Victoria L Bautch, PhD
Beverly Long Chapin Distinguished Professor of Biology
Member, UNC McAllister Heart Institute

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POSITIONS

Co-Director, McAllister Heart Institute, UNC-CH: July 2017-June 2024
Chair, Dept. of Biology, UNC-CH: July 2013-2018
Beverly Long Chapin Distinguished Professor of Biology: July 2014-present
Associate Director, McAllister Heart Institute, UNC-CH: 2010-2013
Professor of Biology: Jan. 2004 – June 2014
Director, UNC Developmental Biology Training Program: 2004-2010
Associate Professor of Biology: Jan. 1995 – Dec. 2003
Assistant Professor of Biology: Jan. 1989 - Dec. 1994
Visiting Appointment, Dept of Biology, UNC-CH: Sept. 1988-Dec. 1988
Member, UNC McAllister Heart Institute: 2002-present
Member, Program in Molecular Biology & Biotechnology (iBGS): Oct. 1988 - present
Member, Curriculum in Genetics and Molecular Biology: March 1989 - present
Member, Lineberger Comprehensive Cancer Center: Feb. 1991- present
Scientific Director, UNC Transgenic Mouse Facility: 1988-1998
Visiting Scientist, National Institute of Medical Research, Mill Hill London: Feb.-May 1997
Visiting Scientist, Dept. of Cell and Molecular Physiology, UNC-CH: Jan-July 2008

EDUCATION

Post-Doctoral	**Cold Spring Harbor Laboratory**, CSH, NY 1983-1988 Molecular and Developmental Biology
Ph.D.	**The University of Illinois Health Science Center**, Chicago, IL 1978-1983 Biological Chemistry
B.A.	**Monmouth College**, Monmouth IL 1970-1974 Biology (*summa cum laude*)

AWARDS, FELLOWSHIPS, INVITED SERVICE

2022-2023	Co-chair, NHLBI Working Group on Lymphatics Diseases
2021-present	Member, NIH-NHLBI Advisory Council (NHLBAC)
2019-present	Editorial Review Board, *Angiogenesis*
2019-2024	Board of Reviewing Editors (BRE), *eLife*
2020-2022	International Organizing Comm, IVBM22 (Internatl Vascular Biol Symposium) San Francisco, CA
2019-20	International Organizing Comm, IVBM20 (Internatl Vascular Biol Symposium) Seoul Korea
2019	Organizer, NAVBO Developmental Vascular Biology Workshop (Elected)
2018	Outstanding Investigator Award, NIH-NHLBI (R35)
2017	Co-Organizer, NAVBO Developmental Vascular Biology Workshop (Elected)
2016	International Organizing Comm, IVBM18 (Internatl Vascular Biology Symposium), Boston
2016	Chair, Endothelial Cell Phenotypes Gordon Conference (Elected), Girona Spain
2015-2021	Member, Scientific Advisory Board, Max Planck Inst. Molecular Medicine, Germany
2015	Session Chair, Gordon Conference on Angiogenesis, Newport RI
2014	Vice-Chair, Endothelial Cell Phenotypes Gordon Conference, Girona Spain (Elected)
2014-2018	Member, NHLBI's Program Project Review Parent Committee (HLBP)
2014	International Organizing Committee, IVBM (International Vascular Biology Symposium)
2013	Review Committee, CRUK, London England
2012	Gairdner International Awards subcommittee on Angiogenesis
2012	Session Chair, Gordon Conference Endothelial Cell Phenotypes, Italy
2012-2013	President, NAVBO (North American Vascular Biology Organization) (Elected)
2011	Gairdner International Awards subcommittee on Angiogenesis
2011	Faculty Organizer, UNC Lineberger Comprehensive Cancer Center Post-Doc Day
2011-2012	President-elect, NAVBO
2011-2012	Fellow, UNC Academic Leadership Program
2011	Session Chair, Gordon Conference on Angiogenesis
2010-2016	Member, NAVBO Vasculata Committee
2010	Session Chair, Seeon-Kloster Angiogenesis Mtg, Germany
2010	Ad hoc Member, NIH Tumor Microenvironment Study Section
2009-2018	Editorial Board, *Vascular Cell*
2009	Session Chair, Gordon Conference on Angiogenesis
2008	Session Chair, Seeon-Kloster Angiogenesis Mtg, Germany
2008	Organizing Committee, ISTH Meeting 2009
2008	Session Chair, Keystone Angiogenesis Meeting
2007	Session Chair, Gordon Conference on Angiogenesis
2007	Organizer, Vasculata 2007
2007- 2019	Editorial Board, *JMCC*
2007	Session Chair, NAVBO/AAA Mini-meeting at EB
2006-2008	Member, NIH CDD Study Section
2006	Member, TARP NIH advisory panel
2005	Program Committee, ATVB Meeting
2005	Symposium Co-Chair, NAVBO/SVBM Meeting
2005	Session Chair, Vascular Biology Gordon Conference
2004-2008	Member, AHA Mid-Atlantic Cardiovascular Development Study Section
2003-2006	Councilor, NAVBO

2004	Member, NIH CCD Study Section
2000-2003	Member, NIH PathA Study Section
1993-1998	Research Career Development Award, NIH-NHLBI
1998-2000	Co-chairperson, AHA Study Section (Vascular Biol. II)
1996-1997	Member, AHA Study Section (Vascular Biol. II)
1991-2002	NIH Panels: PPG Site Visit, NCI Center Site Visit, Biol 2 (ad hoc), Path A Special (ad hoc), NIH RFA Panel, PPG Site Visit
1986-1988	Postdoctoral Fellowship from New York State Health Research Council
1985-1986	Award from Cold Spring Harbor Institutional Research Grant (ACS)
1983-1986	NIH Postdoctoral Fellowship
1978-1980	University of Illinois Graduate College Fellowship

RESEARCH PUBLICATIONS

ORIGINAL RESEARCH PUBLICATIONS (chronological order):

1. **Bautch, V.L**., Storti, R.V., Mischke, D. and Pardue, M.L. (1982). Organization and expression of Drosophila tropomyosin genes. ***J Mol Biol*** *162*, 231-250.
2. **Bautch, V.L**. and Storti, R.V. (1983). Identification of a cytoplasmic tropomyosin gene linked to two muscle tropomyosin genes in Drosophila*.* ***Proc Natl Acad Sci USA*** *80*, 7123-7127.
3. **Bautch, V.L**. (1986). Genetic background affects integration frequency of ecotropic proviral sequences into the mouse germline. ***J Virol*** 60, 693-701.
4. Bucan, M., Hermann, B.G., Frischauf, A-M, **Bautch, V.L**., Bode, V., Silver, L.M., Martin, G.R. and Lehrach, H. (1987). Deletion and duplication of DNA sequences associated with the embryonic lethal phenotype of the t9 complementation group of the mouse t complex. ***Genes & Dev*** *1*, 376-385.
5. **Bautch, V.L**., Toda, S., Hassell, J.A., Hanahan, D. (1987). Endothelial cell tumors develop in transgenic mice carrying polyoma virus middle T oncogene. ***Cell*** *51*, 529-538.
6. **Bautch, V.L**. (1989). Effects of polyoma virus oncogenes in transgenic mice. ***Mol Biol Med*** *6*, 309-317.
7. Rindi, G., Grant. S., Yiangou, Y., Ghatei, M. Bloom, S., **Bautch, V**., Solcia, E., Polak, J. (1990). Development of neuroendocrine tumors in the gastrointestinal tract of transgenic mice: heterogeneity of hormone expression. ***Am J Path*** *136*, 1349-1363.
8. Grant, S., Seidman, I., Hanahan, D., **Bautch, V.L**. (1991). Early invasiveness characterizes metastatic carcinoid tumors in transgenic mice. ***Cancer Res*** *51*, 4917-4923.
9. Dubois, N.A., Kolpack, L.C., Wang, R., Azizkhan, R. G., **Bautch V.L**. (1991). Isolation and characterization of an established endothelial cell line from transgenic mouse hemangiomas. ***Exp Cell Res*** *196*, 302-313.
10. Wang, R., **Bautch, V.L**. (1991). The polyomavirus early region gene in transgenic mice causes vascular and bone tumors. ***J Virol*** *65*, 5174-5183.
11. Wang, R., Clark, R., **Bautch, V.L**. (1992). Embryonic stem cell derived cystic embryoid bodies form vascular channels: an in vitro model of blood vessel development. ***Development*** *114,* 303-316.
12. Helseth, A., Siegal, G.P., **Bautch, V.L**. (1992). Transgenic mice that develop pituitary tumors: a model for Cushing's disease*.* ***Am J Path*** *140*, 1071-1080.
13. Holm, R., Helseth, A., Nesland, J.M., **Bautch, V.L**. (1993). ACTH-producing pituitary tumors in transgenic mice. An ultrastructural and immunoelectron microscopic study. ***J Submicrosc Cytol Pathol*** *25*, 29-36.
14. Wang, R., Siegal, G.P., Scott, D. L., **Bautch, V.L**. (1994). Developmental analysis of bone tumors in polyomavirus transgenic mice*.* ***Lab Invest*** *70*, 86-94.

15. Dubois-Stringfellow, N., Kolpack, L., **Bautch, V.L**., Azizkhan, R.A. (1994). Mice with hemangiomas induced by transgenic endothelial cells: a model for the Kasabach-Merritt Syndrome. ***Am J Path*** *144*, 796-806.
16. Dubois-Stringfellow, N., Jonczyk, A., **Bautch, V.L**. (1994). Perturbations of the fibrinolytic pathway abolish cyst formation but not capillary-like organization of cultured murine endothelial cells. ***Blood*** *83*, 3206-3217.
17. Decsi, A., Peiffer, R.L., Qiu, T., Lee, D.C., Friday, J.T., **Bautch, V.L**. (1994). Lens expression of TGFα in transgenic mice produces two distinct eye pathologies in the absence of tumors. ***Oncogene*** *9*, 1965-1975.
18. Helseth, A., Haug, E., Nesland, J.M., Siegal, G.P., Fodstad, O., **Bautch, V.L**. (1995). Endocrine and metabolic characteristics of polyoma large T transgenic mice that develop ACTH producing pituitary tumors. ***J Neurosurg*** *82*, 879-885.
19. Heyward, S., Dubois-Stringfellow, N., Rapoport, R., **Bautch, V.L**. (1995). Expression and inducibility of vascular adhesion receptors in development. ***FASEB J*** *9*, 956-962.
20. Ito, C.Y., Adey, N., **Bautch, V.L**., Baldwin, A.S. (1995). Structure and evolution of the human IkBα gene. ***Genomics*** *29*, 490-495.
21. **Bautch VL**, Stanford W, Rapoport R, Russell S, Byrum R, Futch, TA. (1996). Vascular and hematopoietic development in attached cultures of murine embryonic stem cells. ***Dev Dyn*** *205*, 1-12.
22. Ramakrishnan S, Olson TA, **Bautch VL**, Mohanraj D. (1996). Vascular endothelial growth factor-toxin conjugate specifically inhibits KDR/flk-1 positive endothelial cell proliferation in vitro and angiogenesis in vivo. ***Cancer Res*** *56*, 1324-1330.
23. Ohneda O, **Bautch VL.** (1997). Murine endothelial cells support fetal liver erythropoiesis and myelopoiesis via distinct interactions. ***Brit J Haematol*** *98*, 798-808.
24. Inamdar M, Koch T, Rapoport R, Dixon JT, Probolus JA, Cram E, **Bautch VL**. (1997). A yolk sac-derived murine macrophage cell line has a counterpart during ES cell differentiation. ***Dev Dyn*** *210*, 487-497. (Cover photograph).
25. Stanford, W.L., Caruana, G., Vallis, K.A., Inamdar, M., Hidaka, M., **Bautch, V.L**., Bernstein, A. (1998). Expression trapping: identification of novel genes expressed in hematopoietic and endothelial lineages by gene trapping in ES cells. ***Blood*** *92*, 4622-4631.
26. Redick, S., **Bautch, V.L.** (1999). Developmental PECAM expression suggests multiple roles for a vascular adhesion molecule. ***Am J Path*** *154*, 1137-1147. (Cover photograph).
27. **Bautch, V.L.,** Redick, S.D., Scalia, A., Harmaty, M., Carmeliet, P., Rapoport, R. (2000). Characterization of the vasculogenic block in the absence of vascular endothelial growth factor-A. ***Blood*** *95*, 1979-1987.
28. Robinson, L.A., Nataraj, C., Thomas, D.W., Howell, D.N., Griffiths, R., **Bautch, V.**, Patel, D.D., Feng, L.L., Coffman, T.M. (2000). A role for fractalkine and its receptor (CX_3CR1) in cardiac allograft rejection. ***J Immunol*** *165*, 6067-6072.
29. Ambler, C.A., Nowicki, J.L., Burke, A.C., **Bautch, V.L.** (2001). Assembly of trunk and limb blood vessels involves extensive migration and vasculogenesis of somite-derived angioblasts. ***Dev Biol*** *234*, 352-364.
30. Kearney, J.B., Ambler, C.A., Monaco, K-A., Johnson, N., Rapoport, R., **Bautch, V.L**. (2002). The VEGF receptor flt-1 negatively regulates developmental blood vessel formation by modulating endothelial cell division. ***Blood*** *99*, 2397-2407. Cover photograph.
31. Ambler, C.A., Schmunk, G.M., and **Bautch, V.L.** (2003). Stem cell-derived endothelial cells/progenitors migrate and pattern in the embryo using the VEGF signaling pathway. ***Dev Biol*** *257*, 205-219.
32. Moser, M., Binder, O., Wu, Y., Aitsebaomo, J., Ren, R., Bode, C., **Bautch, V.L**., Conlon, F.L., Patterson, C. (2003). BMPER, a novel endothelial cell precursor-derived protein, antagonizes bone morphogenetic protein signaling and endothelial cell differentiation. ***Mol Cell Biol*** *23*, 5664-5679.

33. Wu, Y., Moser, M., **Bautch, V.L.**, Patterson, C. (2003). HoxB5 is an upstream transcriptional switch for differentiation of the vascular endothelium from precursor cells. ***Mol Cell Biol*** *23*, 5680-5691.
34. Robinson, L.A., Nataraj, C., Thomas, D.W., Cosby, J.M., Griffiths, R., **Bautch, V.L.,** Dhavalkumar, D., Patel, D., Coffman, T.M. (2003). The chemokine CX3CL1 regulates NK cell activity in vivo. ***Cell Immunol*** *225*, 122-130.
35. Hogan, K.A.*, Ambler, C.A.*, Chapman, D.L., **Bautch, V.L.** (2004). The neural tube patterns vessels developmentally using the VEGF signaling pathway. ***Development*** *131*, 1503-1513. (*= co-first authors). This article was the subject of a short commentary: Bradbury, J. (2004). In this issue: hooking up the blood supply, *Development* 131.
36. Roberts, D., Kearney, J.B., Johnson, J.H., Rosenberg, M.P., Kumar, R., **Bautch, V.L.** (2004). The VEGF receptor flt-1 (VEGFR-1) modulates flk-1 (VEGFR-2) signaling during blood vessel formation. ***Am J Path*** *164*, 1531-1535.
37. Kearney, J.B.*, Kappas, N.C.*, Ellerstrom, C., DiPaola, F.W., **Bautch, V.L.** (2004). The VEGF receptor flt-1 (VEGFR-1) is a positive modulator of vascular sprout formation and branching morphogenesis. ***Blood*** *103*, 4527-4535. (*= co-first authors). This article and another were subjects of a short commentary: Stacker, SA and Achen, MG. (2004). Inside Blood: VEGF receptors branch into new areas. *Blood* 103, 4379-4380.
38. Roberts, D.M., Anderson, A.L., Hidaka, M., Swetenburg, R.L., Patterson, C., Stanford, W.L., **Bautch, V.L.** (2004). A vascular gene trap screen defines RasGRP3 as an angiogenesis-regulated gene required for the endothelial response to phorbol esters. ***Mol Cell Biol*** *24*, 10515-10528. Cover photograph.
39. Wang, H., Charles, P.C., Wu, Y., Ren, R., Pi, X., Moser, M., Barshishat-Kupper, M., Rubin, J.S., Perou, C., **Bautch, V.**, Patterson, C. (2006). Gene expression profile signatures indicate a role for Wnt signaling in endothelial commitment from embryonic stem cells. ***Circ Res*** *98*, 1331-1339.
40. Wang H, Gilner JB, **Bautch VL**, Wang DZ, Wainwright BJ, Kirby SL, Patterson C. (2007). Wnt2 coordinates the commitment of mesoderm to hematopoietic, endothelial and cardiac lineages in embryoid bodies. ***J Biol Chem*** *282*, 782-791.
41. Zeng G, Taylor SM, McColm JR, Kappas NC, Kearney JB, Williams LH, Hartnett ME, **Bautch, VL**. (2007). Orientation of endothelial cell division is regulated by VEGF signaling during blood vessel formation. ***Blood*** *109*, 1345-1352. (ePUB10/26/06). This article was chosen as a Plenary Paper - definitive manuscripts of exceptional scientific importance. It was also written up in a commentary: Claesson-Welsh L (2007). "Endothelial cells in line" *Blood* 109, 1343-1344.
42. Loureiro, RMB, Monaco, K-A, Kearney, JB, Blickarz-Durand, CE, Kirby, S, Inamdar, MS, **Bautch, VL** (2008). CSF-1 is required for early embryonic macrophage development: characterization of the *csfm^{op}/csfm^{op}* mutation in ES cell-derived macrophages. ***Brit J Haematol*** *141*, 739-742.
43. Kappas NC*, Zeng G*, Chappell JC, Kearney JB, Hazarika S, Kallianos KG, Patterson C, Annex BH, **Bautch VL**. (2008). The VEGF receptor Flt-1 spatially modulates Flk-1 signaling and blood vessel branching. ***J Cell Biol*** *181*, 847-858. (*=co-first authors).
44. Hartnett ME, Martiniuk D, Sutton DS, Byfield G, Geisen P, Zeng G, **Bautch VL**. (2008). Neutralizing VEGF decreases tortuosity and rescues endothelial division orientation in arterioles and veins in a rat model of ROP. ***Invest Opthalmol Vis Sci*** *49*, 3107-3114.
45. Passman JN, Dong XR, Wu S-P, Maguire CT, Hogan KA, **Bautch VL**, Majesky MW. (2008). A sonic hedgehog signaling domain in the arterial adventitia supports resident Sca1+ smooth muscle progenitor cells. ***Proc Natl Acad Sci USA*** *105*, 9349-9354.
46. James JM, Gewolb C, **Bautch VL**. (2009). Neurovascular development utilizes VEGF-A signaling to regulate blood vessel ingression into the neural tube. ***Development*** *136*, 833-841.
47. Chappell JC, Taylor SM, Ferrara N, **Bautch VL**. (2009). Local guidance of emerging vessel sprouts requires soluble Flt-1 (VEGFR-1). ***Dev Cell*** *17*, 377-386. Cover Photograph.
48. Misfeldt A, Boyle S, Tompkins KL, **Bautch VL**, Labosky PA, Baldwin HS. (2009). Endocardial cells are a distinct endothelial lineage derived from Flk1+ multipotent cardiovascular progenitors. ***Dev Biol*** *333*, 78-89.

49. Taylor SM, Nevis K, Park HL, Rogers GC, Rogers SL, Cook JG, **Bautch VL**. (2010). Angiogenic factor signaling regulates centrosome duplication in endothelial cells of developing vessels. ***Blood*** 116, 3108-3117. Cover photograph.
50. Randhawa PK*, Rylova S*, Heinz JY*, Kiser S, Fried JH, Dunworth WP, Anderson AL, Barber AT, Chappell JC, Roberts DM, **Bautch VL**. (2011). The Ras activator RasGRP3 mediates diabetes-induced embryonic defects and affects endothelial cell migration. ***Circ Res*** *108*, 1199- 1208 (*=co-first authors).
51. Wiley DM, Kim J-D, Hao J, Hong CC, **Bautch VL***, Jin, S-W*. (2011). Distinct signaling pathways regulate sprouting angiogenesis from the dorsal aorta and axial vein. ***Nature Cell Biol*** *13*, 686-692. (*=co-corresponding authors).
52. Hashambhoy YL, Chappell JC, Peirce-Cottler SM, **Bautch VL**, Mac Gabhann F. (2011). Computational modeling of interacting VEGF and soluble VEGF receptor concentration gradients. ***Front Physiol*** 2:62. Epub 2011 Oct 4. PMID: 22007175.
53. Sweet DT, Chen Z, Wiley DM, **Bautch VL**, Tzima E. (2012). The adaptor protein Shc integrates growth factor and ECM signaling during postnatal angiogenesis. ***Blood*** 119:1946-1955. Cover photograph.
54. Charpentier MS, Christine KS, Amin NM, Dorr KM, Kushner EJ, **Bautch VL**, Taylor JM, Conlon FL. (2013). CASZ1 promotes vascular assembly and morphogenesis through the direct regulation of an EGFL7/RhoA-mediated pathway. ***Dev Cell*** 25,132-43. PMCID: PMC3641863. Cover photograph.
55. Chappell JC, Mouillesseaux KP, **Bautch VL**. (2013). Flt-1 (Vascular Endothelial Growth Factor Receptor-1) Is Essential for the Vascular Endothelial Growth Factor-Notch Feedback Loop During Angiogenesis. ***Arterioscler Thromb Vasc Biol***. 33, 1952-1959. PMCID in Process.
56. Mitin N, Rossman KL, Currin R, Anne S, Marshall TW, Bear JE, **Bautch VL**, Der CJ. (2013) The RhoGEF TEM4 Regulates Endothelial Cell Migration by Suppressing Actomyosin Contractility. ***PLoS One***. 8(6):e66260. PMCID: PMC3688894.
57. Kushner EJ, Ferro LS, Liu, J-Y, Durrant JR, Rogers SL, Dudley AC, **Bautch VL**. (2014) Excess Centrosomes Disrupt Cell Migration Via Centrosome Scattering. ***J Cell Biol*** 206, 257-272. PMCID in Process.
58. Klein KR, Karpinich NO, Espenschied ST, Willcockson HH, Dunworth WP, Hoopes SL, Kushner EJ, **Bautch VL**, Caron KM. (2014) Decoy receptor CXCR7 modulates adrenomedulliln-mediated cardiac and lymphatic vascular development. ***Dev Cell*** 30, 528-540. PMCID: In Process.
59. Pelton JC, Wright CE, Leitges M, **Bautch VL**. (2014) Multiple Endothelial Cells Constitute the Tip of Developing Blood Vessels and Polarize to Promote Lumen Formation. ***Development*** 141, 4121-4126. This article is the subject of a commentary: Grewal, S (2014). In this issue: Two Top Tips for Angiogenesis.
60. Walpole J, Chappell JC, Cluceru JG, Mac Gabhann F, Bautch VL, Peirce SM. (2015) Agent-based model of angiogenesis simulates capillary sprout initiation in multicellular networks. ***Integr Biol*** 7, 987-997.
61. Wright CE, Kushner EJ, Du Q, **Bautch VL**. (2015) LGN Directs Interphase Endothelial Cell Behavior via the Microtubule Network. ***PLoS ONE*** 10(9): e0138763. doi:10.1371/journal.pone.0138763.
62. Chappell JC, Cluceru JG, Nesmith, JE, Hashambhoy-Ramsay YL, Walpole J, Peirce SM, Mac Gabhann F, **Bautch VL**. (2016) Flt-1 Co-ordinates Distinct Stages of Blood Vessel Formation. ***Cardiovasc Res*** 111, 84-93.
63. Kushner EJ, Ferro L, Yu Z, **Bautch VL**. (2016) Excess Centrosomes Perturb Dynamic Endothelial Cell Repolarization During Blood Vessel Formation. ***Mol Biol Cell*** 27,1911-1920.
64. Mouillesseaux KP*, Wiley DS*, Saunders LM, Wylie, LA, Kushner EJ, Chong DC, Citrin KM, Barber AT, Park Y, Kim, J-D, Samsa LA, Kim J, Liu J, Jin S-W[#], **Bautch VL[#]**. (2016). Notch Regulates BMP Responsiveness and Lateral Branching in Vessel Networks via SMAD6. ***Nature Commun***, 7, 13247. doi: 10.1038/ncomms13247. (*= co first-authors; [#]= co-corresponding authors). Featured as "Faculty of 1000" Notable Publication.

65. Yu Z, Mouillesseaux KP, Kushner EJ, **Bautch VL**. (2016) Tumor-Derived Factors and Reduced p53 Promote Endothelial Cell Centrosome Over-duplication. ***Plos ONE*** *11,* e0168334. doi: 10.1371/journal.pone.0168334.
66. Nesmith JE, Chappell JC, Cluceru JG, **Bautch VL**. (2017) Blood vessel anastomosis is spatially regulated by Flt1 during angiogenesis. ***Developmen***t 144, 889-896.
67. Lee HW, Chong DC, Ola R, Dunworth WP, Meadows S, Ka J, Kaartinen VM, Qyang Y, Cleaver O, **Bautch VL**, Eichmann A, Jin SW. (2017) Alk2/ACVR1 and Alk3/BMPR1A Provide Essential Function for Bone Morphogenetic Protein-Induced Retinal Angiogenesis. ***Arterioscler Thromb Vasc Biol.*** 37, 657-663. doi: 10.1161/ATVBAHA.116.308422.
68. Boucher JM, Clark RP, Chong DC, **Bautch VL**. (2017). Dynamic Alterations in Decoy VEGF Receptor-1 Stability Regulate Angiogenesis. ***Nature Commun***, doi: 10.1038/NCOMMS15699. Featured as "Faculty of 1000" Notable Publication.
69. Hwangbo C, Lee HW, Kang H, Ju H, Wiley DS, Papangeli I, Han J, Kim JD, Dunworth WP, Hu X, Lee S, El-Hely O, Sofer A, Pak B, Peterson L, Comhair S, Hwang EM, Park JY, Thomas JL, **Bautch VL**, Erzurum SC, Chun, HJ, Jin SW. (2017). Modulation of Endothelial Bone Morphogenetic Protein Receptor Type 2 Activity by Vascular Endothelial Growth Factor Receptor 3 in Pulmonary Arterial Hypertension. ***Circulation*** 135, 2288-2298.
70. Yu Z, Ruter DL, Kushner EJ, **Bautch VL**. (2017). Excess Centrosomes Induce p53-Dependent Senescence without DNA Damage in Endothelial Cells. ***FASEB J*** 31, 4295-4304.
71. Chong DC, Yu Z, Brighton H, Bear JE, **Bautch VL**. (2017) Tortuous Microvessels Contribute to Wound Healing via Sprouting Angiogenesis. ***Atheroscler Thromb Vasc Biol*** 37, 1903-1912. Cover Photograph.
72. Rojas JD, Lin F, Chiang Y-C, Chytil A, Chong DC, **Bautch VL**, Rathmell WK, Dayton PA. (2018). Ultrasound Molecular Imaging of VEGFR-2 in clear-cell Renal Cell Carcinoma Tracks Disease Response to Antiangiogenic and Notch-Inhibition Therapy. ***Theranostics*** 8, 141-155.
73. Arreola A, Payne LB, Julian MH, de Cubas AA, Daniels AB, Taylor S, Zhao H, Darden J, **Bautch VL**, Rathmell WK, Chappell JC. (2018). Von Hippel-Lindau Mutations Disrupt Vascular Patterning and Maturation via Notch. ***JCI Insight*** 3, doi: 10.1172/jci.insight.92193.
74. Wylie LA, Mouillesseaux KP, Chong DC, **Bautch VL** (2018). Developmental SMAD6 Loss Leads to Blood Vessel Hemorrhage and Disrupted Endothelial Cell Junctions. ***Dev Biol*** 442, 199-209.
75. Rojas JD, Papadopoulou V, Czernuszewicz TJ, Rajamahendiran RM, Chytil A, Chiang YC, Chong DC, **Bautch VL**, Rathmell WK, Aylward S, Gessner RC, Dayton PA. (2019). Ultrasound Measurement of Vascular Density to Evaluate Response to Anti-Angiogenic Therapy in Renal Cell Carcinoma. ***IEEE Trans Biomed Eng*** 66, 873-880.
76. Chappell JC, Darden J, Payne LB, Fink K, **Bautch VL** (2019). Blood Vessel Patterning on Retinal Astrocytes Requires Endodthelial Flt-1 (VEGFR-1). ***J Dev Biol*** 7, E18. doi: 10.3390/jdb7030018.
77. Buglak DB, Kushner EJ, Marvin A, Davis KL, **Bautch VL** (2020). Excess Centrosomes Disrupt Vascular Lumenization and Endothelial Cell Adherens Junctions. ***Angiogenesis*** 23, 567-575.
78. Wu J, Chen X, Sehgal P, Zhang T, Jackson-Weaver O, Gou Y, **Bautch V**, Frenkel B, Sun H, Xu J. (2021). Arginine Methylation of R81 in Smad6 Confines BMP-Induced Smad1 Signaling. ***J Biol Chem***. doi: 10.1016/j.jbc.2021.100496. Online ahead of print. PMID: 33667543
79. Ruter DL, Liu Z, Ngo KM, X, Shaka, Marvin, A, Buglak, DB, Kidder, EJ, **Bautch VL** (2021). SMAD6 Transduces Endothelial Cell Flow Responses Required for Blood Vessel Homeostasis. ***Angiogenesis*** 24, 387-398. doi: 10.1007/s10456-021-09777-7.
80. Liu Z, Ruter DL, Quigley K, Tanke NT, Jiang Y, **Bautch VL** (2021). Single-Cell RNA Sequencing Reveals Endothelial Cell Transcriptome Heterogeneity under Homeostatic Laminar Flow. doi: https://doi.org/10.1101/2020.12.07.414904. ***Atheroscler Thromb Vasc Biol.*** 41, 2575-2584.
81. Buglak DB, Bougaran P, Kulikauskas MR, Liu Z, Monaghan-Benson E, Gold AL, Marvin AP, Burciu A, Tanke NT, Oatley M, Ricketts SN, Kinghorn K, Johnson BN, Shiau CE, Rogers S, Guilluy C, **Bautch VL**. (2023). Nuclear SUN1 stabilizes endothelial cell junctions via microtubules to regulate blood vessel formation. ***Elife*** 12:e83652. doi: 10.7554/eLife.83652.

82. Kinghorn K, Gill A, Marvin A, Li R, Quigley K, le Noble F, Mac Gabbhan F, **Bautch VL** (2023). A defined clathrin-mediated trafficking pathway regulates sFLT1/VEGFR1 secretion from endothelial cells. ***Angiogenesis*** doi: 10.1007/s10456-023-09893-6.
83. Kulikauskas MR, Oatley M, Yu T, Liu Z, Matsumura L, Kidder E, Ruter D, **Bautch VL** (2023). Endothelial cell SMAD6 balances Alk1 function to regulate adherens junctions and hepatic vascular development. ***Development*** *150* (21): dev201811. doi: 10.1242/dev.201811.
84. Sarabipour S, Kinghorn K, Quigley KM, Kovacs-Kasa A, Annex BH, **Bautch VL**, Mac Gabhann F. (2024). Trafficking dynamics of VEGFR1, VEGFR2, and NRP1 in human endothelial cells. ***PLOS Comp Biol*** 20:(2):e1011798. doi: 10.1371/journal.pcbi.1011798. (bioRxiv 2022.09.30.510412; https://doi.org/10.1101/2022.09.30.510412.)
85. Tanke NT, Liu Z, Gore MT, Bougaran P, Linares MB, Marvin A, Sharma A, Oatley M, Yu T, Quigley K, Vest S, Cook JG, and **Bautch VL.** (2024) Endothelial cell flow-mediated quiescence is temporally regulated and utilizes the cell cycle inhibitor p27. ***Arterioscler Thromb Vasc Biol.*** 44, 1265-1282. doi: 10.1161/ATVBAHA.124.320671.
86. Liu Z, Tanke NT, Neal A, Yu T, Branch T, Sharma A, Cook JG, **Bautch VL**. (2024) Differential endothelial cell cycle status in post-natal retinal vessels revealed using a novel PIP-FUCCI reporter and zonation analysis. ***Angiogenesis***. doi: 10.1007/s10456-024-09920-0. Online ahead of print.
87. Pak B, Kim M, Han O, Lee HW, Dubrac A, Choi W, Yang JM, Boyé K, Cho H, Citrin KM, Kim I, Eichmann A, **Bautch VL**, Jin SW. (2024). ACVR1/ALK2-p21 signaling axis modulates proliferation of the venous endothelium in the retinal vasculature. ***Angiogenesis.*** doi: 10.1007/s10456-024-09936-6. Online ahead of print.
88. Pi D, Braun J, Dutta S, Patra D, Bougaran P, Mompeon A, Ma F, Stock SR, Choi S, Garcia-Ortega L, Pratama MY, Pichardo D, Ramkhelawon B, Benedito R, Bautch VL, Ornitz DM, Goyal Y, Iruela-Arispe ML. (2024). Resolving the design principles that control postnatal vascular growth and scaling. BioRxiv Dec 11:2024.12.10.627758. doi: 10.1101/2024.12.10.627758.PMID: 39713449

MANUSCRIPTS IN PREPARATION:

Kulikauskas M, Kim B, Jin S-W, **Bautch VL.** ALK2 negatively regulates BMP and functions in vascular integrity with SMAD6.

X Shaka, Kulikauskas M, Oatley M and **Bautch VL**. Smad6 is a bi-potential regulator of endothelial cell BMP signaling.

Oatley M, Miller K, Sharma A, **Bautch VL**. SMAD6 and SMAD7 co-operate to regulate vascular integrity during embryogenesis.

Liu Z, Kim W, Jin S-W, **Bautch VL.** Profiling of neonatal vs. physiological angiogenesis reveals overlap and differences.

Liu Z, Sharma A, Tanke NT, Yu T, Neal A, **Bautch VL**. DYRK1a regulates cell cycle differentially in spatially defined angiogenic zones.

INVITED REVIEWS, CHAPTERS, and EDITORIALS (chronological order):

1. Alpert S, Hanahan D, **Bautch VL**. (1989). Targeted expression of viral genes to pancreatic beta cells in transgenic mice. In ***Concepts in Viral Pathogenesis III***, A.L. Notkins and M.B.A. Oldstone, eds. New York, Springer-Verlag, pp. 177-185.
2. **Bautch, V.L**., Toda, S., Hassell. J.A. and Hanahan, D. (1989). Tissue specificity of oncogene action: endothelial cell tumors in polyoma middle T transgenic mice. In ***Leningrad Symposium on Perinatal and Multigenerational Carcinogenesis***, N.P. Napalkov, J.M. Rice, L. Tomatis, and H. Yamasaki, eds. Lyon, France, IARC, pp. 255-266.
3. **Bautch, V.L.** (2001). Embryonic stem cell differentiation and the vascular lineage. In ***Methods in Molecular Biology****, Vol. 185: Embryonic stem cells: methods and protocols* (ed. K. Turksen). pp. 117-125, New Jersey: Humana Press.

4. Kearney, J.B., and **Bautch, V.L.** (2003). *In vitro* differentiation of mouse ES cells: hematopoietic and vascular development. In ***Meth. Enzymol****. vol. 365, Differentiation of Embryonic Stem Cells* (eds. P.M. Wassarman and G.M Keller), pp. 83-98, San Deigo CA: Elsevier Academic Press.
5. **Bautch, V.L.**, Ambler, C.A. (2004). Assembly and patterning of vertebrate blood vessels. ***Trends Cardiovasc. Med.*** 14, 138-143.
6. Hogan, K.A., **Bautch, V.L.** (2004). Blood vessel patterning at the embryonic midline. ***Curr Topics Dev Biol.*** 62, 55-85.
7. **Bautch, V.L.** (2004). Gas up and live! ***Blood*** 103, 2865. Commentary.
8. **Bautch, V.L.** (2006). Flk1 expression: promiscuity revealed. ***Blood*** 107, 3-4. Commentary.
9. Kappas, NC, **Bautch, VL**. (2007). Maintenance and in vitro differentiation of mouse embryonic stem cells to form blood vessels. In ***Current Protocols in Cell Biology***, (ed JS Bonifacino et al.). pp. 23.3.1-23.3.20.John Wiley & Sons, Inc.
10. **Bautch, VL.** (2008). Animal models of vascular development and endothelial cell biology. In ***Source Book of Models for Biomedical Research****,* (ed. PM Conn) pp. 355-360, New Jersey: Humana Press.
11. Zeng, G, **Bautch, VL**. (2008). Differentiation and dynamic analysis of primitive vessels from ES cells. In ***Methods in Molecular Medicine****, Vol. 482, Regenerative medicine* (ed. J. Audet and W.L. Stanford). pp. 333-344, New Jersey: Humana Press.
12. Rylova SN, Randhawa PK, **Bautch VL**. (2008). In vitro differentiation of mouse embryonic stem cells into primitive blood vessels. In ***Meth. Enzymol****. vol.443, Angiogenesis* (ed. DM Cheresh), pp. 103-117, San Deigo CA: Elsevier Academic Press.
13. **Bautch VL**. (2008). Ninein leads the way in vessel sprouting. ***Arterioscler Thromb Vasc Biol*** 28, 2094-2095. Editorial.
14. **Bautch, VL**. (2009). Endothelial cells form a phalanx to block tumor metastasis. ***Cell*** 136, 810-812. Commentary.
15. **Bautch VL**, James JM. (2009). Neurovascular development: the beginning of a beautiful friendship. ***Cell Adh Migr*** 3, 199-204.
16. Chappell JC, **Bautch VL**. (2010). Vascular development: genetic mechanisms and links to vascular disease. ***Curr Top Dev Biol*** 90, 43-72.
17. **Bautch VL**. (2010). Cancer: Tumour stem cells switch sides. ***Nature*** 468, 770-771. Commentary.
18. Lee C, **Bautch VL**. (2011). Ups and Downs of Guided Vessel Sprouting: the Role of Polarity. ***Physiology*** (Bethesda) 26, 326-33.
19. Chappell JC, Wiley DM, **Bautch VL**. (2011) Regulation of Blood Vessel Sprouting. ***Semin Cell Dev Biol*** 22:1005-1011.
20. **Bautch VL**. (2012) VEGF-Directed Blood Vessel Patterning: From Cells to Organism. ***Cold Spring Harb Perspect Biol***. 2, a006452. doi:10.1101/cshperspect.a006452.
21. **Bautch VL**. (2011). Stem Cells and the Vasculature. ***Nature Med*** 17, 1437-1443. doi: 10.1038/nm.2539.PMID:22064433.
22. Chappell JC, Wiley DM, **Bautch VL.** (2012) How Blood Vessel Networks are Made and Measured. ***Cells, Tissues, Organs*** 195:94-107.
23. Peirce SM, Mac Gabhann F, **Bautch VL**. (2012). Integration of experimental and computational approaches to sprouting angiogenesis. ***Curr Opin Hematol*** 19:184-191.
24. **Bautch VL**, Ruhrberg C. (2013) Molecular mechanisms of neurovascular development. In ***Cell and Mol Life Sci*** 70, 1675-1684.
25. Kushner EJ, **Bautch VL**. (2013) Building blood vessels in development and disease. ***Curr Opin Hematol***. 20, 231-236.
26. Boucher JM, **Bautch VL**. (2014) Anti-Angiogenic VEGF-A in Peripheral Artery Disease. ***Nature Med*** 20, 1383-1385. Commentary.
27. Dudley AC, Bautch VL. (2015) Feeding cancer's sweet tooth: specialized tumor vasculature shuttles glucose in pancreatic ductal adenocarcinoma. J Pathol 236, 133-135. Commentary.
28. **Bautch VL**, Caron KM. (2015) Blood and lymphatic vessel formation. In ***Signals, Switches and Networks in Mammalian Development****.* (J Rossant, PPL Tam, WJ Nelson, eds). Cold Spring

Harbor Press.
29. **Bautch VL**. (2017) Endoglin moves and shapes endothelial cells. ***Nat Cell Biol*** 19, 593-595. Commentary.
30. **Bautch VL** (2019). New plugs for CCM bleeds. ***Blood*** 133, 183-184. Commentary.
31. **Bautch VL** (2019). Bone morphogenetic protein and blood vessels: new insights into endothelial cell junction regulation. (2019). ***Curr Opin Hematol*** 26, 154-160.
32. Kulikauskas MR, X Shaka, **Bautch VL**. (2022). The versatility and paradox of BMP signaling in endothelial cell behaviors and blood vessel function. ***Cell Mol Life Sci***. *79, 77.* doi: 10.1007/s00018-021-04033-z.
33. **Bautch VL.** (2022). Vascular development and organogenesis: depots of diversity among conduits of connectivity define the vasculome. In ***The Vasculome: From Many, One*** Galis ZS (ed). Elsevier/Academic Press.
34. **Bautch VL** and Mukouyama YS (2022). The Beauty and Complexity of Blood Vessel Patterning. ***Cold Spring Harbor Perspect Med.*** 12:a041167. doi: 10.1101/cshperspect.a041167.
35. Bougaran P and **Bautch VL**. (2024). Life at the Crossroads: the nuclear LINC complex and vascular mechanotransduction. ***Front Physiol*** 15:1411995. doi. 10.3389/fphys.2024.1411995.

Complete List of Published Work in NCBI (My Bibliography):
http://www.ncbi.nlm.nih.gov/sites/myncbi/victoria.bautch.1/bibliography/41163593/public/?sort=date&direction=descending

EXTERNAL FUNDING

CURRENT:

1-R35-HL139950-07 (Bautch, PI) 01/01/18 - 12/31/24
NIH-NHLBI *Molecular and Cellular Control of Angiogenesis* NCE 01/01/25-12/31/25
This Outstanding Investigator Award funds most Bautch lab research into non-pathological blood vessel formation and function

5-R01-CA282648 (Muller, M, PI; Bautch, Co-I) 06/15/23 – 05/31/28 (0.96 cm)
NIH-NCI Total Direct Bautch lab: $193,969
Subcontract from North Carolina State University (NCSU)
Quantitative assessment of angiogenesis using ultrasound multiple scattering
We will develop a novel technique for the assessment of the architectural properties of angiogenic microvasculature using multiple scattering of ultrasound. Ultimately, the methods developed will be used for diagnosis and monitoring of cancer.

5-R01-CA282648 (Bressan, M, PI; Bautch, Co-I) 03/01/24 – 02/28/29 (0.24 cm)
NIH-NHLBI Total Direct Bautch lab: $26,000
Regulation of cardiac pacemaker cell cytoarchitecture
This proposal seeks to define the underlying cellular interactions that maintain normal sinoatrial node function. Successful completion of these studies will uncover the homeostatic processes that support native cardiac pacemaking, identify how these processes become disrupted in disease, and provide critical insight for the design of next-generation of therapeutics for correcting human arrythmias.

25POST1377401 AHA Postdoc Fellowship (Bougaran) 1/1/25-12/31/26 Sponsor
LINC complex function in endothelial cell during vascular development, function and in disease

COMPLETED:

1-R01-GM 129074-04 (Bautch, Co-PI) 8/15/18 - 7/14/24
NIH-NIGMS New Roles for VEGFR1 in Angiogenesis
This multi-PI award (Mac Gabhann, lead PI; Bautch, co-PI; Annex, co-PI) uses computational modeling and disease models to determine how mVEGFR1 functions as a decoy and a signaling receptor.
NCE 7/15/22-7/14/24

F31 HL156527 NIH Predoc Fellowship (Tanke) 5/2021-4/2024 Sponsor
Endothelial Cell Cycle Responses to Fluid Shear Stress

21POST829371 AHA Postdoctoral Fellowship (Oatley) 4/2021-6/2023 Sponsor
Overlapping Functions of SMAD6 and SMAD7 in Vascular Development and Stability

5-R01-CA220681-04 (Dayton, PI & Bautch, Co-I) 08/10/17 – 07/31/22
NIH/NCI
High Frame Rate 3-D Super Resolution Ultrasound Microvascular Imaging

NSF Predoctoral Fellowship PI: Molly Kulikauskas Sponsor
Total direct costs: $120,000 2019-2022

20PRE35080143 AHA Predoc Fellowship (Kinghorn) 7/1/20-6/30/22 Sponsor
Trafficking and secretion of soluble VEGFR1 as a regulator of angiogenic sprout guidance

19PRE34380887 AHA Predoc Fellowship (Berlin) 7/1/19-6/30/21 Sponsor
Centrosome Number as a Regulator of Endothelial Cell-Cell Junctions and Lumenization

11F31-CA243177-01 (Newsome, PI) 07/01/19 – 06/30/21 Co-Sponsor
NIH/NCI
Toward Clinical Translation of Acoustic Angiography: Optimization of Microvascular Ultrasound Imaging on a Novel Dual-frequency Array

19POST34380916 AHA Postdoc Fellowship (Ruter) 1/1/19-12/31/20 Sponsor
NOTCH1 and SMAD6 Regulatory Mechanisms Governing Flow-mediated Vascular Function (declined second year of funding)

UCRF Team Science Award UNC Cancer Ctr (Dayton PI) 7/2016-6/2018 Co-PI
This is a 4-PI award to compile preliminary data for a PPG on tumor angiogenesis imaging as a diagnostic tool for humans.
Direct Costs: $100,000

16PRE5104608 AHA Predoctoral Fellowship (Wylie PI) 7/1/16-6/30/2018 Sponsor
Role of SMAD6 in Blood Vessel Formation

NIH R01 HL43174-24A1 (Bautch, PI) 4/1/16-3/31/20
Molecular Control of Angiogenesis
Total direct costs: $1,000,000 (This grant was terminated to accept the R35 award on 1/1/18).

1-R01-HL116719-04 (Bautch, PI) 7/1/13 – 6/30/18
NIH-NHLBI
Centrosome Mis-regulation and Blood Vessel Function
Total direct costs: $1,000,000, NCE 7/1/17-6/30/18. (This grant was terminated to accept the R35 award on 1/1/18).

5-R01-HL117256-03 (Bautch, PI) 9/2/15-5/31/18

NIH-NHLBI *Mechanisms of Neovascularization in Response to Ischemia*
Direct Costs: $500,000. (This grant was terminated to accept the R35 award on 1/1/18).

F31 HL129762-01 (Chong PI) 9/1/16-8/31/18 Sponsor
NIH-NHLBI
Analysis of Tortuous Vessel Formation and Sprouting

1-R21-CA184387-02A1 (Rathmell, PI) 4/2015-3/2017 Collaborator
NIH-NCI *Exploiting DLL4 inhibition as a mechanism to overcome resistance in ccRCC*
Direct Costs: $275,000

1K99-HL124311-01A1 (Kushner, PI) 9/2015-8/2017 (decline yr 2 K99) Sponsor
NIH-NHLBI *Centrosomes and Cytoskeletal Mechanisms of Blood Vessel Dysfunction*
The major goal of this project is to provide stipend and research support for a transition to independence for Dr. Kushner; he will begin investigations of cytoskeletal mechanisms in blood vessels.

15PRE25090082 AHA Predoc Fellowship (Chong, PI) 7/2015-6/2017 (returned to accept NIH Predoctoral Fellowship) Sponsor
AHA Predoctoral Fellowship *Analysis of Tortuous Vessel Formation and Sprouting*

F32 HL134240-01 (Boucher, declined) 7/1/16 – 6/30/18 Sponsor
NRSA Postdoctoral Fellowship, NIH-NHLBI
The major goal of this project is to explore VEGFR-1 trafficking and stability.

AHA 14POST19800000 (Boucher) 2014-2016 Sponsor
AHA Post-doctoral Fellowship, Mid-Atlantic Affiliate
Spatiotemporal Characterization of Flt-1 during Sprouting Angiogenesis
Total direct costs: $ 82,000

15SDG24660001 SDG (Kushner) 7/2015-9/2015 Sponsor
AHA *Centrosomes and Cytoskeletal Mechanisms of Blood Vessel Dysfunction*
The major goal is to analyze how excess centrosomes impact endothelial cells and blood vessels and transition Dr. Kushner to independence. (Grant returned to accept NIH K99/R00 award).

UCRF Innovation Award (Rathmell) 7/1/13 – 6/30/15 Collaborator
UNC Lineberger Comprehensive Cancer Center
The major goal is to analyze a novel Notch pathway antagonist in renal cell carcinoma.
Role: Collaborator

F32 HL113296-01A1 (Kushner) 7/1/13 – 6/30/15 Sponsor
NRSA Postdoctoral Fellowship, NIH-NHLBI
Centrosome Over-duplication and Blood Vessel Function
The major goal of this project is to explore how excess centrosomes affect blood vessel function.
Role: Mentor

F32 HL123264-01 (Mouillesseaux) 4/1/14 – 6/30/15 Sponsor
NRSA Postdoctoral Fellowship, NIH-NHLBI
Notch-dependent Regulation of BMP Signaling in Angiogenesis
The major goal of this project is to explore BMP-Notch interactions during angiogenesis
Role: Mentor

NSF Predoctoral Fellowship (Chong) 2012-2015 Sponsor
Total direct costs: $120,000

NSF Predoctoral Fellowship (Nesmith) 2012-2015 Sponsor
Total direct costs: $120,000

NIH K99 HL105779-02 (Chappell) 2012-2014 Sponsor, K99
The Role of Vascular Flt-1 in Endothelial-Pericyte Interactions
Total direct costs: $722,259

NCBC Equipment Proposal (Bautch) 2013
Acquisition of an Olympus FV1200 Confocal Microscope Dedicated to Live Imaging
Total direct costs: $301,357
Role: contact PI

NIH R01 HL86564-04 PI: Victoria L Bautch 2007-2013
Integrating Cell Division and Morphogenesis in Developing Vessels
Total direct costs: $1,000,000

AHA 11POST7220000 PI: Erich Kushner 2011-2013
AHA Post-doctoral Fellowship, Mid-Atlantic Affiliate
Centrosome Duplication And Blood Vessel Function
Total direct costs: $ 82,000 Role: Sponsor

AHA 11POST7290058 PI: Sophie DalPra 2011-2013
AHA Post-doctoral Fellowship, Mid-Atlantic Affiliate
Integrating Cellular Processes to Form Blood Vessels: Role of the G-protein Gai
Total direct costs: $82,000 Role: Sponsor

UNC Lineberger Comprehensive Cancer Center Innovation Award
PI: Victoria Bautch 2010-2012
Mis-Regulation Of Endothelial Cell Centrosome Numbers In Tumor Vessels
Total direct costs: $194,951

AHA 10PRE3290010 PI: David M Wiley 2010-2011
AHA Predoctoral Fellowship, Mid-Atlantic Affiliate
The Role of Bmp Signaling in Regulating Endothelial Cell Behavior and Complex Vascular Networks
Total direct costs: $46,000 Role: co-Sponsor

NIH R01 HL83262-04 PI: Victoria L Bautch 2006-2011
Ras/Rap Signaling and Endothelial Morphogenesis
Total direct costs: $1,000,000 [No cost extension 2010-11]

NIH F32 HL95359-02 PI: John Chappell 2009-2010
NRSA Post-doctoral Fellowship, NIH-NHLBI
Flt-1 (VEGFR-1) Regulation of Endothelial Cell Sprouting and Vessel Morphogenesis
Total direct costs: $100,000 Role: Sponsor

AHA 0715240U PI: Sarah M Taylor 2007-2009
AHA Predoctoral Fellowship, Mid-Atlantic Affiliate
Regulation of vascular morphogenesis by endothelial cell polarity and oriented division
Total direct costs: $40,000 Role: Sponsor

AHA 0715187U PI: PK Randhawa 2007-2009
AHA Predoctoral Fellowship, Mid-Atlantic Affiliate

How RasGRP3, a novel Ras activator, affects endothelial adherens junctions
Total direct costs: $40,000 Role: Sponsor

AHA 0826082E PI: John Chappell 2008-2010
(given up 1/1/09 to accept NIH NRSA)
AHA Post-doctoral Fellowship, Mid-Atlantic Affiliate
The role of flt-1 (VEGFR-1) in sprout guidance and vessel morphogenesis
Total direct costs: $80,000 Role: Mentor

1-R13 HL90486-01 PI: Victoria L Bautch 2007– 2008
NIH-NHLBI
"Vasculata 2007" Conference grant
Total direct costs: $15,000

NIH R21-HL71993 PI: Victoria L Bautch 2002-2006
Integrating Cell Division and Morphogenesis in Vessels
Total direct costs: $450,000

Dept. of Defense PI: David M Roberts 2002-2005
Pre-doctoral Fellowship
Analysis of a novel, vascular Ras guanine nucleotide exchange factor in tumor angiogenesis and development
Total direct costs: $66,000 Role: Mentor

AHA PI: Nicholas Kappas 2003-2005
AHA Pre-doctoral Fellowship, Mid-Atlantic Affiliate
Coordinating Cell Division and Morphogenesis in Blood Vessel Development
Total direct costs: $40,000 Role: Mentor

NIH R01 HL43174 PI: Victoria L Bautch 1989-1994
Molecular Control of Angiogenesis
Total direct costs: $659,753

NIH R01 HL43174 PI: Victoria L Bautch 1994-1998
Molecular Control of Angiogenesis
Total direct costs: $597,675

NIH R01 HL43174 PI: Victoria L Bautch 1998-2003
Molecular Control of Angiogenesis
Total direct costs: $1,009,711

NIH R01 HL43174 PI: Victoria L Bautch 2003-
2009Molecular Control of Angiogenesis
Total direct costs: $925,000

Glaxo-Wellcome PI: Victoria L Bautch 2000-2001
Anti-angiogenesis targets: VEGF
Total direct costs: $103,500

NIH K04 HL02908 PI: Victoria L Bautch 1993-1998
Research Career Development Award
Molecular Control of Blood Vessel Formation

Total direct costs: $365,434

Wellcome Travel Grant PI: Victoria L Bautch 1997
Control of Vascular Pattern Formation
Total direct costs: $12,040

Greenwall Foundation PI: Victoria L Bautch 1990-1992
The Role of Tumor Suppressor Genes in Osteogenic Sarcomas and Other Tumors in Transgenic Mice
Total direct costs: $307,348

NCBC 9110-IDG-1003 PI: Victoria L Bautch 1991-1993
The UNC Transgenic Mouse Facility
Total direct costs: $145,211

NIH-NIDR F32 Post-Doctoral PI: Julian Moiseiwitsch 1995-1998
Endothelial Induction of Dental Pulp Fibroblasts
Total direct costs: $98,400 Role: Mentor

NIH-NHLBI F32 Post-Doctoral PI: Sambra Redick 1996-1999
The Role of PECAM in Vascular Development
Total direct costs: $65,908 Role: Mentor

AHA Post-doc Fellowship PI: Kelly A Hogan 2001-2003
Analysis of Vascular Patterning Signals (Returned to accept NIH NRSA)
Total direct costs: $54,000 Role: Mentor

NIH-NRSA Post-doc Fellowship PI: Kelly A Hogan 2002-2004
Analysis of Vascular Patterning Signals
Total direct costs: $90,000 Role: Mentor

Wallenberg Foundation PI: Catharina Ellerstrom N/A
Tissue-specific Control of Gene Expression in Vitro and in Vivo
Total direct costs: $10,000 Role: Mentor

STINT (Fellowship Support) PI: Catharina Ellerstrom 2000-2001
Tissue-specific Control of Gene Expression in Vitro and in Vivo
Total direct costs: $62,000 Role: Mentor

Dept. of Defense Predoctoral PI: Joseph Kearney 2000-2003
Flt-1 (VEGFR-1) as an Angiogenic Inhibitor
Total direct costs: $65,958 Role: Mentor

INVITED SEMINARS AND PLATFORM PRESENTATIONS

INVITED PLATFORM PRESENTATIONS AT MEETINGS AND SYMPOSIA (last 10 years):

51. *BMP and Blood Vessels*, International Vascular Biology Symposium, Kyoto Japan, April 2014.
52. *BMP and Blood Vessels*, Gordon Conference on Endothelial Cell Phenotypes, Girona Spain, July 2014.
53. *Tip Cells and Angiogenesis*, NAVBO Meeting, Asilomar CA, October 2014.
54. *How Models Inform Vessel Morphogenesis*, Gordon Conference on Angiogenesis, Newport RI, August 2015.
55. *Notch Regulates BMP Responsiveness and Lateral Branching in Vessel Networks via SMAD6*, Cells in Motion Meeting, Muenster Germany, May 2016.
56. *BMP and Blood Vessels*, Kloster-Seeon Angiogenesis Meeting, Seeon Germany Sept 2016.
57. *BMP Signaling and Angiogenesis*, IBS-MPI Conference on Vascular Biology, Daejeon, Korea, Oct 2016.
58. *How Blood Vessels Form in Space and Time*, IVBM, Boston MA, October 2016.
59. *BMP Signaling in Angiogenesis*, NAVBO Development and Genetics Workshop, Asilomar CA, October 2017.
60. *New Roles for BMP Signaling in Angiogenesis*, KEYNOTE ADDRESS, Angioma Meeting, Wash DC, October 2017.
61. *New Roles for BMP in Blood Vessels*, Interactions at the Neurovascular Interface, Frankfurt Germany April 2018.
62. *How Blood Vessels Control Their Destiny*, IVBM, Helsinki Finland June 2018.
63. *How Blood Vessels Control Their Own Destiny*, Kloster-Seeon Angiogenesis Meeting, September 2018.
64. *How Endothelial Cells Control their Destiny: SMAD6 and Vascular Responses*, NAVBO Meeting, Asilomar CA, October 2019.
65. *SMAD6 Regulates Vascular Flow Responses*, International Vascular Biology Symposium (IVBM), Seoul Korea, Sept 2020 (virtual).
66. Invited speaker, Gordon Conference on Vascular Cell Biology, Ventura CA (scheduled for Jan 2021, rescheduled for early 2023).
67. *The Incredible Lives of Vascular Endothelial Cells – A Live Imaging Perspective*, Invited Speaker, Live Cell Imaging Session, Experimental Biology (virtual, April 2021).
68. *SMAD6 Selectively Regulates Vessel Integrity in Different Organ Beds*, Invited Speaker, Vascular Control of Organ Function (CRC 1366), Heidelberg Germany June 2021 (virtual meeting).
69. *Endothelial Cells: Shape Changers of the Vasculature*, Invited Speaker, NAVBO Webinar, "Shaping Cell Behaviour" (virtual, Aug 17, 2021).
70. *BMP and Blood Vessels: New Insights from SMAD6*, Invited Speaker, EMBO Workshop on Vascular Malformations (virtual, Oct. 6-8, 2021).
71. Invited Speaker, Blood Vessel Club, Experimental Biology 2022, Wash DC April 2022 (Declined).
72. *"BMP and Blood Vessels: New Insights from Negative Regulators"* Invited speaker, Gordon Conference on Endothelial Cell Phenotypes, Barcelona Spain (scheduled for June 2020, rescheduled for summer 2022).
73. "*Blood Vessels and Disease: BMP Signaling"*, **Invited Keynote Speaker**, Vasculata, Durham NC, July 2022.
74. *"LINCing the Nucleus and Junctions in Blood Vessels"*, Invited speaker, Gordon Conference on Vascular Cell Biology, Ventura CA (scheduled for Jan 2021, rescheduled January 2023).
75. "*How vessels form and function – 20 years of beauty and complexity*", Invited Speaker, NAVBO Vascular Developmental Biology 20 yrs, February 2024.

76. **Invited Keynote Speaker,** *"LINCing the Nucleus to Junctions and Focal Adhesions in Blood Vessels"*, Australian Network of Cardiac/Developmental Biologists, Brisbane Australia, November 2023.
77. "*Conceptualizing Cardiovascular Resilience"*, Invited Speaker, NIH-NHLBI Sleep and Circadian Rhythms in Cardiovascular Resilience Workshop, April 2024.
78. *"Endothelial quiescence: it's all in the flow"*, Invited Speaker, NAVBO Symposium, Endothelial Cell Cycle and Arterio-Venous Fate (virtual), May 2024
79. *"Endothelial Cell Phenotypes – Heterogeneity in Vascular Development Disease and Homeostasis"*, Invited Discussion Leader and Speaker, Gordon Research Conference on Endothelial Cell Phenotypes, Barcelona Spain, June 2024.
80. "How the Nucleus Regulates Endothelial Function in Blood Vessels", MHI Retreat, Chapel Hill NC, October 2024.
81. "Nuclear SUN Proteins Regulate Endothelial Cell-Matrix Interactions" Speaker, Gordon Research Conference Vascular Cell Biology, Ventura CA, January 2025

Chaired Sessions at Meetings:

1. Mini-meeting on Vascular Development: Vascular Cell and Developmental Biology, NAVBO-AAA, Experimental Biology Meeting, Washington DC, April 2007.
2. "Vessel Matrix and Development" Gordon Conference on Angiogenesis and Microcirculation, Newport RI, August 2007.
3. "Extracellular Matrix and Angiogenesis", Keystone Symposium - Molecular Mechanisms of Angiogenesis in Development and Disease, Vancouver, BC Canada, Jan. 2008.
4. "Regulation of Vascular Stability, Permeability, and Transport II", Seeon-Kloster Angiogenesis Meeting, Seeon Germany, Sept. 2008.
5. "Endothelial Barriers", Seeon-Kloster Angiogenesis Meeting, Seeon Germany, Sept 2010.
6. "Angiogenic Sprouting and Lumen Formation", Gordon Conference on Angiogenesis, Newport RI, August 2011.
7. "The Endothelium in Development", Gordon Conference on Endothelial Cell Phenotypes, Tuscany Italy, August 2012.
8. "New Directions in Lymphangiogenesis", Yale-NAVBO Meeting on Lymphatic Circulation in Health and Disease, Yale University, New Haven CT, May 2013.
9. "Keynote Session", Gordon Conference on Endothelial Cell Phenotypes, Girona Spain, July 2014.
10. "Blood Vessel Morphogenesis", NAVBO Meeting, Asilomar CA, October 2014.
11. "Keynote Session", Gordon Conference on Endothelial Cell Phenotypes, Girona Spain, July 2016
12. "Vascular Development", IVBM, Boston MA Nov 2016.
13. "Integration of Signaling Pathways in Angiogenesis", Angiogenesis Gordon Conference, Newport RI Aug 2017.
14. "Vascular Heterogeneity", NAVBO Vascular Development and Genetics Workshop, Asilomar CA Oct 2017.
15. "Specialization of Endothelial Cells", Endothelial Cell Phenotyptes GRC, Tuscany Italy, July 2018.
16. "Arteriogenesis", IVBM, Helsinki Finland, June 2018.
17. "Signals that Control Angiogenesis, Lymphangiogenesis and Vascular Remodeling", NAVBO Annual Meeting, October 2020 (virtual format).
18. "Building Vessels in the Embryo", Angiogenesis Gordon Conference, Newport RI, July/August 2023.
19. Endothelial Cell Phenotypes Gordon Conference, Barcelona Spain, June/July 2024. Co-chaired the "Power Hour".
20. Vascular Cell Biology Gordon Conference, Ventura CA, Jan 2025l Co-chaired the "Power Hour".

INVITED SEMINARS (last 10 years):

2014
Northwestern Medical School, Chicago Illinois (March)
2015
U. of Louisville, Kentucky (April)
2016
NIH-NHLBI, Bethesda MD (March)
Duke University, Durham NC (April)
NIH-NHLBI, Wash DC (March)
Wuhari Research Institute, U. Helsinki Finland (May)
Eli Lilly, Indianapolis IN (May)
KAIST Gwanju, Korea (October)
U. Seoul, South Korea (October)
2018
Emory University, Atlanta GA (February)
2019
Harvard Medical School/Children's Hospital, Boston MA (May)
2021
NIH-NHLBI, Washington DC (Feb, virtual)
U. Sao Paulo, Brazil (March, virtual)
Opponent, PhD Thesis Committee, Helsinki Finland (virtual)
2023
U. Queensland, Australia, Nov
2024
NIH-NHLBI, Washington DC (April)
2025
Duke U, Durham NC (January)
U. California, San Francisco (March)
Northwestern University, Chicago IL (April)
U. Virginia, Charlottesville VA (April)

TRAINING

POST-DOCTORAL FELLOWS/RESEARCH ASSOCIATES (19 total):

NAME	YEARS	CURRENT POSITION/FUNDING BAUTCH LAB
Are Helseth, MD/PhD	1990-1991	Medical Administrator, Oslo, Norway (2000-present).
Nathalie Dubois-Stringfellow PhD	1990-1994	Senior Director Preclinical Research and Development, XOMA (US) LLC, San Francisco CA (2005-present)
Osamu Ohneda, MD/PhD	1994-1996	Professor Regen Medicine/Stem Cell Biology, University of Tsukuba, Tsukuba, Japan
Maneesha Inamdar, PhD	1995-1997	Professor Mol Biology/Genetics, Jawaharlel Nehru Center Scientific Research, Bangalore India (1999-present)

Julian Moiseiwitsch, DDS/PhD	1995-1997	Practicing Dentistry, Maryland (2000-present). NIH Postdoctoral Fellowship.
Sambra Redick, PhD	1995-1999	Senior Research Scientist, U. Mass Medical Ctr (2002-present). NIH Postdoctoral Fellowship.
Catharina (Ellerstrom) Brandsten DDS/PhD	1999-2002	Director R&D, Takara Bio Europe AB, Karolinska Inst, Goteborg, Sweden (2014-present). Fellowship Swedish Govt.
Kelly A. Hogan, PhD	2001-2004	Associate Dean for Instructional Innovation, UNC-CH, Teaching Professor of Biology, UNC-CH (2005-2023). Dean of Instruction, Duke U (2023-present). AHA Postdoctoral Fellowship; NIH Postdoctoral Fellowship.
Gefei Zeng, PhD/MBA	2004-2008	Senior Director, Bioinformatics and Biomarker Research, Merck, Beijing China (2016-present).
Svetlana Rylova, PhD	2006-2008	Senior Manager, International Medical Affairs Operations, Blueprint Medicines, Zug Switzerland (2021-present).
Sophie Dal-Pra, PhD	2009-2013	Medical Science Writer/Editor, ETSI (2018-present). AHA Postdoctoral Fellowship.
John C Chappell, PhD	2007-2014	Associate Professor (tenured), Carillion Institute and Virginia Tech University, Roanoke VA. Cancer Ctr T32 Training Grant (2007-08); AHA Postdoctoral Fellowship (2008); NIH Post-doctoral Fellowship (2009-10); UNC Pagano Award 2010; NIH K99-R00 Transition Independence Award (2012-14).
Kevin Mouillesseaux, PhD	2012-2015	Associate Director, StrideBio LCC, RTP, NC. Cancer Center T32 Training Grant (2012-2014); NIH Postdoctoral Fellowship (2014-15).
Erich Kushner, PhD	2010-2016	Associate Professor of Biology (tenured), U. Denver, CO Cancer Center T32 Training Grant (2010-11); AHA Post-doctoral Fellowship (2011-13); NIH Postdoctoral Fellowship (2013-15); AHA SDG (2015): NIH K99-R00 Transition Independence Award (2015-17).
Joshua Boucher, PhD	2013-2016	Senior Scientist II, Infectious Disease, IDEXX Laboratories Cancer Center T32 Training Grant (2013-2014); AHA Post-Doctoral Fellowship (2014-16); NIH Postdoctoral Fellowship (2016-2018 - declined).
Dana Lynn Ruter, PhD	2016-2019	Research Scientist, IMMORNA, RTP, NC; Cancer Center T32 Training Grant (2017-2019); AHA Postdoctoral Fellowship (2019).

Ziqing Liu, PhD	2017-2022	Assistant Professor of Physiology (tenure track), Medical College of Wisconsin, Milwaukee WI
Morgan Oatley, PhD	2019-2023.	Research Scientist, EpiCypher, RTP. AHA Postdoctoral Fellowship (2021-23)
Pauline Bougaran, PhD	2022-pres.	Bautch NIH R35 grant; AHA Postdoctoral Fellowship (2025-

GRADUATE STUDENTS (28 total):

1. **Rong Wang**, Dept. of Biology (1989-1993). PhD 1993: "The Study of Tumorigenesis and Angiogenesis in Transgenic Mice and in Cell Culture Systems". Post-doc, Dr. J. Michael Bishop, U. California at San Francisco (1994 - 2001). Current: Professor of Anatomy and Surgery and Director of Vascular Biology Center, U. California at San Francisco.

2. **Scott Heyward**, Dept. of Biology (1992-1994). MS 1994: "The Role of Adhesion Receptors in Vascular Development." Research associate, Fred Hutchinson Cancer Center, Seattle, WA (1995-98). Research associate at NIH-NCI, 199-2007. Current: Director of R&D and Scientific Affairs, Bioreclamation, Inc (2007-present).

3. **Caryn Ito**, Genetics Curriculum (co-advisor with Dr. Al Baldwin, 1994-1995). Ph.D. 1995: "Structure and Regulation of the Human IkBa Gene". Postdoc, Dr. Laurie Smith, U. N. Carolina, 1995-96; Postdoc, Dr. John Dick, Hospital for Sick Children, Toronto, Ontario (1996-2001); Research Associate, U. of Toronto, Institute of Biomaterials and Biomedical Engineering, 2001-2007. Current: working in biotech industry.

4. **Courtney Percy (Blickarz-Durand)**, Dept. of Biology (1997-2000). MS 2000: “Development of Quantitative Assays of Vascular Morphology”. Staff scientist at Genzyme Corporation, Framingham, MA, Aug. 2000-2010. Current: Principle Research Associate II, Adimab.

5. **Paulette Gallagher** (co-advisor with Dr. Anthony LaMantia), Dept. of Biology (1998-2000). MS 2000: “Retinoid Signaling in Vascular Development”. Research Tech at UNC-Chapel Hill, NC (2000-01).

6. **Kelli-Ann Monaco,** Genetics Curriculum (1998-2000), Dept. of Biology (2002). MA, 2002 (left PhD program for medical reasons): “The Development of Embryonic Macrophage in Mutant ES Cell Cultures”. 2001-2010, Staff Scientist at Boeringer Ingelheim, Boston, MA; Current: Senior Research Scientist, Bristol-Myers Squibb, Boston MA.

7. **Carrie Ambler**, Dept. of Biology (1997-2002). PhD 2002: “The Organization and Regulation of Blood Vessel Patterns in the Vertebrate Embryo”. Postdoc, Dr. Fiona Watt, ICRF London, England, 2002-2007. Current: CSO, LightOx; Endowed Professor of Biosciences, University of Durham, Durham England.

8. **Joseph Kearney**, Genetics Curriculum (1997-2003). PhD 2003: “The Role of *flt-1* in Vascular Development”. DOD Pre-doctoral Fellowship. Postdoc, Dr. Steve Crews, Dept. of Biochemistry, UNC-CH (2003-07). Molecular Genetics Fellowship (2008-10). Current: Director of Molecular Genetics and Genomics, LabCorp, NC (2015-present).

9. **Robyn Biggs**, Genetics Curriculum (1997-2005). PhD 2005 "Transcriptional Regulation of Vascular Endothelial Growth Factor", thesis work done off-campus (2000-2006) in the lab of Dr. Pat D'Amore, Schepens Eye Institute, Boston, MA. DOD Pre-doctoral Fellowship. Post-doc D'Amore lab (2006-2007). Temporary work in Biotech (2008-2010). Research Scientist, Sartori Pharmaceuticals, Cambridge MA (2010-2013); Senior Scientist/Project Lead, Shire Pharmaceuticals (2013-2016); Current: Associate Director, Gemini Therapeutics (2017-present).

10. **David Roberts**, Genetics Curriculum (1999-2004). PhD 2004: "Analysis of the VEGF and RasGRP3 Signaling Pathways in Vascular Development". NSF Pre-doctoral Fellowship; DOD Pre-doctoral Fellowship. Post-doctoral fellow with Dr. Mark Peifer, Dept. of Biology, UNC-CH (2005-2010); Current: Associate Professor of Biology (tenured), Franklin and Marshall College, Lancaster PA (2016-present).

11. **Nicholas Kappas**, Dept. of Biology (2000-2006). PhD,2006: "Analysis of the VEGFR-1 (flt-1) isoforms in vascular development''. AHA Pre-doctoral Fellowship (2002-2004). Currently: Executive Vice-President and Dept Head, Med and Scientific Affairs, Synapse Medical Communications.

12. **Amanda Anderson**, IBMS/Dept. of Biology (2004-2007). MA 2007 (left the Graduate Program due to medical reasons). "Targets of RasGRP3 in Vascular Endothelial Cells". Staff Scientist, Invitrogen, Boston, MA (2006-2008). Currently Senior Associate Scientist, Cardiovascular Group at Pfizer, Inc.

13. **Joanna H Fried**, Dept. of Biology (2005-2007). MS 2007: "The Role of RasGRP3 in the embryo". UNC Graduate College 5 year Fellowship (2005-2007). Matriculated to the School of Veterinary Medicine at North Carolina State University (2007-2011). Current: Veterinarian, Philadelphia PA.

14. **Jennifer M James**, Dept. of Biology (2004-2009). PhD 2009: "Mechanisms and analysis of intraneural blood vessel patterning in the quail neural tube". IVB T32 Training Grant (2005-2007). Research Associate, NIH (2007-2014). Current: Science Teacher, Washington DC.

15. **Sarah M Taylor**, Dept. of Biology (2005-2010). PhD 2010: "VEGF regulates centrosome duplication and division orientation in endothelial cells of developing blood vessels". AHA Pre-doctoral Fellowship (2006-2008). Current: COO, Research Square, Durham NC.

16. **Paramjeet K Randhawa**, Dept. of Biology and UNC-NIH Cell Motility and Cytoskeleton Program (2005-2010). PhD 2011: "The Ras activator RasGRP3 mediates diabetes-induced embryopathy and ET1-induced vessel morphogenesis". AHA Predoctoral Fellowship (2006-2008). Current: Director of Clinical Studies, Sapere Bio.

17. **David M Wiley**, Dept. of Biology (2007-2011). PhD 2011: "BMP Signaling during Angiogenesis". IVB T32 Training Grant (2007-2010); AHA Predoctoral Fellowship (2010-2011). Postdoc HHMI/ /Harvard Medical School, Boston MA; Current: Research Scientist II, Vertex Pharmaceuticals Boston MA.

18. **John Pelton**, Dept. of Biology (2010-2014). PhD 2014: "An aPKC**ζ**-Influenced Two-Tip Cell Topology Aids in Establishing Polarity of Angiogenic Sprouts". Currently High School Science Faculty, Durham NC.

19. **Catherine Wright**, Genetics and Molecular Biology Curriculum (2010-2014). GMB T32 Training Grant (2010-2011). PhD 2014: "LGN-Dependent Microtubule Regulation Influences Endothelial Cell

Migration, Adhesion, and Sprout Integrity". Postdoctoral Fellow, NC State University (2014-2015); Current: Analytics Program Director, Labcorp, RTP NC.

20. **Jessica Nesmith**, Genetics and Molecular Biology Curriculum (2011-2016). PhD 2016. NSF Predoctoral Fellowship (2011-2015). Current: Lecturer, Whiting School of Engineering, Johns Hopkins U., Baltimore MD.

21. **Diana Chong**, Genetics and Molecular Biology Curriculum (2011-2017). PhD 2017. GMB T32 Training Grant (2011-12); NSF Predoctoral Fellowship (2012-15); AHA Predoctoral Fellowship (2015); NIH Predoctoral Fellowship (2015-2017). Postdoctoral Fellow, Duke U (2017-2018). Current: Postdoctoral Fellow, Novartis, CA.

22. **Zhixian Yu**, Genetics and Molecular Biology Curriculum (2012-2016). PhD 2016. MS Computer Science, U. Colorado (2019); Current: Software Engineer Intern, Google, San Francisco CA.

23. **Lyndsay Ratliff Wylie**, Genetics and Molecular Biology Curriculum (2014-2018). PhD 2018. IVB T32 Training Grant (2014-2016); AHA Predoctoral Fellowship (2016-2018). Current: Senior Scientist, Merck, Dallas TX.

24. **Danielle Berlin Buglak**, Cell Biology and Physiology Curriculum (2017-2022). IVB T32 Training Grant (2017-2019); AHA Predoctoral Fellowship (2019-2021). Current: Postdoctoral Fellow, NIH-NHLBI

25. **Karina Kinghorn**, Cell Biol and Physiology Curriculum (2018-2023). IVB T32 Training Grant (2019-20); AHA Predoctoral Fellowship (2020-2022). Current: Postdoctoral Fellow, Novartis Research Institute, La Jolla CA.

26. **Molly Kulikauskas**, Cell Biol and Physiology Curriculum (2018-2023). NSF Predoctoral Fellowship (2019-2022). Current: Postdoctoral Fellow, NIH.

27. **Natalie Tanke**, Cell Biol and Physiology Curriculum (2018-2024). MiBio T32 Training Grant (2019-2020); NIH F31 Predoctoral Fellowship (2021-24). Current: Associate Director, Medical and Scientific Affairs, Synapse Inc.

28. **Chloe Whitworth** (co-mentor with B Polacheck), Genetics and Mol Biol Curriculum (2022-present). IVB T32 Training Grant (2022-2024); AHA Predoctoral Fellowship (2024-2026).

Post-Baccalaureate Students (9 total):

Arya Sharma (2023-present)
Alexandra Neal (2023-present).
Lauren Matsumura (2021-2022). Paper co-author. Working in Biotech, RTP NC.
Bryan Johnson (2020-2021). Paper co-author. Matriculate dental school, August 2021.
Kaitlyn Quigley (2019-2022). Paper co-author. Applying to professional programs.
Allison Marvin (2019-2021). Paper co-author. Current: PhD student, U Pennsylvania.
Ariel Gold (2019-2020). Paper co-author. Current: PhD student, Johns Hopkins U
Shaka X (2018-2020). UNC-PREP, Paper co-author. Current: PhD student Yale University.
Katy Citrin (2017-2018). Paper co-author. Current: PhD Student, Yale University.
Ryan Clark (2015-2016). Paper co-author. Current: Professional school.
Luke Ferro (2012-2013). Paper co-author. Current: PhD student, U. California, Berkeley

Graduate Student Thesis Committee Memberships:

STUDENT	MAJOR PROFESSOR	DEPARTMENT
Current:		
Sandra Molo-Stangeland	J. Cole	Biomedical Engineering
Caylie McGlade	D. Lawrence	Chemistry
Mariah Stewart	J. Schisler	Pharmacology
Completed:		
Michael Ignelzi	P. Maness	Biochemistry
Dai Zhonghan	A. J. D'Ercole	Biology
Patrick Sullivan	D. Joseph	Biology
Wang Fai	D. Stafford	Biology
Ann Greig	B. Kay	Biology
Tom Ingledue	B. Kay	Genetics Curriculum
Linda Bowerman	A. Domnas	Biology
Amy Rubenstein	P. Bedinger	Biology
Madeline Serrano	B. Popko	Genetics Curriculum
Sandra Orsulic	M. Peifer	Biology
Alyssa Wolberg	D. Stafford	Biology
Hui-Feng Lin	D. Stafford	Biology
Rachel Cox	M. Peifer	Genetics Curriculum
Clarissa Green	A. Burke	Biology
Barbara Burkhart	C. Barrett	Genetics Curriculum
Scott Magness	D. Brenner	Genetics Curriculum
Gordon Polevoy	M. Peifer	Genetics Curriculum
Julie Nowicki	A. Burke	Biology
Josh Knowles	N. Maeda	Genetics Curriculum
Jesse Mager	T. Magnuson	Genetics
Rebecca Cheeks	R. Goldstein	Biology
Tom Gebuhr	T. Magnuson	Genetics
Naina Bhasin	J. Lauder	Cell Biology
Lizz Grevengood	M. Peifer	Genetics Curriculum
Kathryn Akong	M. Peifer	IBMS/Genetics Curr. MD/PhD
Jen-Yi Lee	B. Goldstein	Biology
Don Fox	M. Peifer	Biology
Daniel Brown	F. Conlon	Biology
Melissa Hayden	M. Peifer	IBMS/Genetics
Sarah Goetz	F. Conlon	Biology
Jed Ferguson	C. Patterson	Pharmacology
Mohammed Sayad	L. Parise	Pharmacology MD/PhD
Jennifer Bushman Gilner	S. Kirby	Pathology MD/PhD
Lisa Swanhart	R. Duronio	Biology
Willow Gabriel	B. Goldstein	Biology
Erin McCarthy	B. Goldstein	Biology
Lea Beaulieu	F. Church	Pathology
Elizabeth Mandel	F. Conlon	Biology
Jennifer Clore	D. Threadgill	Genetics
Josh Uronis	D. Threadgill	Genetics
Shu Shibutani	R. Duronio	Biology
Jason Clayton	J. Faber	Cell and Molec Phys
Catharina Homen	M. Peifer	Biology

Kathleen Christine	F. Conlon	Genetics
Minna Roh	B. Goldstein	IBMS/Biology
Kelly Alexandre	M. Peifer	Biology
Jessica Sawyer	M. Peifer	Biology
Michael Lewis	S. Liljegren	Biology
Jenna Passman	M. Majesky	Genetics
Jacob Sawyer	B. Goldstein	Biology
Rachel Turner	L. Reid	Biomedical Engineering
Josh Currie	S. Rogers	IBMS/Biology
Adam Werts	B. Goldstein	Biology
Hee-young Sook	D. Wang	Cell and Dev Biology
Nathan Harris	M. Peifer	Biology
Daniel Sweet	E. Tzima	Cell and Molecular Physiology
Melissa Woolls	S. Jin	Cell and Molecular Physiology
Chris Schmitt	S. Jin	Genetics
Sarah Hanna	W. Kim	Genetics
Samantha Strickland	K. Caron	Cell and Molecular Physiology
Eric Ubil	A. Deb	Cell and Molecular Physiology
Alyssa Cope	S. Rogers	Biology
Neal Rasmussen	K. Rathmell	Genetics
Marta Szmacinski	F. Conlon	Genetics
Alexandra Arreola	K. Rathmell	Genetics
Tracy Hargiss	J. Kieber	Biology
Luciana Leopold	S. Ahmed	Genetics
Sean Bailey	W. Kim	Genetics
Jacinth Mitchell	S. Ahmed	Genetics
Kathryn Trogden	S. Rogers	Biology
Klara Klein	K. Caron	Cell and Mol Physiology MD/PhD
Nick Gomez	I. Davis	Genetics
Lin Xiao	A. Dudley	Cell and Mol Physiology
Jim Dunleavey	A. Dudley	Cell and Mol Physiology
Mira Pronobis	M. Peifer	Genetics
Leigh Ann Samsa	J. Liu	Pathology
Joy Meserve	R. Duronio	Genetics
Jennifer Heppert	B. Goldstein	Biology
Sophie Tintori	B. Goldstein	Biology
Kevin Magnum	C. Mack	Genetics, MD/PhD
Chris Higgins	E. Tzima	Cell Biology and Physiology
Aaron Cook	W. Bergmeier	Biochemistry
Jie-Yu Liu	N. Sharpless	Genetics Curriculum
Salma Azam	C. Pecot	Genetics Curriculum
Kendall Lough	S. Williams	Genetics/Pathology
Isabelle Newsome	P. Dayton	Biomedical Engineering
Kandace Thomas	M. Bressan	Cell Biol and Physiology
Phillip Durham	P. Dayton	Biomedical Engineering

Supervisor of Lab Rotation Graduate Students: Ann Greig (Biology); Tom Ingledue (Genetics); Amy Rubenstein (Biology); Scott Heyward (Biology); Rob Byrum (Biology); Suzanne Graham (Genetics); Alyssa Gardner (Genetics); Mark Hall (Biology); Jean Wang (Biology); Phil Harries (Biology); Carole Carter (Genetics); Jeremy Kasarov (Biology); John Dixon (Genetics); Julie Nowicki (Biology); Robyn Biggs (Genetics); Joe Kearney (Genetics); Courtney Blickarz (Biology);

Carrie Ambler (Biology); Kelli Monaco (Genetics); Paulette Gallagher (Biology); Dave Roberts (Genetics); Cai Kun (Biology); Jen-Yi Lee (Biology); Liz Goley (Biology); Rayetta Grasty (IBMS); Nick Kappas (Biology); Daniel Brown (Biology); Darshini Trivedi (Genetics); Melissa Hayden (IBMS); Josh Uronis (Genetics); Elizabeth Mandel (Biology); Amanda Riffel (Genetics); Tiana Garrett (IBMS); Jennifer James (Biology); Amanda Anderson (IBMS); Ashley Godfrey (Biology); David Detwiler (IBMS); Sarah Taylor (Biology); Will Dunworth (Genetics); Joanna Fried (Biology); Lena Randhawa (Biology/Cell Motility); Lucy Williams (Genetics); Adriana Jones (IBMS); David Wiley (Biology); William Comb (IBMS); Andrius Masedunskas (Biology/Cell Motility); Anna Marin (Biology/Cell Motility); Kelly Alexandre (Biology); Michelle Itano (Biology); Dan Sweet (Genetics); Erin Kaltenbrun (Biology); Alyssa Cope (Biology); Brian Gibbs (BBSP); Justin English (BBSP); Amanda Wisz (BBSP); Samantha Strickland (BBSP); Dinuka DeSilva (BBSP); Marta Sczaminski (BBSP); Tessa Crowl (BBSP); Tamara Roman (BBSP); Nicholas Gomez (BBSP); Esteban Terzo (BBSP); Eric Ubil (BBSP); Glenn Wozniak (BBSP); John Pelton (BBSP); Catherine Wright (BBSP); Diana Chong (BBSP); Jim Dunleavey (BBSP); Jennifer Heppert (BBSP); Jessica Nesmith (BBSP); Aaron Cook (BBSP); Zhixian Yu (BBSP); Jie-Yu Liu (BBSP); Kristine Schaefer (BBSP); Lyndsay Ratliff (BBSP); Carrie Wysoloski (BBSP); Yitong Li (BBSP); Danielle Berlin (BBSP); Molly Plehaty (BBSP); Natalie Tanke (BBSP); Karina Kinghorn (BBSP); Sam Honeycutt (BBSP); Katelyn Huff (BBSP); Kayleigh Voss (BBSP); Cassandra Phillips (BBSP); Shea Ricketts (BBSP); Molly Parrish (BBSP); Paige Takasugi (MD/PhD Program); Kylie VanDerMolen (BBSP); David Cully (BBSP); Colten Frank (BBSP).

Undergraduate Research Students:

Tracy Futch	Biology	B.S., 1991, author on paper
Todd Friday	Biology	B.S., 1993, author on paper
Leslie Harding	Biology	B.S., 1993, honors commendation
Andrea Decsi	Chemistry	B.S., 1993, honors thesis, first author on paper
Scott Russell	Biology	B.S., 1993, author on paper
Ted DuBose	Biology	B.S., 1994
Roger Smith	Biology	B.S., 1995, honors thesis
Erin Cram	Biology	B.S., 1995, honors thesis, author on paper
Scott Thurmon	Biology	B.S., 1995
Andrew Probolus	Biology	B.S., 1996, honors thesis, author on paper
William Hope	Biology	B.S., 1996
Marco Harmaty	Biology	B.S., 1997, honors thesis, author on paper
Michael McDaniel	Biology	B.S., 1997. honors thesis
Annie Bowles	Biology	B.S., 1998, honors thesis
Aaron Scalia	Biology	B.S., 1998, honors commendation, author on paper
Marla Vacek	Chemistry	B.S., 1998
Nadija Harmaty	Biology	B.S., 1999, honors thesis
Bordon Hooks	Biology	B.S., 1999, honors thesis
Natalie Johnson	Biology	B.S., 2000, author on paper
Gayle Schmunk	Biology	B.S., 2001, author on paper
Fred McPhail	Biology	B.S., 2002
Melissa Kalil	Biology	B.S., 2002, honors thesis
Frank DiPaola	Biology	B.S., 2002, honors thesis, author on paper
Todd Stewart	Chemistry	B.S., 2002
Sheena Waters	Biology	B.S., 2004, honors thesis
Tyler Jenkins	Biology	B.S., 2004
Jayson Miedema	Chemistry	B.S., 2004, honors thesis
David Feazell	Biology	B.S., 2005
Tripp Nanney	Biology	B.S., 2005, honors thesis
Nicholas Love	Biology	B.S., 2005, honors thesis, highest honors

		Winner Goldwater Scholarship, Churchill Scholarship. Luce Fellowship, NSF Fellowship
Kim Kallianos	Biology	B.S., 2006, honors thesis, highest honors, Winner Goldwater Scholarship, author on paper
Amanda Schimizzi	Biology	B.S., 2005, honors thesis
Tina Yin	Biology	B.S., 2008
Cara Gewolb	Biology	B.S., 2008, Smallwood Fellowship, author on paper
Jessica Heinz	Biology	B.S., 2009, SURF Fellowship, highest honors, Co-first author on paper
Hannah Park	Biology	B.S., 2010, SURF Fellowship, honors, paper author
Stephanie Kiser	Biology	B.S., 2010, CURE Fellowship, honors, paper author
Drew Barber	Biology	B.S., 2009, paper author
Matt Saporano	Biology	B.S., 2011
Ashley Miller	Biology	B.S., 2011, highest honors, paper author
Kathleen Hannon	Biology	B.S., 2011, honors, paper author
Rashi Kabra	Biology	B.S., 2012, honors commendation
Erin Spence	Biology	B.S., 2012, honors commendation
Luke Ferro	Biology	B.S., 2012, honors, paper author
Connie Tran	Biology	B.S., 2012, honors
Laura Hunter	BME	B.S., 2013, SURF Fellowship
Julia Cluceru	Chemistry	B.S., 2013, author on paper
Brian Ta	Biol/Chem	B.S., 2014
Terra Swanson	Biology	B.S., 2014
Hong Lin	Biology	B.S., 2015, honors, HHMI Summer Fellowship
Ryan Clark	Biology	B.S., 2015, paper author
Katy Davis	Biology	B.S., 2016, author on paper
Teresa Nguyun	Biology	B.S., 2016
Katy Citrin	Biology	B.S., 2017, SURF Fellowship, paper author, highest honors
Christine Shin	Biology	B.S., 2016
Kim Ngo	Chem	B.S., 2018, co-author on paper
Melshae Moore	Psych	B.S., 2018
Makala Moore	Biology	B.S., 2018
Ariel Gold	Biology	B.S., 2019, co-author on paper
Kaitlin Quigley	Chemistry	B.S., 2019, co-author on paper
Elise Kidder	Biology	B.S., 2019, co-author on paper
Lyndsay Cooper	Biology	B.S., 2020
Brian Johnson	Biology	B.S., 2019, expected author on paper
Jayna Patel	Biology	B.S., 2021, Summer Fellowship 2020
Renee Yi	Biology	B.S., 2021, co-author on paper
Lauren Matsumura	Biology	B.S., 2021, co-author on paper
Kendall Miller	Biology	B.S., 2022, co-author on paper
Bryan Kistner	Biology	B.S., 2022, co-author on paper
Tianji Yu	Biology	B.S., 2023, co-author on 2 papers
Tershona Branch	Biology	B.S. 2022, co-author on paper
Madonna Baselios	Biology	B.S. 2023
Alexandra Neal	Biology	B.S 2023, co-author on paper
Arya Sharma	Biology	B.S. 2023, co-author on 2 papers
Simi Singh	Biology	B.S. 2024
Aleigha Kozlik	Biology	B.S. 2024
Ricardo Tieghi	Biology	B.S. 2025 (expected), SURF Fellowship

Mary Linares	Biology	B.S. 2025 (expected), MHI SUMMER Fellowship co-author on paper
Vivian Huang	----	B.S. 2026 (expected)
Keerthana Gotur	Biology	B.S. 2025 (expected)

Supervisor of Undergraduate Research Performed in Other Labs: Jon Austen (Dr. Jenny Ting); Elizabeth Faircloth (Dr. Jenny Ting); Arati Pardya (Dr. Barry Goz); Katherine Ellis (Dr. Stephen Hunt); Alyce Oliver (Dr. Philip Cohen), Fariha Peters (Dr. Edison Liu), Dan Scanga (Dr. Prazma); Lynne Hughes (Dr. Kevin Peters); Michelle Manning (Dr. Rick Tidwell); Mindy Berger (Dr. Ron Swanstrom); Ria Dancel (Duke U.); Lynn Chung (Dr. Ann Erickson); Machonn Vance (Dr. Nobuyo Maeda); Matt Coward (Dr. David Brenner); Jessica Osterman (Dr. Morrow); Jenifer Weatherly (Dr. Steve Bachenheimer); Kiersten Rial (Samulski); Katie Vogeler (S. Smyth); Jonathan Salahshour (Dr. Fair); Thiha Nguyen (Dr. Wang); Desiree Germain (Dr. Nicholas); Sheena Waters (Dr. Van Dyke); Christina Paniccia (Dr. Threadgill); Bina Surati (Dr. Smyth); Dane Meredith (Dr. Smyth); Robin Shah (Dr. Milgram); Alex Wright (Dr. Reader); Ashley Pridon (Dr. Mack); Christina Lee (Dr. Jin); Andres Rojas (Dr. Davis); Sabrina Madrigal (Dr. Schisler); Zach Young (Dr Bill Polacheck); Sydney Thai (Dr. Bahnson); Nick Yapundich (Dr. Liu).

OTHER PROFESSIONAL SERVICE ACTIVITIES

P.I., NIH-NICHD Developmental Biology Training Grant, 2004-2009.

Director, UNC Developmental Biology Training Program, 2004-2016.

Associate Director, UNC McAllister Heart Institute, 2010-2013.

Development of the UNC Transgenic Mouse Facility, 1988-1991. This was a major effort on my part in several different areas. I hired and trained the Facility staff, and I worked with the staff to make all aspects of the process functional. I made decisions about the scope of the Facility and the extent of mouse breeding. I obtained start-up funding from NCBC, and I subsequently set up a recharge center to operate the Facility as a non-profit entity.

Scientific Director, UNC Transgenic Mouse Facility, 1988-1998. During this time, I was responsible for the overall performance of the Facility. I advised investigators as to procedures and experimental approaches, I monitored the production of the facility, and I established charges and policies consistent with a recharge facility. I also conducted tours and lectures to educate various sectors on transgenic mouse technology.

Co-convener, Seventh Carolina Conference on Gene Transfer and Expression, Shell Island, NC, March 17-20, 1990. I helped to organize and run this meeting.

Organizer, Vasculata Workshop, University of North Carolina, NC, August 6-9, 2007. I was the primary organizer of this course/workshop held annually at different sites. This involved scientific program, all meeting logistics, and fund-raising. Drs. Mark Majesky and Jim Faber were co-organizers. Wrote NIH R13 application that was awarded.

Chair, Department of Biology, University of North Carolina NC (2013-2018). I was responsible for the research, teaching and service mission of UNC Biology, a department that housed over 75

faculty and taught over 2800 UNC Biology majors (largest major at UNC). The department is housed in 4 different buildings and consists of research and teaching labs, classrooms, core facilities and a greenhouse. I'm most proud of the significant diverse faculty recruiting we were able to accomplish during my leadership tenure, setting the stage for a strong department into the future.

Chair, Gordon Research Conference on Endothelial Cell Phenotypes, July 2016 (Girona, Spain). I was the primary organizer of this GRC, including the scientific program, fund-raising, and getting the word out. Wrote NIH R13 application that was awarded ($15,000).

Co-Organizer, NAVBO Vascular Development and Genetics Workshop, Oct 2017 and Oct 2019, Asilomar CA. In 2017 I co-organized this meeting with Dr. Brian Black, and in 2019 with Dr. Courtney Griffin. This involved building the scientific program and fund-raising. Wrote NIH R13 application for 2019 meeting that was awarded ($30,000).

Co-Director, UNC McAllister Heart Institute (MHI), July 2017-June 2024. Responsible for the research mission of MHI, for oversight and mentoring of faculty, and along with Co-Director responsible for integrating basic and clinical cardiovascular research around faculty recruitment, engagement, and fund-raising.

Member, NIH Site Visit Committee, Harvard Medical School, Boston MA, Feb. 1993
Member, NCI Site Visit Committee, Philadelphia, PA, June 1994
Ad hoc member, NIH Biol-2 Study Section, Oct. 1994
Member, NIH Ad hoc Cardiovascular and Renal Study Section, March 1995
Member, NIH Special Emphasis Panel (RFA), July 1996
Member, AHA Study Panel Vascular Wall Biology 2, June 1996-June 1998
Co-chairperson, AHA Study Panel Vascular Wall Biology 2, June 1998-June 2000
Member, NIH Pathology A Study Section, July 2000-July 2003
Ad hoc Member, AHA Cardiovascular Development Study Section, Nov. 2001-2002
Member, NIH PPG Site Visit Committee, Washington DC, Oct. 2002
Member NIH Cardiovascular Differentiation and Development (CDD) Study Section, July 2003-July 2004
Member, AHA Mid-Atlantic Cardiovascular Development Study Section, Nov. 2003-2007
Member, NIH CDD Study Section, ad hoc October 2005
Member, TARP (Trans-Institute Angiogenesis Research Initiative) Meeting 2, NIH, Bethesda MD, Nov. 2005
Ad hoc member, NIH VCMB Study Section, March 2006
Councilor, Elected position, NAVBO (North American Vascular Biology Organization), 2003-2006
Program Committee, ATVB Meeting 2005
Symposium Co-Chair, NAVBO/SVBM Meeting 2005
Mini-meeting Session Chair, AAA/NAVBO at EB 2007
Member, NIH CDD Study Section, July 2006-July 2008
Session Chair, Gordon Conference on Angiogenesis and Microcirculation, August 2007.
Session Chair, Keystone Angiogenesis Symposium, January 2008.
Session Chair, Seeon-Kloster Angiogenesis Meeting, Germany, Sept. 2008.
Program Committee, ISTH Meeting, 2008-2009
Session Chair, Gordon Conference on Angiogenesis, August 2009.
Ad hoc member, NIH TME Study Section, Feb 2010
Session Chair, Seeon-Kloster Angiogenesis Meeting, Germany, Sept. 2010
Member, NHLBI SEP, Nov 2010
Outside Evaluator, Harvard Medical School Promotion, Dec 2010

Session Chair, Gordon Conference on Angiogenesis, August 2011.
President-elect, NAVBO, July 2011
Member, Gairdner Award Committee, Nov 2011
President, NAVBO, July 2012-13
International Organizing Committee, IVBM (2012-2014)
Ad Hoc, NIH CDD Study Section, Oct 2012
Member, Gairdner Award Committee, Nov 2012
Member, CRUK Science Review Committee, May 2013
Member, NHLBI PPG Parent Committee, 2014-2018
Vice-Chair, Endothelial Cell Phenotypes Gordon Research Conference, 2014
Session Chair, Endothelial Cell Phenotypes Gordon Research Conference, 2014
International Organizing Committee, IVBM (2014-2016)
Chair, Endothelial Cell Phenotypes Gordon Research Conference, 2016
Session Chair, NAVBO Vascular Development and Genetics Meeting, 2014
DFG Review Committee, Munster Germany (Sept 2015)
Scientific Advisory Board, Max Planck Institute for Biomedicine, Munster Germany (2015-2021)
DFG Review Committee, Munster Germany, 2018
NIH-NHLBI Internal Review Committee, 2018
NIH-NCI Internal Review Committee, 2018
NIH-NIDDK RC2 Review, 2019
NIH-NHLBI, R35 Review Panel, 2019
NIH-NHLBI Advisory Council (NHLBAC) Member, 2021-present
Co-chair, NHLBI Working Group on Lymphatics Diseases, 2022-23.

Reviewed grants/manuscripts for the following:

NIH; AHA; Lineberger Cancer Center, UNC; U. South Carolina; North Carolina Biotechnology Center; National Science Foundation; Irish Science Foundation; Israel Science Fdn; CRUK (Great Britain); Max-Planck Institute (Germany); DFG (Germany); RIKEN (Japan); Weissman Institute (Israel).

Journals:

Cell; Science; Nature; Genes & Dev; Mol Cell Biol; Am J Path; Exp Cell Res; Proc Natl Acad Sci USA; Teratology; Development; Lab Invest; Dev Dyn; Blood; Genesis; Int J Dev Biol; Dev Biol; Circ Res; FASEB J; Microcirc; J Cell Biol; Nature Med; ATVB; JMCC; Dev Cell; J Angiogenesis Res; Oncogene; Cell Stem Cell; JOVE; J Clin Invest.; PLOS Genetics; Nature Cell Biology; Nature Biotechnology; eLife (editorial board); Angiogenesis (editorial board); Nature Neuroscience; EMBO J; Circulation.

Editorial Board Member: eLife (Board of Reviewing Editors, BRE); Angiogenesis

University Service:

Scientific Director, UNC Transgenic Mouse Facility, 1988-1998
Member, Search Committee, Dept. of Medicine, 1989-1990
Undergraduate Research Opportunities Program, 1989
Member, Internal Advisory Committee SCOR for Cystic Fibrosis Center, 1992-1995
Member, Dean's Task Force on Fetal Tissue Research, 1993-1996
Member, Graduate Admissions, Genetics and Molecular Biology Curriculum, 1994-96
Co-organizer, Prospective Graduate Student Weekend, Genetics and Molecular Biology Curriculum, March 1996
Member, Graduate Exam Committee, Genetics and Molecular Biology Curriculum, 1997-98
Member, Molecular Biology Search Committee, 1998.

Member, Vascular Biology Committee, 2000-2001.
Member, Cell Imaging Search Committee, 2001-2002; 2003-2004
Co-PI, Developmental Biology Training Grant, 2004-2008
PI, Developmental Biology Training Grant, 2009-present
Director, UNC Developmental Biology Training Program, 2004-present
Member, Vascular Biology/Cell and Molecular Physiology Search Committee, 2002-2003.
Member, Integrated Vascular Biology Training Grant Executive Comm., 2002-2005
Member, Curriculum in Genetics and Molecular Biology Executive Advisory Comm., 2003-2009
Member, Administrative Board of the Graduate College, 2003-2009
Member, University Task Force on Graduate Student Issues, 2005-2008
Member, University ESCRO (Human Stem Cell) committee, 2006-present
Member, Committee to evaluate the Chair of Cell and Molecular Physiology, 2007
Member, Cell and Molecular Biology Training Program Advisory Committee, 2008-2010
Member, BBSP Admissions Committee, 2008-2009
Member, Angiogenesis Position Search, MHI, 2008-2010
First Year Group Faculty Mentor, BBSP, 2009-2012
Associate Director, McAllister Heart Institute, 2010-2013
Chair, UNC ESCRO (human stem cell) committee, 2011-2014
Chair, MHI Search Committee, 2011-12
Member, Cell Biology and Physiology Chair Search Committee, 2013
Member, Internal 5-year Review Panel, Dept Pathology SOM, 2016
Co-Director, UNC McAllister Heart Institute (2017-present)
Member, Dean's Advisory Committee, UNC College of Arts and Sciences, 2017-18.
Member, Dept of Medicine Task Force on Centers/Institutes, 2018.
Member, Search Committee for Chair of Pathology, 2019.
Internal Member, UNC Biomedical Engineering Dept. Review, 2019.
Member, Dean's Advisory Committee, UNC School of Medicine, 2019-2024.

Department:
Chairperson, Fordham Building Equipment Committee, 1990-1991
Member, Undergraduate Affairs Committee, 1988-1993
Member, Graduate Admissions Committee, 1992-1995
Co-organizer, Prospective Graduate Student Weekend, 1994
Faculty Secretary, 1990-1991
Undergraduate Honors Program, 1989, 1991, 1992, 1997, 1998, 2000, 2001
Co-convener of MCD Biology Dept. Retreat, 1990, 1991
Developmental Biology Training Grant, 1992
Member, Biology Plant Search Committee, 1992-1993, 1993-1994
First Year Graduate Student Advisor, 1999-2001
Director, Graduate Admissions, 1999-2003
Director of Graduate Studies, 2003-2008
Chairman's Advisory Committee, 2004-2013
Faculty Development Committee, 2005-present
Chair, Promotion and Tenure Committee, 2009-2010
Chair, Faculty Development Committee, 2008-2013
Member, Quantitative Imaging Search, 2011-12
Chair, Department of Biology, 2013-2018
Post-tenure Review Committee, 2020-present
Promotion Committees, 2011, 2020, 2021, 2022

DIRECTOR, UNC DEVELOPMENTAL BIOLOGY TRAINING PROGRAM
I directed UNC Dev Biol Training from 2004-2015. In this capacity (and with support and input from Terry Magnuson), I 1) submitted NIH training grant applications; 2) solicited trainee applications and formed a committee to determine awards; 3) organized and directed a graduate level course in Developmental Genetics that is offered yearly (one semester); 4) organized and participated in a biweekly meeting of trainees that supports research presentations and other events; 5) delegated organization of a yearly symposium with an invited outside keynote speaker; and 6) helped trainees identify and host prominent outside speakers.

CHAIR, DEPARTMENT OF BIOLOGY UNC-CH (2013-18)
I oversaw the research and teaching missions of the largest department in the College of Arts and Sciences (over 75 faculty, over 2800 majors, 30 staff). Recruited and mentored 24 new faculty (some joint with other depts/units) that significantly increased faculty diversity. Led a strategic planning exercise in 2017. Started an External UNC Biology Advisory Board and significantly increased donor funding. Provided seed grant money for interdisciplinary research projects.

TEACHING

Spring, 1990, 1991	Biol 264	Seminar in Molecular Biology (with Dr. Dennis O'Connor)
Fall, 1990 Spring, 1992	Biol 144*	Developmental Biology (with Dr. Ralph Quatrano)
Summer, 1992	Workshop**	Carolina Workshop, Mouse Molecular Genetics instructor (with B.Popko & R. Snodgrass)
Spring, 1993	Biol 160*	Developmental Genetics (with Dr. Mark Peifer)
Spring, 1990, 91, 92 93, 94	Micro 156	One Guest Lecture in course run by Dr. David Lee, Growth Control in Normal and Neoplastic Cells
Summer, 94, 96	Workshop	Guest Lecturer in Carolina Workshop Mouse Embryology
Fall, 1995, 1996	Cell Bio 121	Guest Lectures in course run by Dr. Jean Lauder
Spring, 1996	Biol 144	Developmental Biology (with Dr. Mark Peifer)
Fall, 1997	Biol 160	Developmental Genetics (with Dr. Jason Reed)
Fall, 1999, 00, 01 02, 03, 04, 05, 06 08, 09, Spring 11 12	Biol/Gen 270 (Bio 625)	Developmental Genetics (with Dr. Mark Peifer)
Spring, 2000, 01	Biol 052	Cell and Developmental Biology

02, 03		(with Dr. Bob Goldstein)
Spring 2004		
Fall 2004, 05, 06	Bio/Gen 160	Developmental Genetics***
07, 08, 09, 11, 12	(Bio 624)	(with Dr. Conlon and Dr. Pevny)
Fall 2007, 2010	Bio 891	Student Research Talks
Fall 2019, 20, 22, 23, 24	Bio 490/543H	Cardiovascular Biology****
Fall 2021	BIOL625	Seminar in Genetics: Cardiovascular Biology*****

*These courses were developed by myself and Dr. Quatrano or Dr. Peifer (see below).
** This workshop was developed by myself and the PMBB (see below).
*** This course was completely redone, and I was the course organizer.
****This course was completely developed and taught by me without using a textbook, including teaching it virtually in 2020.
*****This seminar was developed and taught by me.

COURSE DEVELOPMENT:

(Biology 624) Biology 144, Biology 160 - Dr. Quatrano and I designed Biol. 144 (Developmental Biology) to teach molecular approaches to Dev Biology. Biol. 160 (Developmental Genetics) was designed by myself and Dr. Peifer to teach molecular genetic approaches to development. I revamped Bio 624 as a graduate level course.

Carolina Workshop on Mouse Molecular Genetics - I had primary responsibility for development of this Workshop. I organized the focus of the course, the material covered and the syllabus, the acquisition of equipment, and the logistics of using mice in the course.

Biology 625 (formerly Biology/Genetics 270) - I designed this seminar to expose students to critical evaluation of the literature early in their graduate career. Papers are read and discussed in a group context. Students participate in the discussion with the senior students and participating faculty (M. Peifer and F. Conlon in 2002; M Peifer 2003-2011).

Biology 490H543H (Cardiovascular Biology) - I designed and taught this undergraduate honors class to expose students to the principles of cardiovascular biology, with a focus on development, function and disease. I successfully taught this class completely virtually in Fall of 2020.

Biology 625 (Seminar in Genetics: Cardiovascular Biology) – I designed and taught this graduate/undergraduate seminar class to provide training in reading and analysis of the primary literature in cardiovascular biology and genetics. I successfully taught this seminar in person in Fall of 2021.

PROFESSIONAL SOCIETIES

Society for Developmental Biology
North American Vascular Biology Organization (NAVBO)
Member, Membership Committee of NAVBO, 2001-2003
Councilor, NAVBO, 2003-2006.
Member, NAVBO Vasculata Committee, 2010-2015.
President-elect, NAVBO, 2011
President, NAVBO, 2012-2013.
Member, AHA (ATVB) 2017