; 2010).

16. Tien, J., "Engineering functional human microvessels in vitro" [poster], Biomedical Engineering Society 2010 Annual Meeting (Austin, TX; 2010).

15. Wong, K.H.K., Truslow, J.G. & Tien, J., "Cyclic AMP normalizes the physiology of engineered human blood microvessels in microfluidic collagen gels" [poster], Gordon Research Conference on Signal Transduction by Engineered Extracellular Matrices (Biddeford, ME; 2010).

14. Price, G.M., Chrobak, K.M. & Tien, J., "Effect of the mechanical microenvironment on the physiology of engineered human microvascular tubes" [poster], Biomedical Engineering Society 2009 Annual Meeting (Pittsburgh, PA; 2009).

13. Wong, K.H.K. & Tien, J., "Cyclic AMP restores microvascular functions of engineered human blood microvessels" [poster], Biomedical Engineering Society 2009 Annual Meeting (Pittsburgh, PA; 2009).

12. Truslow, J.G., Price, G.M. & Tien, J., "Design of drainage systems for vascularized scaffolds" [poster], Biomedical Engineering Society 2009 Annual Meeting (Pittsburgh, PA; 2009).

11. Truslow, J.G. & Tien, J., "Vascular designs that maintain transmural pressure" [poster], Biomedical Engineering Society 2008 Annual Meeting (St. Louis, MO; 2008).

10. Price, G.M., Chrobak, K.M. & Tien, J., "Effect of cyclic AMP on the physiology of engineered human lymphatic microvascular tubes" [poster], Biomedical Engineering Society 2008 Annual Meeting (St. Louis, MO; 2008).

9. Price, G.M., Chu, K.K., Truslow, J.G., Tang-Schomer, M.D., Golden, A.P., Mertz, J. & Tien, J., "Microfluidic hydrogels for microvascular tissue engineering" [poster], Biomedical Engineering Society 2008 Annual Meeting (St. Louis, MO; 2008).

8. Price, G.M. & Tien, J., "Effect of cyclic AMP on the barrier function of engineered human lymphatic microvascular tubes" [poster], Gordon Research Conference on Endothelial Cell Phenotypes in Health and Disease (Biddeford, ME; 2008).

7. Tien, J., "Barrier function of engineered microvessels in vitro" [poster], 8th World Congress for Microcirculation (Milwaukee, WI; 2007).

6. Price, G.M. & Tien, J., "Effect of microenvironment on engineered microvessels" [poster], Biomedical Engineering Society 2006 Annual Meeting (Chicago, IL; 2006).

5. Chrobak, K.M. & Tien, J., "Engineering functional microvascular tissue in vitro" [talk], Biomedical Engineering Society 2006 Annual Meeting (Chicago, IL; 2006).

4. Potter, D.R., Tien, J. & Damiano, E.R., "Using fluorescent micro-particle image velocimetry to interrogate the surface glycocalyx on cultured endothelial cells in collagen microchannels" [poster], Experimental Biology 2006 Meeting (San Francisco, CA; 2006).

3. Tien, J., "In vitro synthesis of a microvascular network" [talk], Biomedical Engineering Society 2005 Annual Meeting (Baltimore, MD; 2005).

2. Tang, M.D., Golden, A.P. & Tien, J., "Methods for the fabrication of microstructured gels" [poster], Biomedical Engineering Society 2004 Annual Meeting (Philadelphia, PA; 2004).

1. Tien, J., "Use of microfabrication and self-assembly in tissue engineering" [abstract], Whitaker Foundation Biomedical Engineering Research Conference (La Jolla, CA; 2004).

RESEARCH TRAINEES

I. Postdoctoral

James Truslow (2011-2013)	Research area: Computational modeling of vascularized scaffolds
Keith Wong (2012)	Research area: Functional vascularization of microfluidic scaffolds
Chitrangada Acharya (2010)	Research area: Physiology of engineered lymphatic vessels

II. Post-baccalaureate

Yixin Gao (2023-present)	M.S., biomedical engineering (*TBA*) Thesis: *TBA*
Alex Seibel (2019-present)	Ph.D., biomedical engineering (2024, expected) Thesis: "Tissue-engineered human lymphatic models for the study of breast cancer and lymphatic drainage"
Yoseph Dance (2018-2022)	Ph.D., biomedical engineering (2022) Thesis: "Engineering 3D breast tumor-on-a-chips to investigate the roles of adipose tissue and obesity in the early stages of breast cancer metastasis"
Xuanyue Li (2015-2019)	Ph.D., biomedical engineering (2019) Thesis: "Engineering components of a vascularized, microsurgically implantable adipose tissue"
Kelvin Chan (2011-2012)	M.S., biomedical engineering (2012) Thesis: "Genipin crosslinked collagen microfluidic scaffolds form stable microvessels in vitro using human endothelial cells"
Keith Wong (2007-2012)	Ph.D., biomedical engineering (2012) Thesis: "Normalization of microvascular physiology in engineered microvessels via cyclic adenosine monophosphate supplementation and artificial lymphatic drainage"
James Truslow (2006-2011)	Ph.D., biomedical engineering (2011) Thesis: "Design and analysis of engineered microvasculature via computational methods"
	M.S., biomedical engineering (2008) Thesis: "Drainage systems that maintain transmural pressure in engineered microvascular tissue"
Gavrielle Price (2004-2009)	Ph.D., biomedical engineering (2010) Thesis: "Mechanical and chemical control of barrier in engineered microvessels"

Andrew Golden (2002-2008)	Ph.D., biomedical engineering (2008) Thesis: "Microfluidic hydrogels for microvascular tissue engineering"
Kenneth Chrobak (2003-2007)	Ph.D., biomedical engineering (2007) Thesis: "Formation of perfused microvessels in vitro, and their use as models of barrier function"
Min Tang (2002-2005)	Ph.D., biomedical engineering (2006) Thesis: "In vitro engineering of a microvascular network"

III. Undergraduate

Joely Brammer-DePuy (2023-present); Abderrahman Rhmari Tlemcani (2022-present); Nikhil Lahiri (2022-present); Owen Kelly (2020-2023); Mackenzie Obenreder (2020-2022); Neil Parikh (2018-2020); Cassandra Chua (2017-2020); Jingyi Xia (2017-2019); Chao Liu (2017-2019); Miles Massidda (2017-2018); Calin Nicolescu (2015-2018); Emily Margolis (2014-2018); Jordann Marinelli (2015-2017); Tyler Ryan (2014-2017); Jing Xu (2014-2016); Raleigh Linville (2014-2016); Evan Feldman (2014-2015); Gil Covarrubias (2014-2015); Nelson Boland (2013-2015); Rebecca Thompson (2012-2015); Brent Coisman (2013-2014); Aimal Khankhel (2011-2013); Benjamin Cohen (2012); Rachel Roesch (2011; College of New Jersey); Jason Pui (2011-2012); Alexander Leung (2009-2011); Stephanie Steichen (2008); Kimberly Waller (2007-2008); Russell Condie (2006; University of Utah); Hillary Eggert (2004; Carthage College); Caitlyn McCullough (2003; RPI); Wajd Al-Holou (2002; University of Detroit Mercy); Brandon Markway (2002; University of Missouri, Columbia)

TEACHING

ENG EK 424 *Thermodynamics and Statistical Mechanics*
Spring 2024, Spring 2023, Fall 2021, Fall 2020, Fall 2019, Fall 2018, Spring 2018, Spring 2017, Fall 2015, Spring 2015, Fall 2013, Spring 2013, Spring 2012, Spring 2011, Spring 2010, Spring 2008, Spring 2007, Spring 2006, Spring 2005, Spring 2004, Spring 2003 (1330 students)

ENG BE 435 *Transport Phenomena in Biological Systems*
Fall 2023, Fall 2022, Spring 2022, Spring 2021, Spring 2020, Fall 2017, Fall 2016, Fall 2014, Fall 2012 (410 students)

ENG EK 130/131/132 *Introduction to Stem Cells and Cloning*
Spring 2010, Spring 2008, Spring 2007, Spring 2006, Spring 2005, Spring 2004 (195 students)

ENG BE 436 *Fundamentals of Fluid Mechanics*
Spring 2016, Spring 2014 (67 students)

ENG BE 792 *Critical Literature Review*
Spring 2012, Spring 2011 (60 students)

ENG EK 381 *Probability, Statistics, and Data Science for Engineers*
Spring 2024 (86 students)

ENG BE 451/951 *Independent Study*
Fall 2013, Fall 2012, Spring 2008, Fall 2006, Fall 2003, Spring 2003 (9 students)

Guest lecturer for:

ENG BE 792 *Critical Literature Review* (Spring 2017); CHE 539 *Quantitative Physiology and Tissue Design* (Spring 2009; Princeton); ENG BE 706 *Quantitative Physiology for Engineers* (Spring 2006); CAS BI 447/647 *Vascular Physiology* (Fall 2004, Fall 2003, Fall 2002)

Grader for:

ENG BE 465/466 *Biomedical Engineering Senior Project* (2009-2015)

Senior project advisor for:

Owen Kelly and Anushka Rathi (2022-2023); Cassandra Chua, Ana Paula Gushken, Skylar Karzhevsky, and Sarita Berigei (2019-2020); Chao Liu and Xiaoshan Ke (2018-2019); Miles Massidda, Calin Nicolescu, and Ryan Jamieson (2017-2018); Tyler Ryan, Samantha Chua, Melissa Garcia, and Margaret Ann Bolick (2016-2017); Raleigh Linville and Jing Xu (2015-2016); Rebecca Thompson and Luis Carrasquillo (2014-2015); Michael Lau, Isaiah Ho, Gina Jimenez, and Andrew Ivanov (2014-2015); Yuan Wang, Yanan Qi, and Re-Jey Ni (2013-2014); Alexander Leung and Matthew Selbach (2010-2011); Constantinos Katevatis and Matthew Lough (2009-2010); Kimberly Waller (2007-2008); Matthew Prosen (2006-2007); Lin Lin Gao (2005-2006); Merrill Lamont (2004-2005); Inge Tamm-Daniels (2003-2004); Christopher Frye and Michelle Aguilar (2002-2003)

PROFESSIONAL ACTIVITIES

Proposal reviewer for:

National Institutes of Health; National Science Foundation; Department of Defense/Army Medical and Materiel Command; Smithsonian Institute; Louisiana Board of Regents; Oak Ridge Associated Universities (ORAU); Canadian Institutes of Health Research; European Research Council; Israel Science Foundation; Dutch Research Council; Agency for Science, Technology, and Research (Singapore); National Science Center (Poland); Khalifa University (United Arab Emirates); Academy of Medical Sciences (United Kingdom)

Manuscript reviewer for:

ACS Applied Bio Materials; *ACS Applied Materials and Interfaces*; *ACS Biomaterials Science and Engineering*; *ACS Nano*; *Acta Biomaterialia*; *Advanced Materials*; *Angewandte Chemie*; *Annals of Biomedical Engineering*; *Annual Review of Biomedical Engineering*; *APL Bioengineering*; *Biofabrication*; *Biomacromolecules*; *Biomaterials*; *Biomicrofluidics*; *Biotechnology Journal*; *Current Opinion in Chemical Engineering*; *FASEB Journal*; *Integrative Biology*; *International Journal of Numerical Methods in Biomedical Engineering*; *Journal of the American Chemical Society*; *Journal of Biomedical Materials Research*; *Lab on a Chip*; *Langmuir*; *Macromolecular Bioscience*; *Materials Today Bio*; *Microcirculation*; *Microvascular Research*; *Military Medical Research*; *Nature Materials*; *Nature Nanotechnology*; *Nature Reviews Cancer*; *PLoS One*; *Scientific Reports*; *Small*; *Soft Matter*; *Tissue Engineering*

Abstract reviewer for:

Biomedical Engineering Society; Society for Biomaterials

Textbook and book proposal reviewer for:

Oxford University Press in the areas of thermodynamics and transport phenomena; MIT Press in the area of fluid mechanics

Session chair, Vascular Bioengineering, Experimental Biology 2015 Meeting (Boston, MA; 2015)

Guest member, Editorial Committee, *Annual Review of Biomedical Engineering* (2012 volume)
Member, planning committee, BioMethods Conference (Boston, MA; 2011)
Session chair, Smart Biomaterials II, Tissue Engineering and Regenerative Medicine International Society 2008 Annual Conference (San Diego, CA; 2008)
Session chair, Molecule, Cell and Tissue-Based Sensors, 28th Annual International Conference of the Engineering in Medicine and Biology Society (New York, NY; 2006)
Session chair, Molecular and Cellular Engineering, 28th Annual International Conference of the Engineering in Medicine and Biology Society (New York, NY; 2006)
Session chair, Screening and Diagnostics, Biomedical Engineering Society 2004 Annual Meeting (Philadelphia, PA; 2004)

ADMINISTRATIVE SERVICE

I. University committees

Evaluative: BME PhD Admissions (2015-2018, 2021-present), UROP Faculty Advisory Committee (university-wide; 2012-present), Trustee Scholars Selection Committee (university-wide; 2020-2022), MD/PhD Admissions (BU School of Medicine; 2014-2018), BME Graduate Admissions (2005-2008, 2009-2015), MCBB Graduate Admissions (2005-2008), Bioinformatics Graduate Admissions (2004-2005)

Programmatic: BME Graduate Committee (2018-2021), BME Training Program in Quantitative Biology and Physiology Steering Committee (2016-2018), BME Executive Committee (2014-2018), ENG Graduate Committee (College of Engineering; 2014-2015), MCBB Graduate Committee (2006-2007), BME Undergraduate Committee (2002-2005)

Ad-hoc: BUnano Pilot Grant review (2020), UROP Director search committees (university-wide; 2014, 2017), Dean's Catalyst Award review (College of Engineering; 2007, 2015, 2016, 2018), NSF CAREER proposal review (College of Engineering; 2013), MEMS/NEMS cluster recommendations panel (College of Engineering; 2006-2007), BME faculty search committees (2004-2005, 2005-2006, 2006-2007, 2007-2008, 2020-2021)

Chairmanships: BME Director of PhD Admissions (2015-2018), BME Director of Graduate Admissions (2014-2015)

II. Thesis committees (non-advisor)

Cheyanne Frosti	Ph.D., biochemistry (*TBA*) Thesis: *TBA* Advisor: Matthew Layne (BU School of Medicine)
John Yuen	Ph.D., biomedical engineering (2022; Tufts) Thesis: "Approaches for scaling up the production of cell-cultured fat tissue" Advisor: David Kaplan (Tufts, Biomedical Eng.)
Han Xu	Ph.D., biomedical engineering (2019) Thesis: "Effects of substrate stiffness, cadherin junction, and shear flow on tensional homeostasis in cells and cell clusters" Advisor: Michael Smith (BU, Biomedical Eng.)
Samer Bou Jawde	Ph.D., biomedical engineering (2019)

	Thesis: “Novel strategies and multiscale modeling in respiratory mechanics” Advisor: Béla Suki (BU, Biomedical Eng.)
Peijiang Wang	Ph.D., biomedical engineering (2018) Thesis: “Bioresorbable scaffold: an integrated approach” Advisor: Elazer Edelman (Harvard Medical School)
Lin Jin	Ph.D., biomedical engineering (2018) Thesis: “Towards constructing functional protocells for origin of life studies” Advisor: Jack Szostak (Harvard Medical School)
George Kwong	Ph.D., biomedical engineering (2018) Thesis: “Induced pluripotent stem cell reporter systems for smooth muscle cell sheet engineering” Advisors: Darrell Kotton (BU School of Medicine) and Joyce Wong (BU, Biomedical Eng.)
Nae Gyune Rim	Ph.D., biomedical engineering (2018) Thesis: “Micropatterned cell sheet as an alternating building block for biomimetic vascular patch application” Advisor: Joyce Wong (BU, Biomedical Eng.)
Jacob Herrmann	M.S., biomedical engineering (2015) Thesis: “Simulation of ventilation distribution and gas transport during oscillatory ventilation” Advisor: Béla Suki (BU, Biomedical Eng.)
Ozgur Ozsun	Ph.D., mechanical engineering (2014) Thesis: “Fundamentals and applications of fluid-structure interactions in compliant micro-channels” Advisor: Kamil Ekinci (BU, Mechanical Eng.)
Lindsay Wray	Ph.D., biomedical engineering (2013; Tufts) Thesis: “Silk-based platforms for engineering the microvascular niche and vascularizing tissue constructs” Advisor: David Kaplan (Tufts, Biomedical Eng.)
Stefan Yohe	Ph.D., biomedical engineering (2012) Thesis: “Superhydrophobic materials for drug delivery” Advisor: Mark Grinstaff (BU, Biomedical Eng. & Chemistry)
Bin Xu	Ph.D., mechanical engineering (2012) Thesis: “Viscoelastic behavior of collagen matrices in the frequency and time domain: an experimental and modeling study” Advisor: Katherine Zhang (BU, Mechanical Eng.)
Stephen Arold	Ph.D., biomedical engineering (2006) Thesis: “Effects of cyclic stretch on surfactant secretion and cell viability in alveolar epithelial cells grown in culture” Advisor: Béla Suki (BU, Biomedical Eng.)

Lisa Stuart	M.S., biomedical engineering (2004) Thesis: “Protein quantitation using selective reaction monitoring” Advisor: Edward Feener (Harvard Medical School)

III. Faculty advising

Undergraduate biomedical engineering students (2002-present; ~25/year)
Boston University student chapter of the Biomedical Engineering Society (2007-2012)
Graduate Research Symposium/Scholars Day judge (2013-2016)