EDWARD MOREIRA BAHNSON, PhD.

CURRICULUM VITAE

1) Personal Information

– Name: Edward Moreira Bahnson, PhD
– Work address: 125 Mason Farm Rd
2102 Marsico Hall. CB #7025
Chapel Hill, NC 27599
– Work phone: (919) 843 -0842
– Email: edward_bahnson@med.unc.edu

2) Education

–	Postdoctoral Fellowship	Northwestern University Department of Surgery Chicago, IL	2016-2016	Vascular Biology Fellowship
–	PhD	Kent State University School of Biomedical Sciences Kent, OH	2004-2010	Biomedical Sciences Cell Biology/Pharmacology Bioinorg. Chemistry
–	BS	Universidad de la República School of Sciences Montevideo, Uruguay	1994-2002	Biochemistry

3) Professional Experience - Employment History

–	Adjunct Assist. Prof.	Dept. of Pharmacology	University of North Carolina – Chapel Hill	08/01/19 – present
–	Tenure-track Assistant	Dept. of Surgery Div. Vascular Surgery	University of North Carolina – Chapel Hill	08/01/17 – present
–	Adjunct Assist. Prof.	Dept. of Cell Biology and Physiology	University of North Carolina – Chapel Hill	12/01/16 – present
–	Adjunct Assist. Prof.	Dept. of Pathology And Laboratory Medicine	University of North Carolina – Chapel Hill	08/01/16 – present
–	Nominated Research	Dept. of Surgery	University of North Carolina – Chapel Hill	08/01/16 – present
–	Research Assistant Professor	Dept. of Surgery	Northwestern University Feinberg School of Medicine	03/01/16 – 07/31/16
–	Adjunct Faculty Organic Chemistry	Dept. of Natural and Health Sciences	Hebrew Theological College – Chicago, IL	02/01/15 – 06/09/16
–	Postdoctoral Research Fellow	Dept. of Surgery	Northwestern University Feinberg School of Medicine	03/01/10 – 02/29/16
–	Teaching Assistant	Dept. of Chemistry	Kent State University Kent, OH	2004 – 2006
–	Teaching Assistant	Dept. of Integrative Medical Sciences	NE Ohio Medical University. Rootstown, OH	2008 – 2010
–	Research and Teaching Assistant	Biological Chemistry Institute	School of Sciences University of Uruguay	1998 – 2003
–	Research and Teaching Assistant	Dept. of Biochemistry	School of Medicine University of Uruguay	1997 – 2000

Other Employment

–	Analytical Chemist Customer Rep	R&D and Sales	Ridaline SA Varian Inc. and Applied Biosystems Representative in Uruguay	2002 – 2003
–	Laboratory Assistant Analytical Chemist	Doping Control Laboratory	Ministry of Sports and Youth Montevideo, Uruguay	2001 – 2004

4) Honors and Awards (include dates)

Junior Faculty

2018 Society for Free Radical Research International Young Investigator Award. Lisbon, Portugal.

Post-doctoral Fellow

2015 SFRBM Young Investigator Award. SFRBM 2015. Boston, MA
2014 Best Presentation at the Nitric Oxide – Nitrite/Nitrate Conference. Cleveland, OH
2014 Larry Oberley Young Investigator Award. SFRBM 2014. Seattle, WA

Graduate Student

2007 Kent State University Inventor's Recognition Ceremony
2006 Phi Beta Delta (ΦΒΔ) Graduate Student Award ofr International Education
2006 Phi Beta Delta (ΦΒΔ) International Scholars Honor Society
2006 Who is Who among Students in American Universities and Colleges
2005 Omicron Delta Kappa (ΟΔΚ) Honor National Leadership Society

5) Bibliography and products of scholarship

NOTE: This author has published under the names of Edward Suarez, Edward Suarez-Moreira, Edward S. Moreira, and Edward S.M. Bahnson. ORCID: orcid.org/0000-0001-8578-0517

Book Chapters

1. Mota R, Homeister JW, Willis MS, **Bahnson EM.** Atherosclerosis: Pathogenesis, Genetics and Experimental Models. Oct, 2017. In: Encyclopedia of Life Sciences. John Wiley & Sons Ltd, Chichester. DOI: 10.1002/9780470015902.a0005998.pub3]
2. **Edward S. Moreira** and Nick D. Tsihlis. How to Conduct Cell Culture. In Kibbe MR, and LeMaire SA editors. Success in Academic Surgery: Basic Science. (pp 65-82) Springer; 2014.
3. **Edward S. Moreira** and Melina R. Kibbe. Nitric Oxide in Vascular Disease. In Stanley JC, Veith FJ, and Wakefield TW, editors. Current Therapy in Vascular and Endovascular Surgery. 5th ed. (pp 511-13) Elsevier; 2014.

Refereed Papers/Articles

1. Beam JE, Wagner NJ, Shook JC, **Bahnson EM**, Fowler VG Jr, Rowe SE, Conlon BP. Macrophage -produced peroxynitrite induces antibiotic tolerance and supersedes intrinsic mechanisms of persister formation. Infect Immun 2021. Online ahead of print. PMID 34097475
2. Cartaya AE, Lutz H, Maiocchi S, Nalesnik M, **Bahnson EM**. Delivery of Cinnamic Aldehyde Antioxidant Response Activating nanoParticles (ARAPas) for Vascular Applications.Antioxidants (Basel) 2021 10(5):709-27 PMID: 33946889
3. Buglak NE, Lucitti J, Ariel P, Maiocchi S, Miller FJ, **Bahnson ESM.** "Light Sheet Fluorescence Microscopy as a New Method for Unbiased Three-Dimensional Analysis of Vascular Injury" Cardiovasc Res. 2021 117(2):520-32. PMID: 32053173. *This article received an editorial comment by* MacRitchie, and Maffia, Cardiovasc Res. 2021 117(2):348-50 PMID: 32386306
4. Grova MM, Donohue SJ, Bahnson M, Meyers MO, **Bahnson EM**. Allyship in Surgical Residents: Evidence for LGBTQ Competency Training in Surgical Education. J Surg Res 2021 260:169-76 PMID33341680

5. Kassam H*, **Bahnson EM***, Cartaya A, Jiang W, Avram MJ, Tsihlis ND, Stupp SI, Kibbe MR. Pharmacokinetics and biodistribution of a collagen-targeted peptide amphiphile for cardiovascular applications. Pharmacol Res Perspect. 2020 Dec;8(6):e00672. doi: 10.1002/prp2.672. PMID: 33090704 MCID: PMC7580710 *EMB and HK contributed equally and share first authorship.
6. Buglak NE, **Bahnson EM**. A Rat Carotid Artery Pressure-Controlled Segmental Balloon Injury with Periadventitial Therapeutic Application J. Vis. Exp. 2020 Jul 9;(161). doi: 10.3791/60473. PMID: 32716387 PMCID: PMC7546436
7. Li F, **Bahnson EM**, Wilder J, Siletzky R, Hagaman J, Nickekeit V, Hiller S, Ayesha A, Feng L, Levine JS, Takahashi N, Maeda-Smithies N. Oral high dose vitamin B12 decreases renal superoxide and post-ischemia/reperfusion injury in mice. Redox Biol. 2020 May;32:101504. doi: 10.1016/j.redox.2020.101504. Epub 2020 Mar 10.Redox Biol. 2020. PMID: 32182573 PMCID: PMC7078436
8. Mota, RI, Morgan, SE, **Bahnson, EM**. Diabetic Vasculopathy: Macro and Microvascular Injury. Curr Pathobiol Rep 2020 March; 8(1):1-14. PMID: 32655983 PMCID: PMC7351096
9. Musetti B, González-Ramos H, González M, **Bahnson EM**, Varela J, Thomson L. Cannabis sativa extracts protect LDL from Cu2+-mediated oxidation. J Cannabis Res. 2020;2:37. doi: 10.1186/s42238-020-00042-0. Epub 2020 Oct 15.PMID: 33123676 PMCID: PMC7592720
10. Cartaya A, Maiocchi S, **Bahnson EM.** Nanotherapies for Treatment of Cardiovascular Disease: A Case for Antioxidant Targeted Delivery. Curr Pathobiol Rep. 2019 Sept; 7(3):47-60 PMID 31396435 PMCID: PMC6687073
11. Kakoki M, **Bahnson EM**, Hagaman J, Siletzky R, Grant R, Kayashima Y, Li F, Lett EY, Sun MT, Taylor JM, Rice J, Fernandes de Almeida M, Bahr BA, Jennette JC, Smithies O, Maeda-Smithies N. Engulfment and cell motility protein 1 potentiates diabetic cardiomyopathy via Rac-dependent and Rac-independent ROS production. JCI Insight. 2019 Jun 20; 4)12). PMID 31217360 PMCID: PMC6629098
12. Peters EB, Tsihlis ND, Karver MR, Chin SM, Musetti B, Ledford BT, **Bahnson EM**, Stupp SI, Kibbe MR. Atheroma Niche-Responsive Nanocarriers for Immunotherapeutic Delivery. Adv Heathc Mater. 2019 Jan 8; e1801545. PMID 30620448 PMCID: PMC6367050
13. Buglak NE, Jiang W, **Bahnson ESM**. Cinnamic aldehyde inhibits vascular smooth muscle cell proliferation and neointimal hyperplasia in Zucker Diabetic Fatty rats. Redox Biol. 2018 Oct;19:166-178. PMID: 30172101. PMCID: PMC6122148 *Article Featured in ELSEVIER Biomedical and Biochemical Research News.* https://www.journals.elsevier.com/redox-biology/news/publishing-in-redox-biology-led-dr-edward-moreira-bahnson?utm_campaign=MCRED_LSS_TW_Biochemistry&sf201431047=1
14. Gregory EK, Webb A, Vercammen JM, Kelly ME, Akar B, van Lith R, **Bahnson EM**, Jiang W, Ameer GA, Kibbe MR. Inhibiting Intimal Hyperplasia in Prosthetic Vascular Grafts via Immobilized All-trans Retinoic Acid. Journal of Controlled Release. 2018 Mar 28; 274:69-80. PMID: 2939123
15. Buglak NE, Batrakova EV, Mota R, and **Bahnson ESM**, Insights on Localized and Systemic Delivery of Redox-Based Therapeutics. Oxidative Medicine and Cellular Longevity, vol. 2018, February 14, 2018. PMID:29636836
16. **Bahnson ESM**, Koo N, Havelka GE, Vercamen JM, Kibbe MR. Periadventitial Adipose Tissue Modulates the Effect of PROLI/NO on Neointimal Hyperplasia. J Surg Res. 2016 Oct; 205(2):440-45. PMID: 27664894.
17. **Bahnson ES**, Kassam HA, Moyer TJ, Jiang W, Morgan CE, Vercammen JM, Jiang Q, Flynn ME, Stupp SI, Kibbe MR. Targeted Nitric Oxide Delivery by Supramolecular Nanofibers for the Prevention of Restenosis After Arterial Injury. Antioxid Redox Signal. 2016 Mar 10;24(8):401-18. PMID: 26593400.
18. Morgan CE, Dumbrowski A, Rubert-Pérez C, **Bahnson ESM**, Tsihlis ND, Jiang W, Jian Q, Vercammen JM, Prakash V, Stupp SI, Kibbe MR. Tissue Factor-Targeted Peptide Amphiphile Nanofiber as an Injectable Therapy to Control Hemorrhage. ACS Nano. 2016 Jan 26;10(1):899-919. Epub 2015 Dec 30 PMID: 26700464
19. **Bahnson ESM**, Vavra AK, Vercamen JM, Schwartz AR, Kibbe MR. Long-term effect of PROLI/NO on cellular proliferation and phenotype after arterial injury. Free Radic Biol Med, 2016 Jan; 90:272-86 PMID: 26627935
20. Moyer TJ, Kassam HA, **Bahnson ESM**, Morgan CE, Tantakitti F, Chew TL, Kibbe MR, Stupp SI. Shape-Dependent Targeting of Injured Blood Vessels by Peptide Amphiphile Supramolecular

Nanostructures. Small. 2015 Jun;11(23):2750-5. PMID: 25649528
21. **Bahnson ESM,** Koo N, Cantu-Medellin N, Tsui AY, Havelka GE, Vercammen JM, Jiang Q, Kelley EE, Kibbe MR. Nitric oxide inhibits neointimal hyperplasia following vascular injury via differential, cell-specific modulation of SOD-1 in the arterial wall. Nitric Oxide. 2015 Jan 30;44:8-17. PMID: 25460325
22. **Bahnson ESM***, Morales, RC*, Havelka GE, Cantu-Medellin N, Kelley EE, Kibbe MR. Sex-based Differential Regulation of Oxidative Stress in the vasculature by Nitric Oxide. Redox Biol. 2015; 4:226-233. PMID: 25617803. * ESMB and RCM contributed equally and share first authorship.
23. Havelka GE, **Moreira ES,** Rodriguez MP, Tsihlis ND, Wang Z, Martinez J, Hrabie J, Keefer L, Kibbe MR. Nitric oxide delivery via a permeable balloon catheter inhibits neointimal growth after arterial injury. J Surg Res. 2013 Mar;180(1):35-42. PMID: 23164361. PMC3578007
24. Gregory EK, Vavra AK, **Moreira ES,** Havelka GE, Jian Q, Lee VR, Van Lith R, Ameer GA, Kibbe MR. Antioxidants Modulate the Antiproliferative Effects of Nitric Oxide on Vascular Smooth Muscle Cells and Adventitial Fibroblasts by Regulating Oxidative Stress. Am J Surg. 2011 Nov;202(5):536-40. PubMEd ID: 23164361
25. **Moreira ES**, Brasch NE, Yun J. Vitamin B12 protects against superoxide-induced cell injury in human aortic endothelial cells. Free Radic Biol Med. 2011 Aug 15;51(4):876-83. PMID: 21672628
26. **Suarez-Moreira E**, Yun J, Birch CS, Williams JH, McCaddon A, Brasch NE. Vitamin B(12) and redox homeostasis: cob(II)alamin reacts with superoxide at rates approaching superoxide dismutase (SOD). J Am Chem Soc 2009 Oct 28;131(42):15078-9. PMID: 19799418
27. Hannibal, L, Axhemi, A, Glushchenko, A, **Moreira, ES**, Brasch, NE, and Jacobsen, DW. Accurate assessment and identification of naturally occurring cellular cobalamins. Clin Chem Lab Med 2008; 46(12):1739-46. PMID: 18973458
28. **Suarez-Moreira E**, Hannibal L, Smith CA, Chavez RA, Jacobsen DW, Brasch NE. A simple, convenient method to synthesize cobalamins: synthesis of homocysteinylcobalamin, N-acetylcysteinylcobalamin, 2-N-acetylamino-2-carbomethoxyethanethiolatocobalamin, sulfitocobalamin and nitrocobalamin. Dalton Trans. 2006 Nov 28;(44):5269-77. Epub 2006 Sep 21. PMID: 17088966
29. Tarpey M, White C, **Suarez Moreira E**, Richardson G, Radi R, Freeman BA. Chemiluminescent detection of oxidants in vascular tissue. Lucigenin but not coelenterazine enhances superoxide formation. Circ Res, 1999; 84(10):1203-1211. PMID: 10347095

Printed Abstracts (peer-reviewed)

1. **Bahnson EM**. “Nanotherapies for the Treatment of Cardiovascular Disease.” November 2020. Free Radical Biology and Medicine 159(S1): S5. DOI: 10.1016/j.freeradbiomed.2020.10.035
2. Musetti B, Thomson L, **Bahnson EM**, Varela J, Gonzalez H. “Cannabis Sativa Extracts Protect LDL from Cu2+-mediated oxidation.” November 2020. Free Radical Biology and Medicine 159(S1): S29. DOI: 10.1016/j.freeradbiomed.2020.10.087
3. Beam J, Shook J, Wagner N, **Bahnson EM**, Rowe S, Conlon B. “Peroxynitrite Induces Antibiotic Tolerance in Staphylococcus aureus.” November 2020. Free Radical Biology and Medicine 159(S1): S38 DOI: 10.1016/j.freeradbiomed.2020.10.111
4. Buglak N, **Bahnson EM**. “Cinnamic Aldehyde Inhibits Neointimal Hyperplasia Through Nrf2 Signaling.” November 2020. Free Radical Biology and Medicine 159(S1): S87. DOI: 10.1016/j.freeradbiomed.2020.10.225
5. Cartaya A, Batrakova E, **Bahnson EM**. “Immune Cell Mediated Delivery of Cinnamic Aldehyde for Therapeutic Vascular Applications.” November 2020. Free Radical Biology and Medicine 159(S1): S88. DOI: 10.1016/j.freeradbiomed.2020.10.227
6. Maiocchi S, Cartaya A, Buglak N, Ramsey J, Sokolsky M, **Bahnson EM**. “Selective Delivery of Nrf2 Activators for the Treatment of Atherosclerosis.” November 2020. Free Radical Biology and Medicine 159(S1): S92. DOI: 10.1016/j.freeradbiomed.2020.10.238
7. Narain M, **Bahnson EM**, Buglak NE, Maiocchi S. “An Evaluation of the Role of Nrf2 in Neointimal Hyperplasia.” December 2019. Free Radical Biology and Medicine 145(S1):S117. DOI: 10.1016/j.freeradbiomed.2019.10.313
8. Cartaya E, **Bahnson EM.** “Macrophage-mediated Targeted Delivery of Redox Interventions for the Prevention of Restenosis.” December 2019. Free Radical Biology and Medicine 145(S1):S141. DOI: 10.1016/j.freeradbiomed.2019.10.375

9. Maiocchi S, Ramsey J, Cartaya A, Sokolsky M, **Bahnson EM.** "Targeted Immune Cell-mediated Delivery of Redox Interventions for the Treatment of Atherosclerosis." December 2019. Free Radical Biology and Medicine 145(S1):S115-S116. DOI: 10.1016/j.freeradbiomed.2019.10.309
10. **Bahnson E**. "Local and Targeted Redox Therapies for the Vasculature." 2018; Free Radical Biology and Medicine 128(S1):S17. DOI: 10.1016/j.freeradbiomed.2018.10.005
11. Buglak NE, and **Bahnson EM.** "Cinnamic aldehyde increases antioxidant defense in vascular smooth muscle cells after injury." 2018; Free Radical Biology and Medicine 128(S1):S22. DOI: 10.1016/j.freeradbiomed.2018.10.005
12. Mota R, Narain M, and **Bahnson EM**. "Diabetic and atherosclerosis-prone rats have sex-specific severe dyslipidemia, associated with serum lipid oxidation" 2018; Free Radical Biology and Medicine 128(S1):S33-S34. DOI: 10.1016/j.freeradbiomed.2018.10.040
13. Buglak NE, Jiang W, Stupp SI, Kibbe MR, and **Bahnson EM.** "Improving arterial surgery outcomes: Combating restenosis with nanotechnology and redox modulation." 2018; Free Radical Biology and Medicine 120(s1):S26. DOI: 10.1016/j.freeradbiomed.2018.04.028
14. Buglak N, Jiang W, **Bahnson ESM**. "Cinnamic Aldehyde as a Potential Therapeutic for Preventing Neointimal Hyperplasia in Diabetes." 2017; Free Radical Biology and Medicine 112(S1):110. DOI: 10.1016/j.freeradbiomed.2017.10.164
15. Jiang W, Jiang Q, Kelly M, Kibbe M, **Bahnson ESM.** "Cinnamic Aldehyde Inhibits PDGF-Induced Migration and Proliferation of Diabetic Vascular Smooth Muscle Cells." 2016; Free Radical Biology and Medicine 100:S17. 1DOI: 10.1016/j.freeradbiomed.2016.10.449
16. **Bahnson ESM**, Flynn, M, Vercammen, JM, Kibbe MR. Long-Term Effect of PROLI/NO on the Proliferative and Phenotypic Kinetic Cell Profile after Arterial Injury." 2015; Free Radical Biology and Medicine 87(1):S47; DOI: 10.1016/j.freeradbiomed.2015.10.121
17. **Bahnson ESM**, Morgan C, Jiang W, Kassam HA, Moyer TJ, Vercammen JM, Stupp SI, Kibbe MR. "Safety and Efficacy of a Systemically-Injected Targeted Therapy for the Injured Vasculature." 2014; Free Radical Biology and Medicine 76 (S10:S78. DOI: 10.1016/j.freeradbiomed.2014.10.279
18. **Bahnson ESM**, Kassam HA, Moyer TJ, Vercammen JM, Stupp SI, Kibbe MR. "A Systemically-Injected Targeted Nitric Oxide-Delivery Vehicle Durably Inhibits Neointimal Hyperplasia after Arterial Injury." 2014; Nitric Oxide 42:115-116. DOI: 10.1016/j.niox.2014.09.052
19. **Moreira ES**, Koo NC, Martinez J, Kibbe MR. "Nitric Oxide Inhibits Neointimal Hyperplasia via Regulation of Superoxide Dismutase-1: In Vivo and in Vitro Evidence of Nitric Oxide-Mediated Redox Regulation." 2014; Journal of Surgical Research; 186(2):593. DOI:10.1016/j.jss.2013.11.551.
20. Morales RC, **Moreira ES**, Cantu-Medellin N, Kelley EE, Kibbe MR. "Sex-based Differential Regulation of Oxidative Stress by Nitric Oxide." 2014; Journal of Surgical Research, 186(2):594. DOI:10.1016/j.jss.2013.11.553.
21. **Moreira ES**, Cantu-Medellin N, Kelley E, Kibbe MR. "Nitric Oxide Regulates Superoxide Levels in Vascular Smooth Muscle Cells via Regulation of SuperoxideDismutase-1." 2013, Free Rad Biol and Med. 65(s2):S79 DOI: 10.1016/j.freeradbiomed.2013.10.581
22. **Moreira ES**, Moyer T, Kassam H, Stupp SI, Kibbe MR. "Synthesis and Characterization of a Targeted Nitric Oxide-Delivery Vehicle." 2013, Journal of Surgical Research,179(2):202. Doi:10.1016/j.jss.2012.10.356.
23. H.A. Kassam, **E.S. Moreira**, T.J. Moyer, S.I. Stupp, M.R. Kibbe. "Prevention of Neointimal Hyperplasia With Systemic Injection of a Targeted Drug-eluting Peptide Amphiphile." 2013; Journal of Surgical Research, 179(2):296-297. DOI:10.1016/j.jss.2012.10.587.
24. **Moreira ES**, Koo NC, Tsui A, Martinez J, Kibbe MR. "NO Inhibits Neointimal Hyperplasia Following Vascular Interventions via Modulation of SOD-1 Expression." 2012; Free Rad Biol and Med. 53(S1):S169-170. DOI: 10.1016/j.freeradbiomed.2012.10.466
25. **Moreira ES**, Vavra AK, Martinez J, Lee VT, Kibbe, MR. "Modulation of Phenotypic Differentiation Accounts for the Durable Inhibition of Neointimal Hyperpasia by Nitric Oxide." 2012; Journal of Surgical Research 172(2):267. DOI:10.1016/j.jss.2011.11.868.
26. Havelka GE, Rodriguez MP, **Moreira ES**, Tshilis ND, Wang Z, Martinez J, Kibbe MR. "Effective Inhibition of Neointimal Hyperplasia using A Nitric Oxide-diffusible Balloon Catheter." 2012: Journal of Surgical Research 172(2):268. DOI:10.1016/j.jss.2011.11.872.

27. **Moreira ES**, Tsui A, Kibbe MR. NO Inhibits VSMC Proliferation following Arterial Injury via Modulation of Superoxide Dismutase-1. Poster presented at the 18th Annual Meeting of the Society for Free Radical Biology and Medicine, Atlanta, GA, November 17, 2011. Free Rad Biol and Med. 2001, 51 Suppl:S45
28. Gregory EK, Vavra AK, **Moreira ES**, Havelka GE, Jiang Q, Kibbe MR. "Antioxidants Modulate the Antiproliferative effect of Nitric Oxide on Vascular Smooth Muscle Cell and Adventitial Fibroblasts by Regulating Oxidative Stress." 2011; The American Journal of Surgery, 202(5):P536-540. DOI: 10.1016/j.amjsurg.2011.06.018
29. Oustwani CS, Tsihlis ND, Vavra AK, **Moreira ES**, Jiang Q, Martinez J, Kibbe MR. Nitric Oxide Increases Lysine-48-Linked Ubiquitination of Cellular Proteins." 2011; Journal of Surgical Research 165(2):327. DOI:10.1016/j.jss.2010.11.311.
30. **Moreira ES**, Emond ZM, Havelka GE, Hogg ME, Wang Z, Jiang Q, Banerjee M, Kibbe MR. "Nitric Oxide Regulation of SOD-1 Expression Is Gender Specific and Differs in Diabetic Environments: Possible Implications for the Differential Efficacy of NO in the Vasculature." 2011; Journal of Surgical Research 165(2):327-328. DOI:10.1016/j.jss.2010.11.312.
31. **Moreira ES**, Tsui A, Havelka GE, Kibbe MR. Nitric oxide inhibits neointimal hyperplasia following vascular interventions via differential modulation of superoxide levels in the arterial wall. 2010, Free Rad Biol and Med. 2010;49 Suppl :S27. DOI: 10.1016/j.freeradbiomed.2010.10.043
32. **Suarez Moreira E**, Jacobsen DW, Brasch NE, Yun J. Vitamin B12 protects against superoxide-dependent cell injury. 2009, Atherosclerosis, Thrombosis and Vascular Biology 29(7):e28-e29. DOI: 10.1161/ATV.0B013E3181AB66E7
33. Castro L, **Suarez Moreira E**, Freeman B, Radi R. Reactions of Nitric Oxide and Peroxynitrite with Recombinant Pig Heart Aconitase. Free Rad Biol Med. 1999;27(S1):S1-164

Peer-Reviewed On-Line Reviews

1. Review record on Osanetant. **Edward Suarez Moreira**. In: Enna SJ, David BB, editors. xPharm: The Comprehensive Pharmacology Reference. New York: Elsevier; 2008. doi:10.1016/B978-008055232-3.62664-9
2. Review record on Septide. **Edward Suarez Moreira**. In: Enna SJ, David BB, editors. xPharm: The Comprehensive Pharmacology Reference. New York: Elsevier; 2007. doi:10.1016/B978-008055232-3.62610-8
3. Review record on Substance P Methyl Ester. **Edward Suarez Moreira**. In: Enna SJ, David BB, editors. xPharm: The Comprehensive Pharmacology Reference. New York: Elsevier; 2007 doi:10.1016/B978-008055232-3.62682-0

Oral Presentations at National or International Conferences (peer-reviewed).

1. "Selective Delivery of Nrf2 Activators for the Treatment of Atherosclerosis." 27th Annual Society for Redox Biology and Medicine Meeting, Orlando, Fl, 11/17/20 – 11/20/20. Authors: Maiocchi S, Cartaya A, Buglak N, Ramsey J, Sokolsky M, **Bahnson EM**. *Presented by SM*
2. "Peroxynitrite induces antibiotic tolerance in Staphylococcus aureus." 27th Annual Society for Redox Biology and Medicine Meeting, Orlando, Fl, 11/17/20 – 11/20/20. Authors: Beam J, Shook J, Wagner N, **Bahnson EM**, Rowe S, Conlon B. *Presented by JB*
3. "Improving arterial surgery outcomes: Combating restenosis with nanotechnology and redox modulation." 19th Biennial Meeting of the Society for Free Radical Research International. Lisbon, Portugal, 06/04/18. Buglak N, Jiang W, Stupp S, Kibbe MR, and **Bahnson ESM**. *Presented by ESMB*
4. "Cinnamic Aldehyde as a Potential Therapeutic for Preventing Neointimal Hyperplasia in Diabetes." 24th Annual Society for Redox Biology and Medicine Meeting, Baltimore, MD, 11/29 – 12/02/17. Authors: Buglak N, Jiang W, Bahnson ESM. *Presented by Buglak N*.
5. "Cinnamic Aldehyde Encapsulated in PLGA Nanoparticles as a Potential Therapeutic to Improve Arterial Surgery Outcomes." Annual Biomedical Research conference for Minority Students (ABRCMS 2017). November 1-4, 2017, Phoenix, AZ. Oral Presentation award: Physiology to EV-M. Authors: Valentín-Méndez E, Pérez Verdejo CM, Lutz H, Buglak NE, Bahnson EM. *Presented by E.V-M*
6. "Pharmacokinetic Model for Supramolecular Nanoscale Carriers Targeted to the Injured Vasculature." 10th Annual Academic Surgical Congress, Las Vegas, NV, February 1-5, 2015. **Bahnson ESM**, Kassam H, Nennig KT, Avram MJ, Kibbe MR. *Presented by ESMB*
7. "Safety of a Collagen-Targeted Peptide Amphiphile Nanofiber for Intravascular Use." Oral

Presentation at the 10th Annual Academic Surgical Congress, Las Vegas, NV, February 1-5, 2015. Jiang W, **Bahnson ESM**, Kibbe MR. *Presented by JW*

8. "Targeted Nitric Oxide-Delivery Vehicle Durably Inhibits Neointimal Hyperplasia after Arterial Injury." Nitric Oxide - Nitrite/Nitrate Conference, Cleveland, OH, June 19, 2014. **Bahnson ESM**, Kassam HA, Moyer TJ, Vercammen JM, Stupp SI, Kibbe MR. *Presented by ESMB. Awarded best presentation by a postdoctoral fellow to ESMB.*
9. "Nitric Oxide Inhibits Neointimal Hyperplasia via Regulation of Superoxide Dismutase-1: In Vivo and in Vitro Evidence of Nitric Oxide-Mediated Redox Regulation." 9th Annual Academic Surgical Congress, San Diego, CA, February 5, 2014. **Moreira ES**, Koo NC, Martinez J, Kibbe MR. *Presented by ESM*
10. "Sex-based Differential Regulation of Oxidative Stress by Nitric Oxide. Oral Session presented at Vascular 1: Basic Sciences Session I, 9th Annual Academic Surgical Congress, San Diego, CA, February 5, 2014." Morales RC, **Moreira ES**, Cantu-Medellin N, Kelley EE, Kibbe MR. *Presented by RCM*
11. "Modulation of Phenotypic Differentiation Accounts for the Durable Inhibition of Neointimal Hyperpasia by Nitric Oxide." 7th Annual Academic Surgical Congress, Las Vegas, NV, February 15, 2012. **Moreira ES**, Vavra AK, Martinez J, Lee VT, Kibbe, MR. *Presented by ESM*
12. "Effective Inhibition of Neointimal Hyperplasia using A Nitric Oxide-diffusible Balloon Catheter. Presented at the Intimal Hyperplasia and Outcomes." (Vascular 1) Oral Session of the 7th Annual Academic Surgical Congress, Las Vegas, NV, February 15, 2012. Havelka GE, Rodriguez MP, **Moreira ES**, Tshilis ND, Wang Z, Martinez J, Kibbe MR. *Presented by GEV*
13. "Nitric Oxide Increases Lysine-48-Linked Ubiquitination of Cellular Proteins. Presented at the Aneurysms & Atherosclerosis." (Vascular 3) Oral Session of the 6th Annual Academic Surgical Congress, Huntington Beach, CA, February 3, 2011. Oustwani CS, Tsihlis ND, Vavra AK, **Moreira ES**, Jiang Q, Martinez J, Kibbe MR. *Presented by CSO.*
14. "Nitric Oxide Regulation of SOD-1 Expression Is Gender Specific and Differs in Diabetic Environments: Possible Implications for the Differential Efficacy of NO in the Vasculature." 6th Annual Academic Surgical Congress, Huntington Beach, CA, February 3, 2011. **Moreira ES**, Emond ZM, Havelka GE, Hogg ME, Wang Z, Jiang Q, Banerjee M, Kibbe MR *Presented by ESM*
15. "Synthesis and Reactivity of biologically relevant cobalamins." 5th Annual Ohio Inorganic Chemistry Meeting, University of Akron, Akron, OH, November 12-13 2004. **Suarez Moreira E**, Ziegler C, Jacobsen DW, Brasch NE. *Presented by ESM*

Plenary Presentations at National or International Conferences (peer-reviewed).

1. "Nanotherapies for Treatment of Cardiovascular Disease" 27th Annual Society for Redox Biology and Medicine Meeting, Orlando, Fl - 11/18/20. –INVITED-
2. "Local and Targeted Redox Therapies for the Vasculature." 25th Annual Society for Redox Biology and Medicine Meeting, Chicago, IL, 11/17/18. –INVITED-
3. "Synthesis and Characterization of a Targeted Nitric Oxide-Delivery Vehicle." *Basic Science Plenary Session*, 8th Annual Academic Surgical Congress, New Orleans, LA, February 5, 2013.

Posters (peer-reviewed)

1. Buglak NE, **Bahnson EM**. "Cinnamic Aldehyde Inhibits Neointimal Hyperplasia Through Nrf2 Signaling." 27th Annual Society for Redox Biology and Medicine Meeting, Orlando, Fl, 11/17/20 – 11/20/20.
2. Cartaya A, Batrakova E,**Bahnson EM**. "Immune Cell Mediated Delivery of Cinnamic Aldehyde for Therapeutic Vascular Applications." 27th Annual Society for Redox Biology and Medicine Meeting, Orlando, Fl, 11/17/20 – 11/20/20.
3. Mota R, Buglak NE, Anderson TA, Norenberg J, and **Bahnson EM.** "Longitudinal In Vivo Imaging of Atherosclerotic Disease Development in The apoE Deficient Zucker Rat." Experimental Biology 2020. San Diego, CA. 04/04/20 – 04/07-20.
4. Buglak NE, **Bahnson EM.** "Cinnamic Aldehyde Inhibition of Neointimal Hyperplasia is Nrf2-dependent." 26th Annual Society for Redox Biology and Medicine Meeting, Las Vegas, NE, 11/20/19 – 11/23/19
5. Narain M, Buglak NE, Maiocchi S, **Bahnson EM**. "An Evaluation of the Role of Nrf2 in Neointimal Hyperplasia." 26th Annual Society for Redox Biology and Medicine Meeting, Las Vegas, NE, 11/20/19 – 11/23/19.

6. Cartaya E, **Bahnson EM.** "Macrophage-mediated Targeted Delivery of Redox Interventions for the Prevention of Restenosis." 26th Annual Society for Redox Biology and Medicine Meeting, Las Vegas, NE, 11/20/19 – 11/23/19. *Received a competitive Young Investigator Award to Ana Cartaya*
7. Maiocchi S, Ramsey J, Cartaya A, Sokolsky M, **Bahnson EM.** "Targeted Immune Cell-mediated Delivery of Redox Interventions for the Treatment of Atherosclerosis." 26th Annual Society for Redox Biology and Medicine Meeting, Las Vegas, NE, 11/20/19 – 11/23/19.
8. Maiocchi S, **Bahnson EM.** "Targeted Immune cell mediated delivery of redox interventions for the treatment of atherosclerosis." 17th International Nanomedicine in Drug Delivery Symposium, MIT, Cambridge, MA 09/14/2019-09/16/2019
9. Cartaya A, **Bahnson EM.** "Self-assembled nanozymes for immune cell mediated targeted delivery of antioxidants to the damaged vasculature." 17th International Nanomedicine in Drug Delivery Symposium, MIT, Cambridge, MA 09/14/2019-09/16/2019
10. Cartaya A, and **Bahnson EM**. "Macrophages as delivery vehicles of antioxidant enzyme nanoparticles payload." 25th Annual Society for Redox Biology and Medicine Meeting, Chicago, IL, 11/14/18 – 11/17/18.
11. Buglak NE, and **Bahnson EM.** "Cinnamic aldehyde increases antioxidant defense in vascular smooth muscle cells after injury." 25th Annual Society for Redox Biology and Medicine Meeting, Chicago, IL, 11/14/18 – 11/17/18.
12. Narain M, Buglak NE, and Bahnson EM. "Evaluation of cinnamic aldehyde as a therapeutic for neointimal hyperplasia in diabetic and non-diabetic vascular smooth muscle cells." Annual Biomedical Research Conference for Minority Students (ABRCMS 2018). Indianapolis, IN. 11/14/18 – 11/17/18
13. Mota R, Narain M, and **Bahnson EM**. "Diabetic and atherosclerosis-prone rats have sex-specific severe dyslipidemia, associated with serum lipid oxidation" 25th Annual Society for Redox Biology and Medicine Meeting, Chicago, IL, 11/14/18 – 11/17/18.
14. Mota R, and **Bahnson EM**. "Development of the First Animal Model of Dyslipidemia, Atherosclerosis, and Diabetes in Mutant apoE Deficient/ZDF Rats." 2018 ASIP PISA, Ann Arbor, MI 10/20/18 – 11/22/18. *ASIP Promoting Diversity in Science Award to Roberto Mota.*
15. Buglak NE, Jiang W, and **Bahnson EM**. Cinnamic Aldehyde as a Potential Therapeutic for Preventing Neointimal Hyperplasia in Diabetes. 57th Annual Meeting of Society of Toxicology, San Antonio, TX, 3/11 – 3/15/18.
16. Pérez Verdejo CM, Valentín-Méndez E, Lutz H, Buglak NE, **Bahnson EM**. "Cinnamic Aldehyde Conjugate-based Nanoparticles for the treatment of arterial restenosis." Annual Biomedical Research conference for Minority Students (ABRCMS 2017). November 1-4, 2017, Phoenix, AZ. *Poster Presentation award: Physiology.*
17. Jiang W, Jiang Q, Kelly M, Kibbe M, **Bahnson ESM.** Cinnamic Aldehyde Inhibits PDGF-Induced Migration and Proliferation of Diabetic Vascular Smooth Muscle Cells. Society for Redox Biology and Medicine 23rd Annual Meeting, San Francisco, CA, November 16-19, 2016.
18. **Bahnson ESM**, Flynn, M, Vercammen, JM, Kibbe MR. Long-Term Effect of PROLI/NO on the Proliferative and Phenotypic Kinetic Cell Profile After Arterial Injury. Society for Free Radical Biology and Medicine Meeting, Boston, MA, November 18-21, 2015. *Awarded a 2015 Young Investigator Award*.
19. **Bahnson ESM**, Morgan C, Jiang W, Kassam HA, Moyer TJ, Vercammen JM, Stupp SI, Kibbe MR. Safety and Efficacy of a Systemically-Injected Targeted Therapy for the Injured Vasculature. Oral Presentation at the 2014 Society for Free Radical Biology and Medicine Meeting, Seattle, WA, November 19-23, 2014. Free Rad Biol and Med. 2014; 76 Supp 1:S78. *Awarded the Larry Oberley Young Investigator Award.*
20. **Bahnson ESM**, Kassam HA, Moyer TJ, Vercammen JM, Stupp SI, Kibbe MR. A Systemically-Injected Targeted Nitric Oxide-Delivery Vehicle Durably Inhibits Neointimal Hyperplasia after Arterial Injury. Poster and oral presentation at Nitric Oxide - Nitrite/Nitrate Conference, Cleveland, OH, June 19, 2014. *Awarded Best Presentation by a Postdoctoral Fellow.*
21. **Moreira ES**, Cantu-Medellin N, Kelley E, Kibbe MR. Nitric Oxide Regulates Superoxide Levels in Vascular Smooth Muscle Cells via Regulation of SuperoxideDismutase-1. Poster presented at the 20th Annual Meeting of the Society for Free Radical Biology and Medicine, San Antonio, TX, November 2013.
22. **Moreira ES**, Koo NC, Tsui A, Martinez J, Kibbe MR. NO Inhibits Neointimal Hyperplasia Following Vascular Interventions via Modulation of SOD-1 Expression, Poster presented at the 19th Annual Meeting of the Society for Free Radical Biology and Medicine, San Diego, CA, November 17, 2012.

23. **Moreira ES**, Tsui A, Kibbe MR. NO Inhibits VSMC Proliferation following Arterial Injury via Modulation of Superoxide Dismutase-1. Poster presented at the 18th Annual Meeting of the Society for Free Radical Biology and Medicine, Atlanta, GA, November 17, 2011.
24. **Moreira ES**, Tsui A, Havelka GE, Kibbe MR. Nitric oxide inhibits neointimal hyperplasia following vascular interventions via differential modulation of superoxide levels in the arterial wall. Poster presented at the 17th Annual Meeting of the Society for Free Radical Biology and Medicine. Orlando, FL. November 2010.
25. **Suarez Moreira E**, Jacobsen DW, Brasch NE, Yun J. Vitamin B12 protects against superoxide-dependent cell injury. Poster presented at the ATVB Annual Conference. Washington DC, April 2009.
26. Hannibal L, **Suarez Moreira E**, Axhemi A, Brasch NE, Jacobsen DW. Exchange of Beta-Axial Ligands During the Extraction of Cobalamins from Cultured Aortic Endothelial Cells. Poster presented at the Vitamin B12 Gordon Conference, Biddeford, ME, July 2007.
27. **Moreira ES**, Brasch, NE, Quadros EV, Jacobsen DW. Evidence for Glutathionylcobalamin in Human Aortic Endothelial Cells. Poster presented at the FASEB Summer Research Conference on Folate, Vitamin B12, and One Carbon Metabolism. Palm Springs, NE, August, 2006.
28. **Suarez-Moreira E**, Brasch, NE, Quadros EV, Jacobsen DW. Evidence for Glutathionylcobalamin in Human Aortic Endothelial Cells. Poster presented at the Vitamin B12 Gordon conference. Oxford, UK, September, 2005.
29. **Suarez Moreira E**, Ziegler C, Jacobsen D, Brasch N. Chemistry and cellular biochemistry of the vitamin B12 derivatives thiolatocobalamins. Poster presented at the 229th ACS National Meeting, San Diego, CA, March 13-17, 2005. INOR537 (I cannot find the page for the published abstract)
30. **Suarez Moreira E**, Vetrik M, Ziegler C, Jacobsen DW, Brasch, NE. Synthesis and Reactivity of biologically Relevant cobalamins. Poster presented at the FASEB Summer Research Conference on Folate, Vitamin B12, and One Carbon Metabolism. Snowmass, CO, July, 2004.
31. Denicola A, Amengual C, **Suarez Moreira E**, Alvarez B. Tyrosine Nitration by Peroxidases: Effect of Bicarbonate and Glutathione. Poster presented at the X Annual Meeting of the Society for Free Radical Biology and Medicine. Seattle, WA, November 2003.
32. **Suarez Moreira E**, Stanko C, Hikichi N. Evaluation of the Testosterone / Epitestosterone Ratio. Poster presented at the X Meeting of the Uruguayan Society of Biosciences. Maldonado, Uruguay, May, 2002.
33. **Suarez Moreira E**, Tarpey M, Freeman B, Radi R. The use of Coelenterazine for the Detection of Biologically Relevan Oxidants. Poster presented at the IX Biennial Meeting of the International Society for Free Radical Research. São Paulo, Brazil, September, 1998.
34. Castro L, **Suarez Moreira E**, Freeman B, Radi R. Reactions of Nitric Oxide and Peroxynitrite with Recombinant Pig Heart Aconitase. Poster presented at the VI Annual Meeting of the Oxygen Society. New Orleans. Nov 1999.

Invited Lectures

1. **Edward Moreira Bahnson**, "Old dogs benefit from new tricks: 3D analysis of arterial injury to study Nrf2-dependent inhibition of neointimal hyperplasia in rats" American Physiological Society Webinar Series. July 29th 2021 (on line)
2. **Edward Moreira Bahnson**, "New tricks for an old dog: 3D analysis of arterial injury models." Innovations in Vascular Imaging Workshop at Vasculata 2021 - NAVBO. July 14th 2021 (online)
3. **Edward Moreira Bahnson**, Kelly Mack, Veronica Segarra, and Selwyn Williams. R.H. Martin Welcome and Plenary: Including diversity in STEM. 82nd Association of Southern Biologists Annual Meeting. Virtual Event. March 24th 2021.
4. **Edward Moreira Bahnson.** "Local Redox Interventions to Prevent Restenosis in Injured Arteries." Curriculum in Toxicology Seminar. University of North Carolina, Chapel Hill, December 12th 2017.
5. **Edward Moreira Bahnson.** "Local Redox Interventions to Prevent Restenosis in Injured Arteries." Curriculum in Toxicology Seminar. University of North Carolina, Chapel Hill, December 12th 2017.
6. **Edward Moreira Bahnson**. **"**Local Interventions to Prevent Restenosis in Injured Arteries." Division of Pharmacoengineering and Molecular Pharmaceutics Seminar Series.. University of North Carolina, Chapel Hill. October 30th 2017
7. **Edward Moreira Bahnson**. "Local Interventions to Prevent Restenosis in Injured Arteries: Targeted Delivery to Modulate the Redox Environment and Inflammation" Division of Transplant Educational Conference Series. University of North Carolina, at Chapel Hill. Chapel Hill, NC. October 12th, 2017

8. **Edward Moreira Bahnson**. "Improving Arterial Surgery Outcomes: Combating Restenosis with Nanotechnology and Redox Modulation." Department of Chemistry Graduate Seminar. Universidad de Puerto Rico, Recinto Río Piedras. San Juan, PR. February 6th, 2017
9. **Edward Moreira Bahnson**. "Local Redox Interventions to Prevent Restenosis in Injured Arteries." MARC/RISE Seminar. Universidad de Puerto Rico, Recinto Río Piedras. San Juan, PR. February 3rd, 2017
10. **Edward Moreira Bahnson.** Improving Arterial Surgery Outcomes: Combating Restenosis with Nanotechnology and Redox Modulation. Cell Biology and Physiology Seminar Series. University of North Carolina, Chapel Hill. September 19th 2016
11. **Edward Moreira Bahnson.** "Improving Arterial Surgery Outcomes: Combating Restenosis with Nanotechnology and Redox Modulation." Rising Stars of the Simpson Querrey Insitute. Northwestern University, Chicago, IL. May 25th 2016.
12. **Edward Moreira Bahnson**. "The vascular biochemistry of B12: Implications for cardiovascular disease." Institute of Biological Chemistry Seminar Series. School of Sciences, University of Uruguay, Montevideo, Uruguay. December 20th, 2006

Patents and Disclosures

1. "Targeted Therapy for the Prevention of Restenosis in the Cardiovascular System." Samuel Stupp, Melina Kibbe, Tyson Moyer, and Edward Moreira Bahnson. December 13, 2016, as US Patent No. 9,517,275
2. "Method of synthesis of the sodium salt of N-acetyl-L-cysteinylcobalamin" Nicola E. Brasch and Edward Suarez Moreira. August 17, 2010, as US Patent No. 7,777,046

6) Teaching Activities

Undergraduate Teaching

1. Instructor. Principles of Organic Chemistry. NSCI240. Department of Natural Sciences. Hebrew Theological College. Chicago, IL. 2015-2016.
2. Teaching Assistant. General Chemistry 101 Lab. Department of Chemistry. Kent State University, Kent, OH. 2004-2006.
3. Teaching Assistant. General Chemistry 102 Lab. Department of Chemistry. Kent State University, Kent, OH. 2004-2006.
4. Teaching Assistant. Biochemistry Supplemental Lecture. Department of Chemistry. Kent State University, Kent, OH. 2004-2006.
5. Teaching Assistant. Physical Biochemistry (lab and selected lectures). Institute of Biological Chemistry. School of Sciences. University of Uruguay, Montevideo, Uruguay. 1998-2003.
6. Teaching Assistant. Biochemistry (selected lectures). Institute of Biological Chemistry. School of Sciences. University of Uruguay, Montevideo, Uruguay. 1998-2003.

Medical School Teaching

1. Teaching Assistant. Immunology and Microbiology (lab). Department of Integrative Medical Sciences. Northeastern Ohio Medical School, Rootstown, OH. 2009.
2. Teaching Assistant. General Biology (lab, lectures, problem-solving seminars). Department of Biochemistry. School of Medicine. University of Uruguay, Montevideo, Uruguay. 1997-2000.
3. Teaching Assistant. Cell Biology (lab and problem-solving seminars). Department of Biochemistry. School of Medicine. University of Uruguay, Montevideo, Uruguay. 1997-2000.
4. Teaching Assistant. Biochemistry of the Digestive, Renal, and Endocrine Systems (lab and problem-solving seminars). Department of Biochemistry. School of Medicine. University of Uruguay, Montevideo, Uruguay. 1997-2000.
5. Teaching Assistant. Immunology (lab and problem-solving seminars). Department of Biochemistry. School of Medicine. University of Uruguay, Montevideo, Uruguay. 1997-2000.

Grand Rounds

1. "Promoting Diversity, Equity, and Inclusion to Enhance Research and Medicine Excellence." Department of Pathology and Laboratory Medicine. University of North Carolina at Chapel Hill. June 4th 2020. Dr. Bahnson was 1 of 4 presenters.
2. "Synthesis and Characterization of a Targeted Nitric Oxide-Delivery Vehicle." Department of Surgery Grand Rounds. Northwestern University. February 2013.

Graduate School Teaching

1. Selected Lectures PATH767 and PATH776. University of North Carolina at Chapel Hill 2018-present. Between 4-10 graduate students per lecture
2. Selected Lectures in ENV442: Redox Biology. University of North Carolina at Chapel Hill 2018-present 40 students
3. Pharmacology Doctoral Exam Committee Member. University of North Carolina at Chapel Hill 2018-present 1 or 2 students per year
4. Co-Mentor for the First Year Group seminar series for the Biological and Biomedical Sciences PhD Program (BBSP) at the University of North Carolina at Chapel Hill. 2017 – present 12-16 students per year
5. Selected Lectures Experimental Physiology of Human Health and Disease (CBPH852). University of North Carolina at Chapel Hill. 2017 – present 10-14 students per year
6. Surgical Resident Education Weekly Seminar. 02/05/2020. LGBTQ Cultural Competency seminar. 30 residents.
7. Pharmacology Grant Writing Course. Faculty Reader. University of North Carolina at Chapel Hill 2018 15 students
8. Selected Lecture Experimental Physiology of Human Health and Disease (CBPH853). University of North Carolina at Chapel Hill. 2017 15 students
9. Teaching Assistant. Bioinorganic Chemistry (lab). Department of Chemistry. Kent State University, Kent, OH. 2006. 5 students
10. Teaching Assistant. Enzymology (selected lab and lectures). Institute of Biological Chemistry. School of Sciences. University of Uruguay, Montevideo, Uruguay. 1998-2003. 10 students

Trainees

Mentoring Experience (Research)

Undergraduates

1. Sarah Torzone 2021-present University of North Carolina – Chapel Hill
2. Sydney Thai 2019-2021 University of North Carolina – Chapel Hill
3. S. Evan Morgan 2018-2021 University of North Carolina – Chapel Hill
    a. SURF fellowship awardee for the summer of 2019
4. Rachel Maydew 2017-2020 University of North Carolina – Chapel Hill
    a. Accepted to Dental School at UNC.
5. Sachi Vivek 2019 University of North Carolina – Chapel Hill
6. Morgan Narain Summer 2018 and 2019 Summer Research Experience (UNC) from Oakwood University.
    a. Poster Presentation award. ABRCMS 2018 November 14-17, 2017, Indianapolis, IN.
    b. Graduate Student at UNC since Fall 2020
7. Halle Lutz 2017- 2019 University of North Carolina – Chapel Hill
    a. Student at the joint DVM/PhD program at NC State University
8. Emily Valentín Summer 2017 Summer Research Experience (UNC) from U. Puerto Rico
    a. Travel Award to attend and present at the Annual Biomedical Research conference for Minority Students (ABRCMS 2017). November 1-4, 2017, Phoenix, AZ.
    b. Oral Presentation award. Physiology ABRCMS 2017 November 1-4, 2017, Phoenix, AZ.
    c. Currently in Medical School in Puerto Rico
9. Cheysaliz Pérez Summer 2017 Summer Research Experience (UNC) from U. Puerto Rico
    a. Travel Award to attend and present at the Annual Biomedical Research conference for Minority Students (ABRCMS 2017). November 1-4, 2017, Phoenix, AZ

b. Poster Presentation award. Physiology ABRCMS 2017 November 1-4, 2017, Phoenix, AZ.
c. Currently in Medical School in Puerto Rico

10. Arron Tsui 2010 – 2012 Northwestern University/Dept. of Surgery

Graduate Students

Master's Students

1. Bruno Musetti 06/18 – 09/18 Internship at UNC. Student at Universidad de la República.
   a. Currently a PhD Student in Uruguay
2. Wulin Jiang 1/14 – 6/15 Northwestern University/Dept. of Surgery
3. Rommel Morales 12/12 – 6/14 Northwestern University/Dept. of Surgery

PhD Students

1. Ana Cartaya 05/18-present University of North Carolina- Chapel Hill / Pharmacology
2. Nick Buglak 2/17-present University of North Carolina- Chapel Hill / Toxicology Curriculum Main Mentor for the Translation Medicine Certificate
3. Morgan Narain University of North Carolina- Chapel Hill / BBSP rotation
3. Morgan Nalesnik 09/19-11/19 University of North Carolina- Chapel Hill / BBSP rotation
4. Taylor Enrico 02/18-05/18 University of North Carolina- Chapel Hill / BBSP rotation
5. Ernesto León 11/17-02/18 University of North Carolina- Chapel Hill / BBSP rotation
6. Wulin Jiang 11/16-2/17 University of North Carolina- Chapel Hill / BBSP rotation
7. Emma Gargus 5/15 – 7/15 Northwestern University/Dept. of Surgery / MSTP rotation

PhD Rotation Students

1. Morgan Narain 07/20 University of North Carolina- Chapel Hill / BBSP rotation
2. Morgan Nalesnik 09/19-11/19 University of North Carolina- Chapel Hill / BBSP rotation
3. Taylor Enrico 02/18-05/18 University of North Carolina- Chapel Hill / BBSP rotation
4. Ernesto León 11/17-02/18 University of North Carolina- Chapel Hill / BBSP rotation
5. Wulin Jiang 11/16-2/17 University of North Carolina- Chapel Hill / BBSP rotation
6. Emma Gargus 5/15 – 7/15 Northwestern University/Dept. of Surgery / MSTP rotation

Postdoctoral Fellows

1. Sophie Maiocchi, PhD 2018-presernt University of North Carolina – Chapel Hill
   a. Burroughs Wellcome Fund 2020 Collaborative Research Grant awardee.
   b. Current Leon and Bertha Golberg Toxicology Fellow at UNC
   c. Impact Score of 30 (within historical payline) on her K99/R00 (council meets 10/21)
2. Roberto Mota, MD 2017-2019 University of North Carolina – Chapel Hill
   a. Burroughs Wellcome Fund 2018 Collaborative Research Grant awardee.
   b. Currently Assistant Professor at the University of Pittsburgh

Undergraduate Honors Thesis

1. Rachel Maydew. "Marcophage Mediated Nanoparticle Delivery to the Injured Vasculature." BS in Biology. University of North Carolina – Chapel Hill. **Advisor: Edward Bahnson**. Completed May 2020
2. Halle Lutz. "Cinnamic-Aldehyde encapsulated in Pluronic Micelles to Inhibit Smooth Muscle Proliferation and Migration." BS in Biology. University of North Carolina – Chapel Hill. **Advisor: Edward Bahnson.** Completed May 2019
3. Emily Valentín. "Cinnamic Aldehyde Encapsulated in PLGA Nanoparticles as a Potential Therapeutic to Inhibit Vascular Smooth Muscle Proliferation in the context of Arterial Surgery." University of Puerto Rico Río Piedras Campus College of Natural Sciences Interdisciplinary Studies Department. **Advisor: Edward Bahnson.**

Graduate Thesis Committee (in progress)

1. Peyton Sandroni Dissertation Committee. PhD in Pharmacology. UNC. Expected 2025
2. Bruno Musetti PhD Thesis co-advisor. PhD in Biology. University of Uruguay. Expected 2023
3. Ana Cartaya PhD Thesis advisor. PhD in Pharmacology. UNC Expected May 2022

4. Natalie Tanke Dissertation Committee. PhD in Cell Biology & Physiology. UNC. Expected 2022
5. Zhe Miao Dissertation Committee. PhD in Oral Biology, UNC. Expected 2022
6. Kyle Martin Dissertation Committee. PhD in Toxicology, UNC. Expected 2022
7. Jenna Bea Dissertation Committee. PhD in Microbiology/Immunology, UNC. Expected 2022
8. Nick Buglak PhD Thesis advisor. PhD in Toxicology. UNC Expected December 2021
9. Danielle Berlin Dissertation Committee. PhD in Cell Biology & Physiology. UNC. Expected 2022
10. Eva Vitucci Dissertation Committee. PhD in Toxicology, UNC. Expected 2022

Graduate Thesis Completed

1. Ben Roberts. "The molecular regulation of lipoprotein lipase trafficking." April 2021, PhD in Biochemistry. UNC. Dissertation Committee Member
2. Nicolás Cataldo "Antioxidant, anti-inflammatory, and anti-atherogenic properties of p-substituted arylnitroaliphatic compounds." March 2019 MS in Biology. University of Uruguay. Committee Member.

7) Grants

Current

1. "Selective delivery of superoxide dismutase and catalase for /restenosis prevention."
   Pre-doctoral Fellowship to deliver antioxidant enzymes in nanoformulations using cell-mediated delivery to sites of arterial injury to inhibit neointimal hyperplasia
   1F31HL156427-01A1 Fellowship. (09/01/21-08/30/23) NIH
   Cartaya(PI) **Bahnson (Sponsor)**
   $84,448
   Effort: N/A
   Percentile: 20 – awaiting NOA
2. "Encapsulation of –thrombolytics with inverse flash nanopreciptation (iFNP) for their cell-mediated targeted delivery to thrombosis"
   This grant funded Dr. Maiocchi to learn a technique at a collaborator's lab at NYU to bring a new nanoformulation technique to UNC. Framed in the overall delivery of therapeutics for CVD
   Collaborative Research Grant (06/01/20 – 12/31/21) Burroughs Wellcome Fund 2020
   Maiocchi (PI), **Bahnson (Sponsor)**.
   $ 10,000
   Effort: N/A
3. "Cell-Mediated Targeted Redox Intervention for the Treatment and Prevention of Atherosclerosis."
   This grant aims to develop a targeted delivery system of Nrf2 activators to atherosclerotic plaque using macrophages as delivery vehicles.
   K01HL145354-01A1 Career Development. NHLBI. (12/15/2019-11/30/2023) NIH
   Bahnson (PI)
   $ 460,000
   Effort 75% (9 Cal)
4. "Cinnamic aldehyde inhibition of neointimal hyperplasia is dependent on Nrf2 signaling."
   Predoctoral fellowship to study the vasculoprotective effect of cinnamic aldehyde through Nrf2 activation.
   PRE35120321 Predoctoral Fellowship AHA. (01/01/2020-12/31/2022) AHA
   Buglak (PI) **Bahnson (Sponsor)**
   $62,000
   Effort: N/A

Pending

1. "Targeted drug delivery for the treatment of cardiovascular disease and its clinical complications."
   Fellow to faculty grant for my postdoc focusing on new generation encapsulation methodologies to develop targeted delivery systems for cardiovascular disease.
   1K99HL157690-01A1 Career Development. NHLBI (12/01/21-11/30/23) NIH
   Maiocchi (PI) **Bahnson (Sponsor)**
   $192,517
   Effort: N/A
   Impact Score: 30 – no percentile – payline hasn't been released (within historic payline)

5. "The contribution of respiratory burst to antibiotic failure in Staphylococcus aureus bacteremia"
   Our overall hypothesis is that macrophage-S. aureus interactions are driving antibiotic treatment failure in patients. My main contribution is to aim 3 where we will examine the potential of 2 therapeutic approaches to reduce antibiotic tolerance induction by macrophages. Firstly, we will apply a series of antioxidants, including a state-of the art approach involving the targeted delivery of therapeutics specifically to macrophages. Secondly, we will induce M2 polarization of macrophages to reduce ROS production and improve antibiotic susceptibility of phagocytosed S.aureus.
   1 R01 AI158511-01A1 Research Grant NIAID (09/01/21-08/31/26) NIH
   Conlon (PI) **Bahnson (Co-I)**
   $1,314,295
   Effort: 10% (1.2 cal)
   Percentile:17

6. "Inhibition of Neointimal Hypeplasia via Activation of Nrf2"
   The overall goal of this proposal is to elucidate the mechanisms by which Nrf2 activation inhibits neointimal hyperplasia using innovative 3D imaging techniques and evaluate a novel nanoparticle-based drug delivery system. We will deliver a Nrf2 activator as a pharmacological treatment to improve revascularization outcomes, with the aim to prevent end-organ ischemia, and the need to perform secondary interventions.
   1 R01 AI158511-01A1 Research Grant NIAID (12/01/21-11/30/26) NIH
   Bahnson (PI)
   $1,250,000
   Effort: 20% (2.4 cal)

Completed

1. "Effect of Acute Ozone Exposure on Restenosis Rates after Vascular Interventions"
   The goal of this pilot project was to study the effect of ozone exposure on the arterial injury response in mice. We found a differential cell population profile in exposed mice after carotid ligation.
   Center for Environmental Health and Susceptibility Pilot Award P30ES010126 (Troester)
   Bahnson (PI)
   $30,000
   Effort: N/A

2. "Molecular Imaging of Atherosclerosis in Mutant ApoE Deficient Rats"
   The goal of this project was to image atherosclerosis progression in an atherosclerosis-prone rat model we created using an immune cell radioactive marker. We found signs of inflammnation in the arch of the rat earlier than we saw lipid-rich lesions.
   Burroughs Wellcome Fund 2018 Collaborative Research Grant. (06/01/18 – 12/31/19)

Mota (PI), **Bahnson (Sponsor)**.
$12,000
Effort: N/A

3. "Effect of Ozone Exposure on Revascularization Outcomes"
   We examined outcomes from a vascular patient registry and found a 16% increase in the hazard ratio of revascularization failure in patients exposed to higher ozone.
   Provost Junior Faculty Development Award. (0.1/01/2019-12/31/2019)
   Bahnson (PI)
   $ 10,000
   Effort: N/A.

4. "Cell-Mediated Targeted Redox Intervention for the Prevention of Restenosis in the Injured Vasculature"
   We created a macrophage mediated delivery system of redox interventions. We generated nanoformulated Nrf2 activators and we showed that nanoparticle-loaded macrophages localize to site of arterial injury
   KL2 Scholar, NIH KL2TR002490 (Weinberger). UNC Clinical and Translational Science Award-K12 Scholars (04/01/18 – 11/14/2019) NIH
   Dr. **Bahnson was a KL2 Scholar**
   $100,000 annual
   Effort: 75% (9.0 cal)
   Note: items 4 and 6 are the same award but the institutional K was renewed in the middle with a different number and different PI

5. "Development of a new animal model of dyslipidemia, atherosclerosis, and diabetes in obese rats"
   We used CRISPR/Cas9 technology to generate a polygenic model of atherosclerosis in the zucker rat. We characterized these animals who develop significant atherosclerosis when fed a high fat diet.
   UNC-NORC, P30DK056350 (Coleman). Pilot Grant (04/01/2017–03/31/2019) NIH
   Bahnson (PI)
   $40,000
   Effort: N/A

6. "Cell-Mediated Targeted Redox Intervention for the Prevention of Restenosis in the Injured Vasculature"
   We created a macrophage mediated delivery system of redox interventions. We generated nanoformulated Nrf2 activators and we showed that nanoparticle-loaded macrophages localize to site of arterial injury.
   KL2 Scholar, KL2TR001109-03 (Buse) UNC Clinical and Translational Science Award-K12 Scholars (04/01/17 – 03/30/18) NIH
   Dr. **Bahnson was a KL2 Scholar**
   $100,000 annual
   Effort: 75% (9.0 cal)
   Note: items 4 and 6 are the same award but the institutional K was renewed in the middle with a different number and different PI

7. "Development of a targeted therapy to prevent restenosis following cardiovascular interventions"
   I designed and characterized a nitrosated peptide amphiphile that self assembles into a

nanofiber and targets sites of endothelial denudation. I found that it effectively targeted sites of arterial balloon injury and inhibited neointimal hyperplasia.
13POST16090011 Post-doctoral Fellowship (7/1/13-6/30/15) American Heart Association
Bahnson (PI)
$98;476
Effort: 95% (11.4 cal)

8. "Vitamin of B12 as an Antioxidant in Human Vascular Endothelial Cells"
Internal grant that funded experiments to test the protective effect of B12 in endothelial cells challenged with pro-oxidant insults.
Kent State University Graduate Student Senate Intramural Research Grant (2008-2009)
Bahnson (PI)
$1,000
Effort: N/A

9. "Vascular Biochemistry of B12: Implications for Cardiovascular Disease"
During this fellowship I characterized endothelial metabolism of vitamin B12 and co-developed an innovative analytical technique, we named "cold trapping." This technique allows for the accurate differentiation of natural vs artifactual forms of B12. Finally, I studied the protective properties of B12 as a cellular redox regulator.
0715482B Predoctoral Fellowship (7/1/07-6/30/2009) American Heart Association
Bahnson (PI)
$42,000
Effort: 100% (12 cal)

8) Service

To Professional Organizations

2021-present	DEI Committee Member FASEB
2020-2022	Inaugural DEI Chair - Society for Redox Biology and Medicine, member of FASEB
2018-2022	Council Member of the Society for Redox Biology and Medicine
2018-2020	Co-Chair of the Junior Awards Committee. SfRBM.
2016-present	American Heart Association Professional Member
2016-present	Society for Redox Biology and Medicine Professional Member
2016-2020.	Member of the Professional Development Committee
2019-2020	Co-Chair of the Undergraduate Education Sub-Committee
2013-present	National Organization of Gay and Lesbian Scientists and Technical Professionals
2018-2019	Member of the Undergraduate Education Sub-Committee
2011-2016	National Postdoctoral Association
2010-2016	Society for Redox Biology and Medicine, Student/Trainee Member
2015	Member of the Trainee Council
2016	Vice Chair of the Trainee Council and Member of the Prof. Dev. Committee
2010-2016	Association for Academic Surgery, Candidate Member
2009-2016	American Heart Association Student Member

Journal Review Responsibilities

2020-present	Atherosclerosis Thrombosis and Vascular Biology / Antioxidants (MDPI)
2019-present	PLOS One / Clinical and Experimental Pharmacology and Physiology (Wiley)
2019-present	Circulation Research / Nutrients (MDPI)
2018/-present	Life Sciences (Elsevier) / Medical Sciences (MDPI)
2017-present	Oxidative Medicine and Cellular Longevity (Hindawi)

2016-present Journal of Surgical Research (Elsevier) / Redox Biology (Elsevier) Nitric Oxide (Elsevier)

Editorial Boards

2019-present Reactive Oxygen Species Editorial Board ISSN: 2380-2367
https://www.aimsci.com/ros/index.php/ros/about/editorialTeam

Ad Hoc Grant Review Responsibilities

2021 NIH Study Section: Systemic Injury by Environmental Exposure (SIEE)
2020 NIH Study Section Early Career Member: Myocardial Ischemia and Metabolism (MIM)
2019 Uruguayan National Agency for Research and Innovation (ANII in Spanish). Research Grants. Clemente Estable Fund.
2017 National Organization of Gay Lesbian Science and Technology Professionals. Out To Innovate Fellowship.
2017 Uruguayan National Agency for Research and Innovation (ANII in Spanish). Applied Science Research Grant. María Viñas Fund.
2016 Research Councils UK. National Centre for the Replacement Refinement & Reduction of Animals in Research Fellowship

Meeting Service

1. Young Investigator Award Judge. Society for Redox Biology 26th Annual Meeting. Las Vegas, NV. November 20–23, 2019
2. Professional Development Panelist. 2 sessions: 1) Transitioning from Non-Tenure Research to Academic Tenure Track Positions & Alternative Careers. 2) Professionalism - Building Success in Science. Society for Redox Biology 26th Annual Meeting. Las Vegas, NV. November 20–23, 2019.
3. Young Investigator Award Judge. Society for Redox Biology 25th Annual Meeting. Chicago, IL. November 14–17, 2018.
4. Plenary Session Chair. Society for Redox Biology 25th Annual Meeting. Chicago, IL. November 14-17 2018.
5. Young Investigator Award Judge. Society for Redox Biology 24th Annual Meeting. Baltimore, MA. November 29 – December 2, 2017.
6. Professional Development Panelist. Enhancing your Professional and Personal Management Skills. Society for Redox Biology 23th Annual Meeting. San Francisco, CA, November 16-19, 2016.
7. Moderator, Basic Science Session. Academic Surgical Congress 2015. Las Vegas, NV.

Institutional Service

University of North Carolina – Chapel Hill

2021 – present Director of Graduate Admissions. Curriculum in Toxicology & Env. Medicine
2020 – present Interim Chair Provot's Committee on LGBTQ Life
2020 – present Biological and Biomedical Sciences Recruitment Weekend Coordinator
2019 – present Biological and Biomedical Sciences Program Admissions Committee
2019 – present STEM Pride. UNC LGBTQ in STEM organization. Faculty Advisor
2018 – 2020 Member Provost Advisory Committee on LGBTQ life
2018 – 2019 LGBTQ Service Award Committee. LGBTQ Center.
2017 – present Safe Zone Training for STEM facilitator and curriculum co-designer.
2017 – present LGBTQ Center Safe Zone Facilitator
2017 – 2018 Co-founder and Board Member of STEM Pride. UNC LGBTQ in STEM organization.
2017 Recruiting Talk for UNC Research Programs at the Universidad de Puerto Rico, Recinto Río Piedras. San Juan, PR
2016 – present Member of the IACUC Committee

Kent State University

2007	Member of the Americas Geographic Committee
2007	Member of the Student Trustee Search Committee
2007	Member of the Provost Search Committee
2006 – 2007	Member of the Committee for Administrative Officers
2006 – 2007	Executive Chair. Executive Board of the Graduate Student Senate
2006	Member of the Democracy Symposium Committee
2005 – 2006	Colloquium Chair. Executive Board of the Graduate Student Senate
2005	Chair of the International Travel Grant Committee

Other Professional Activities

1. Currently enrolled in the UNC DEI Diploma. I have completed 3 of the 6 requirements.
2. Graftmanship for the Research Professional Course. Northwestern University Clinical and Translational Sciences Institute. Instructor: Holly Falk-Krzesinski, Ph.D. Evanston, IL, August 2011
3. Faculty Mentoring Workshop lunch with Dr. Anna Sokac. Chapel Hill, NC. 1/9/2019.
4. Small Group Grant Writing Workshop lead by Dr. George Gopen. Organized by NC TraCS Institute. 1/9/2019
5. Panel Speaker: Intersectionality Panel Discussion -- How to navigate implicit bias in STEM. Organized by Women in Science. Chapel hill, NC. 10/24/2018
6. Brown Bag Lunch Mentoring Workshop. Organized by the Office of Graduate Education. Chapel Hill, NC. 10/24/2018
7. Panel Speaker: How to Navigate Implicit Bias in STEM. Organized by Women in Science. Co-Sponsored by Initiative for Maximizing Student Diversity (IMSD), STEM Pride, and SACNAS. 10/24/2018. UNC-CH
8. Culturally Aware Mentorship Workshop, part of the NRMN Mentor Training Core. Facilitators Kelly Diggs-Andrews, PhD and Bruce Birren, PhD. University of Chapel Hill, NC. 5/17/2018.
9. Panel Speaker: LGBTQ Faculty and Staff Panel. Organized by the Graduate School. Diversity and Student Success Program. University of North Carolina, Chapel Hill. 4/13/2018.
10. Brown Bag Lunch Mentoring Workshop. Organized by the Office of Graduate Education. Chapel Hill, NC. 12/6/2017.
11. Scientific Writing Workshop attendee. "Scientific Writing from the Reader's Perspective." George Gopen, PhD. 6/29/2017. Organized by NC TraCS Institute.
12. Speaker at Lunch and Learn Roundtable. Organized by SACNAS-UNC. Chapel Hill, NC. 4/13/2017.
13. Panel speaker: “Out in the Lab: Visibility Matters” A conversation with LGBTQ scientists. Organized by the Office of Graduate Education. Chapel Hill, NC. 3/30/2017
14. Initiative for Maximizing Student Diversity panel with minority faculty for 1st year graduate students. Organized by IMSD Director Ashalla Freeman, PhD. Chapel Hill, NC. 1/6/2017.
15. Faculty Mentoring Workshop for Biomedical Researchers. University of North Carolina at Chapel Hill. Office of Graduate Education. Facilitators: Anna O’Connell and Jessica Harrell, PhD. Chapel Hill, NC, 01/2017.
16. Panel speaker: “Enhancing your Professional and Personal Management Skills.” 23rd Annual SFRBM meeting. San Francisco, CA. 11/17/2016-11/19/2016
17. PI Development Series. University of North Carolina at Chapel Hill. Center for Faculty Excellence. Facilitator: Sohini Sengupta, PhD. Chapel Hill, NC
    a. 09/29/2016. Introduction: PI role and research vision
    b. 11/03/2016. Managing your research team
    c. 03/09/2016. Management and budgeting
18. Graftmanship for the Research Professional Course. Northwestern University Clinical and Translational Sciences Institute. Instructor: Holly Falk-Krzesinski, Ph.D. Evanston, IL, 08/2011

9) Research Statement

I have a long-standing interest in in redox vascular biology. I am interested in developing redox-based interventions using nanotechnology to target sites of arterial disease.

a) *Redox regulation in cardiovascular disease.* My long-term goal is to translate redox interventions to the clinic to treat cardiovascular disease. In order to successfully develop redox-based therapy, it is important to understand the role of redox biology in cardiovascular pathophysiology. My research efforts have focused on how nitric oxide- and nrf2-based therapies regulate cells in the vascular wall after arterial injury. I have identified novel and specific effects of nitric oxide donors as well as Nrf2 activators on the arterial wall. Our findings shed light into vasculoprotective redox mechanisms. Moreover, they led to the rational design of redox-based approaches that we incorporated in targeted systems described in b: targeted drug delivery for the vasculature. Additionally I created a new rat model of atherosclerosis at UNC by knocking out the apoE gene in zucker rats. This allows to study the effect of redox intervention after angioplasty in a disease model. My interest in the role of redox biology goes beyond arterial disease. Recently, I started a collaboration with Prof. Nobuyo Maeda and Dr. Masao Kakoki and I contributed to the finding that engulfment and cell motility protein 1 contributes to cardiomyopathy via increase in reactive species production. I measured reactive species levels in tissue and cells of mice expressing different levels of ELMO1. My findings contributed to establish that ELMO1 promote diabetic cardiomyopathy through NADPH oxidase dependent mechanisms.

b) *The effect of air pollution on revascularization outcomes*. Air pollution is a major risk factor for CVD-related mortality with increased incidence of hospitalization, and onset of atherosclerosis. However, little is known about the effects of air pollution on restenosis rates. Our data shows that patients with higher daily ozone exposure pre-surgery appeared less likely to remain patent after 21 months (HR 1.16, 95%CI 0.91-1.46). Even though our estimate is imprecise, an effect size of 16% is biologically relevant for environmental exposures. We also found a unique T-cell population in injured arteries of mice exposed to ozone as a model pollutant compared to mice exposed to air. Ongoing experiments aim at in studying the mechanism by which air pollutants affect neointimal hyperplasia after arterial injury

c) *Targeted and local drug delivery for CVD.* Whereas human studies using antioxidant-based therapies have for the most part not shown differences in clinical outcomes, some studies using local delivery have shown promising results in humans. Hence, successful clinical translation of redox therapies depend on targeted delivery of therapeutics in the right amount at the right site. In this context I have contributed to the development of peptide-based tailored nanocarriers capable of targeting specific locations. . Later I designed a cell-mediated delivery system for antioxidant response activating nanoparticles for vascular applications both to inhibit restenosis and to slow atherosclerosis progression. We are currently developing new formulations of therapeutics beyond both antioxidants, and arterial disease. For that purpose I started a collaboration with Dr. Wolfgang Bergemeier to deliver thrombolytic agents to blood clots. In my lab, we are using the state-of-the-art method of inverse nanoprecipitation to encapsulate biologics with thrombolytic activity

d) *Unbiased analysis of vascular injury.* My research program requires animal models of vascular injury. Literature review of preclinical cardiovascular studies revealed that methodological sources of bias compound the preexisting limitations of interpreting animal data in modelling human disease. Thus, poor translation of preclinical models is in part due to the lack of rigor and reproducibility in preclinical study design and analysis. I developed a new unbiased three dimensional methodology to visualize and quantify stenosis and remodeling after vascular injury. This work has made an impact in the vascular community. Our paper was published with an editorial comment. Since its publication I have been invited to talk about this method by NAVBO and by the American Physiological Society

e) *Non-coenzyme roles of vitamin B12 in health and disease.* My research on the redox properties of cobalamin during my doctorate lead to the discovery that the reduced form of B12, reacts with superoxide as fast as superoxide dismutase. This work, published in JACS has over 100 citations to date (Google Scholar). At UNC I collaborate with Prof. Nobuyo Maeda and Dr. Feng Li studying the protective effects of B12 in different pathologies that involve oxidative stress and inflammation.

f) *Redox interventions to improve antibiotic resistance*. My redox interest lead me to start a collaboration with Dr. Brian Colon in the Dept. of Microbiology and Immunology. I contributed with experimental design to determine the mechanism by which reactive species contribute to the development of antibiotic tolerance. We are currently working on the design of delivery systems to target S. Aureus inside the macrophages to modulate the redox environment with the goal of improving antibiotic efficacy.

10) Teaching Statement

Helping others discover the wonders of science has always given me great satisfaction, and is one of the reasons I got into science. Although I am driven by a passion for discovery, I believe that excellence in teaching and mentoring is as important and as rewarding as research. Shaping future generations of innovators and critical thinkers is a tremendously important and meaningful task. Effective teaching is about being able to share enthusiasm. This can be quite a challenge; however, it helped me realize that making my enthusiasm for science contagious, leads to effective learning. In my educational vision, I see the teacher as a facilitator, somebody who provides tools for the students to learn. However, it is the students' responsibility to take advantage of their educational opportunities. Overall, my teaching approach is to generate excitement for the discovery process. I encourage my students to wonder about natural phenomena and to articulate this wonder in a scientifically testable fashion.

Expertise and participation in the SoM's educational mission. I am a cardiovascular, and a redox biologist with a basic and translational research program focused in cardiovascular disease. As such, I participate in courses requiring cardiovascular and/or redox biology expertise. I am committed to graduate education and I participate in our graduate program BBSP as a first-year co-mentor. I am involved in grant-writing classes and I am currently a dissertation committee member for 8 UNC students. Additionally, I am also an educator in LGBTQ cultural training, and I have co- designed a STEM-oriented curriculum. I regularly facilitate Health Sciences, STEM, and regular Safe Zone trainings. I also designed a LGBTQ cultural competency training for surgery residents and after a pilot study, published our findings in the Journal of Surgical Research

Independent research mentoring: When it comes to mentoring, I encourage creativity, and independent thinking. I hold periodic lab meetings where the mentee's work can be critically evaluated by a small group of researchers, and goals can be set. I encourage intra- and inter-laboratory collaborations, as I believe teamwork stimulates creativity and productivity. I hold regular one-on-one meetings to assess the students' progress, troubleshoot, and delineate goals and directions. I discuss the trainee's career goals and tailor my mentoring and expectations to match the trainee's interests. I provide extensive training in professional development, like writing grants, reviewing papers, preparing presentations, making effective figures, and giving impactful talks. I encourage my students to submit abstracts to present at local and national meetings. Importantly, I set clear bi-directional feedback and expectations, as well as tangible deliverables such as abstracts, manuscripts, and reports. Finally, I maintain an open-door policy for my students.

11) Diversity, Equity, and Inclusion Statement

Personal Background: As a Latino and LGBTQ person in the sciences, I have first-hand knowledge of how to become an integral part of a department where I am part of the minority, while staying true to myself. My personal experiences have strongly shaped my approach to diversity and inclusion. Throughout my training years it was noticeable that there is a lack of minority mentors and role models in the sciences. This has strongly motivated me to become a mentor to encourage Latinx and LGBT students to pursue careers in the sciences. In every aspect of my live, I proactively promote accepting and inclusive environments. In this regard, I bring significant personal and professional experience to my department.

Formal Training: I have taken the Culturally Aware Mentorship Workshop, part of the NRMN Mentor Training Core, and I am currently pursuing a DEI certificate at UNC where I have completed 3 requirements: unconscious bias, safe zone (both general and health care) and "Can We Talk about Race?" at the Ackland Museum. Additionally I am a trained Safe Zone facilitator.

Service: I am the interim Chair of LGBTQ life advisory committee to the Provost, a member of the UNC SACNAS chapter and faculty advisor of STEM Pride. I am the inaugural Chair of the DEI committee of my professional organization: the Society for Redox Biology and Medicine (SfRBM) where in my inaugural year I

started by assessing the diversity of the membership and ask what programing they are interested in. Additionally I have participated in FASEB DEI brown bag lunches representing SfRBM for the past year, which resulted in my joining the FASEB DEI committee.

Education and Research. In 2017 I went to Puerto Rico to give a seminar to MARC/RISE students and to talk about graduate careers with these students. I volunteered for the IMSD boot camp in 2018 and 2019 teaching a graduate lecture to the incoming IMSD students. As previously mentioned I have facilitated Safe Zone Training since 2017. I co-created a curriculum tailored to STEM professionals which I facilitated yearly until COVID. I also co-created a competency training for surgical residents and I lead a research project where we assessed the effect of the training on measures of allyship. We found that the training improved allyship and published our findings in the Journal of Surgical Research. I have also been part of a DEI Grand Rounds at the Dept. of Pathology and an invited speaker for a DEI panel at the inaugural lecture of the 2021 Society of Southern Biologists Meeting.

Mentoring. As a faculty member I will actively recruit students from minoritized groups. I intend to continue to actively work with university organizations that promote inclusion. Especially, with student organizations that promote LGBTQ and Latinx inclusion. I would also like to continue to serve as a mentor for LGBTQ and Latinx students interested in the sciences and medicine. I have mentored 3 undergraduate of minoritized groups and I currently have one graduate IMSD student. I strongly believe that I can help students succeed in their academic goals while helping them embrace who they are, highlighting the richness that diversity brings to the table.