

CURRICULUM VITAE

Dr. Irving Coy Allen, MBA, PhD

Virginia Polytechnic Institute and State University
Virginia-Maryland Regional College of Veterinary Medicine
Department of Biomedical Sciences and Pathobiology

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Google Scholar h-index: 33

CURRENT POSITION

June 2019 - present Associate Professor of Inflammatory Diseases, Department of Biomedical Sciences and Pathobiology, Virginia-Maryland College of Veterinary Medicine Virginia Tech, Blacksburg, Virginia 24061 (tenured)

Secondary Appointments/Affiliated Positions:

June 2019 - present Associate Professor of Health Sciences, Translational Biology, Medicine, and Health Program, Virginia Tech, Blacksburg, Virginia 24061 (non-tenure track)

June 2017 - present Assistant Professor, Department of Basic Science Education, Virginia Tech Carilion School of Medicine, Virginia Tech, Roanoke, Virginia 24016 (non-tenure track)

EDUCATION

1993 - 1997 Bachelor of Science in Biology, Concentration: Molecular Biology and Biotechnology, East Carolina University

1998 - 2000 Master of Science in Biology, The University of North Carolina at Greensboro

2002 - 2006 Doctor of Philosophy in Genetics and Molecular Biology, The University of North Carolina at Chapel Hill

2010 - 2012 Master of Business Administration, Concentration: Biosciences Management, North Carolina State University

PROFESSIONAL EXPERIENCE

1996 Microbiology Summer Internship, North Carolina Department of Agriculture, Plant Industry Division

1997 - 2001 Laboratory Technologist, Laboratory Corporation of America, Paternity Testing Division

1998 - 2000 Graduate Student, Laboratory of Dr. Parke Rublee, Department of Biology, The University of North Carolina at Greensboro.

2001 - 2002 Molecular Biology Laboratory Technologist, Center for Applied Aquatic Ecology, North Carolina State University (part time)

2001 - 2002 Research Analyst, Center for Human Genetics, Duke University Medical Center

2002 - 2006 Graduate Student, Laboratory of Dr. Beverly H. Koller, Curriculum in Genetics and Molecular Biology, The University of North Carolina at Chapel Hill

2007 - 2011 Postdoctoral Training, Laboratory of Dr. Jenny P.Y. Ting, Lineberger Comprehensive Cancer Center, The University of North Carolina at Chapel Hill

2011 - 2012 Research Associate/Research Assistant Professor (non-tenure track), Laboratory of Dr. Jenny P.Y. Ting, Department of Microbiology and Immunology, The University of North Carolina at Chapel Hill.

November 2012- Assistant Professor of Inflammatory Diseases, Department of Biomedical Sciences and Pathobiology, Virginia-Maryland College of Veterinary Medicine, Virginia Tech, Blacksburg, Virginia 24061 (tenure track)
 May 2019
 January 2014 - Assistant Professor of Health Sciences, Translational Biology, Medicine, and Health Program, Virginia Tech, Blacksburg, Virginia 24061 (non-tenure track)
 May 2019

ACADEMIC AND PROFESSIONAL HONORS

2000 The University of North Carolina at Greensboro University Excellence Award
 2009 UNC Chapel Hill Graduate Education Advancement Board Impact Award
 2009 UNC Chapel Hill Postdoctoral Award for Research Excellence
 2009 NIH Individual National Research Service Award
 2010 Lineberger Comprehensive Cancer Center Joseph S. Pagano Award
 2010 American Cancer Society Postdoctoral Fellowship
 2011 NIH K01 Career Development Award
 2014 Assistant Professor Mentoring Grant, The Office of the Senior Vice President and Provost, Virginia Tech, Blacksburg, VA
 2014 The 2014 Chambers-eBioscience Memorial Award, The American Association of Immunologists
 2014 Travel for Techniques Award, The American Association of Immunologists
 2015 The American Association of Immunologists Early Career Faculty Travel Grant
 2016 The American Association of Immunologists Early Career Faculty Travel Grant
 2016 AAI Travel Grant for the International Congress of Immunology (ICI 2016)
 2016 Teaching Excellence Award, Translational Biology, Medicine, and Health Graduate Program
 2017 The American Association of Immunologists Early Career Faculty Travel Grant
 2018 The American Association of Immunologists Early Career Faculty Travel Grant
 2019 The American Association of Immunologists Early Career Faculty Travel Grant
 2019 Certificate of Appreciation for University Service for Academic Year 2018-2019
 2019 Teaching Excellence Award, Translational Biology, Medicine, and Health Graduate Program
 2020 Virginia Tech Outstanding Mentor Award

CURRENT PROFESSIONAL AFFILIATIONS AND MEMBERSHIPS

2009 – present Member of the American Association of Immunologists
 2012 – present Member of the Society for Mucosal Immunology
 2014 – present Member of the Society for Leukocyte Biology
 2018 – present Member of the American Association for Cancer Research
 2020 – present Sigma Xi, Full Member

EDITORIAL RESPONSIBILITIES

EDITORIAL BOARDS:

2013 - 2015 Academic Editor: *PLoS One*
 2015 - 2019 Associate Editor: *The Journal of Immunology*
 2015 - 2019 Section Editor: *PLoS One*
 2015 – 2016 Guest Editor: *Mediators of Inflammation*, Special Issue: “Holding the Inflammatory System in Check: TLRs and NLRs”
 2016 - 2019 Review Editor: *Frontiers in Cellular and Infection Microbiology*
 2018 - 2019 Review Editor: *Frontiers in Immunology*
 2019 Invited Editor: *mBIO*
 2019 - present Associate Editor: *Frontiers in Immunology* and *Frontiers in Microbiology*

AD HOC REVIEWER: *Science, PNAS; Mucosal Immunology; Nature Communications; Scientific Reports; Gut; Clinical Cancer Research; The Journal of Immunology; Inflammatory Bowel Diseases; Journal of Leukocyte Biology; Oncogene; Biomaterials; Journal of Virology; mBIO; mSphere; The FASEB Journal; Cellular and Molecular Life Sciences; American Journal of Physiology-Lung Cellular and Molecular Physiology; American Journal of Physiology-Heart and Circulatory Physiology; Clinical and Translational Medicine; Clinical and Experimental Gastroenterology; Mediators of Inflammation; PLoS One; Allergy; Clinical and Vaccine Immunology; BMC Immunology; Journal of Immunological Methods; International Archives of Allergy and Immunology; Molecular Biology Reports; Cytokine; Inflammation Research; Immunology Letters*

TEXTBOOK REVIEWS:

1. Fowler, S., Roush, R., and Wise, J. (2013). *Concepts of Biology*, OpenStax College, Houston, Texas: Rice University Press
2. Avissar, Choi, DeSaix, Jurukovski, Wise, and Rye. (2013). *Biology*, OpenStax College, Houston, Texas: Rice University Press.

COMMITTEE AND LEADERSHIP SERVICE

STUDY SECTION SERVICE

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|------|--|
| 2015 | <u>Austrian Science Fund</u> , <i>Ad Hoc</i> Reviewer (1 proposal) |
| 2015 | <u>National Science Foundation</u> (24 proposals), Grant Review Panel: Graduate Research Fellowship Program |
| 2015 | <u>European Research Council (ERC)</u> Consolidator Grant, <i>Ad Hoc</i> Step 2 Evaluator (1 proposal) |
| 2015 | <u>Swiss National Science Foundation</u> , Division of Biology and Medicine, <i>Ad Hoc</i> Reviewer (1 proposal) |
| 2016 | <u>Austrian Science Fund</u> , <i>Ad Hoc</i> Reviewer (2 proposals) |
| 2016 | <u>National Institutes of Health</u> , Tumor Microenvironment (TME) Study Section Oncology 1, Basic Translational Integrated Review Group (4 proposals) |
| 2016 | <u>Swiss National Science Foundation</u> , Division of Biology and Medicine, <i>Ad Hoc</i> Reviewer (1 proposal) |
| 2017 | <u>Austrian Academy of Sciences</u> , <i>Ad Hoc</i> Reviewer (2 proposals) |
| 2018 | <u>National Science Foundation</u> (19 proposals), Grant Review Panel: Graduate Research Fellowship Program |
| 2018 | <u>NIH/National Cancer Institute</u> Special Emphasis Panel, ZCA1 SRO-Q (01) Center for Scientific Review, Program Evaluation of NIH Peer Review Processes, <i>Ad Hoc</i> Reviewer (5 proposals) |
| 2018 | <u>Swiss National Science Foundation</u> , Division of Biology and Medicine, <i>Ad Hoc</i> Reviewer (1 proposal) |
| 2018 | <u>Israel Science Foundation</u> , Joint NSFC-ISF Research Grant, <i>Ad Hoc</i> Reviewer (1 proposal) |
| 2019 | <u>National Science Foundation</u> (20 proposals), Grant Review Panel: Graduate Research Fellowship Program |
| 2019 | <u>European Science Foundation</u> , FWO Postdoctoral Fellowship Application Review, <i>Ad Hoc</i> Reviewer (1 proposal) |
| 2019 | <u>27th TV3 Marató on Cancer</u> , Agency for Health Quality and Assessment of Catalonia, <i>Ad Hoc</i> Reviewer (1 proposal) |
| 2019 | <u>Swiss National Science Foundation</u> , Division of Biology and Medicine, <i>Ad Hoc</i> |

- Reviewer (2 proposals)
 2020 – 2023 Research Foundation Flanders (FWO), Med 4 Project Panel on Cancer Research, Expert Panel Member
 2020 United Kingdom Medical Research Council, *Ad Hoc* Reviewer (2 proposals)

GRANT REVIEW COMMITTEES:

- 2014 Biomedical and Health Science Peer –Review Panel, Virginia Tech Institute for Critical Technology and Applied Science (ICTAS) Transformative Science and Technology Seed Proposals
 2015 Academia Sinica (Taiwan), First Round Grant Reviewer of 2016 Applications of the Thematic Research Program
 2016 Engineered Health Junior Faculty Collaborative (JFC) Grant Panel, Virginia Tech Institute for Critical Technology and Applied Science (ICTAS)
 2016 Center for Veterinary Regenerative Medicine (CVRM), Wake Forest Institute for Regenerative Medicine and Virginia Maryland College of Veterinary Medicine Seed Grant Program
 2016 SEEDS: Ohio Agricultural Research and Development Center Research Enhancement Competitive Grants Program, The Ohio State University, *Ad Hoc* Reviewer (1 proposal)
 2017 Alzheimer’s Association Research Grant Program, *Ad Hoc* Reviewer (1 proposal)
 2018 UK DogsTrust (formally the National Canine Defence League), Canine Welfare Grant, *Ad Hoc* Reviewer (1 proposal)
 2019 UK DogsTrust (formally the National Canine Defence League), Canine Welfare Grant, *Ad Hoc* Reviewer (1 proposal)
 2019-2021 Crohn’s and Colitis Foundation, Research Fellowship Awards Committee Member
 2020 Cures Within Reach, Panel Member (3 proposals)

PROFESSIONAL SERVICE:

- 2013 – 2015 Member, Society for Mucosal Immunology Website Committee
 2013 – 2016 Member, Virginia Academy of Science Publications Committee
 2013 – 2016 Member, Virginia Academy of Science Archives Committee
 2014 Panelist, AAAS USA Science and Engineering Festival
 2014 – 2017 Member, Society for Leukocyte Biology Development Committee
 2015 Reviewer, 17th International Congress of Mucosal Immunology, Subject Area Abstract Reviewer for Travel Awards and Programming
 2015 – present Chair, Society for Mucosal Immunology Communications Committee
 2015 Member, Virginia Velocity Business Plan Bioscience Judging Committee
 2016 Volunteer, American Society for Virology 2016, Conference Volunteer, June 18-22, Blacksburg, VA
 2016 Chair, Inflammatory Bowel Disease Oral Session, Mucosal Immunology Course and Symposium, July 28-30, Toronto, Canada
 2016 - 2017 Mentor, The American Gastroenterologist Association International Clinical and Research Education (CORE) Program
 2017 United States Invited Representative, 2017 PLoS One International Section Editor Summit, March 24-25, Cambridge, UK.
 2017 - present Member, Organizing Committee for the Southeastern Immunology Symposium
 2017 – present Member, Society for Mucosal Immunology Professional Development and Education Committee
 2017 - 2018 Member, Society for Leukocyte Biology Professional Development Committee

- 2017 – 2018 Organizer and Co-Chair, Society for Leukocyte Biology Annual Meeting, Satellite Symposium Organizer and Co-Chair, “Emerging Concepts in NLR Sensing and Signaling”, October 13-17, Chandler, AZ
- 2018 Co-Chair, Engineering for Personalized Medicine, 2nd Inaugural Nanosymposium on Engineered Health, April 26-27, Roanoke, Virginia
- 2018 Invited Participant in NanoEarth 2018
- 2018 - 2020 Board of Councilors Member, Society for Mucosal Immunology
- 2018 - present Chair, Society for Leukocyte Biology Professional Development Committee
- 2019 Member, International Scientific Advisory Committee for the 19th International Congress of Mucosal Immunology
- 2019 Member, Mentor Selection Committee, Society for Mucosal Immunology
- 2019 Organizer and Co-Chair, 2019 IRE Immuno-Oncology Summit, April 15-17th, Blacksburg, VA

INDUSTRY ADVISORY BOARDS AND SERVICE:

- 2019 – present Member, IRE-Immuno Oncology Medical Advisory Board, AngioDynamics

UNIVERSITY SERVICE:

- 2007 - 2012 IACUC Laboratory Animal Coordinator, UNC Office of Animal Care and Use, UNC Chapel Hill
- 2011 - 2012 Member, Training and Compliance Group, Office of Animal Care and Use, Laboratory Animal Training Consultant and Trainer, UNC Chapel Hill
- 2013 – 2014 Search Committee Member, University Veterinarian and Director of the Office of Animal Resources, Virginia Tech
- 2013 – 2015 Member, Undergraduate Honor System Faculty Hearing Board Member, Virginia Tech
- 2015 Member, John Johnson Award for Graduate Student Excellence in Microbiology Selection Committee, Virginia Tech
- 2015 Application Reviewer, Interdepartmental Microbiology Graduate Program Admissions Committee, Virginia Tech
- 2015 - 2016 Search Committee Member, Clinical Laboratory Veterinarian, Office of the University Veterinarian, Virginia Tech
- 2015 – 2021 Member, Institutional Biosafety Committee, Virginia Tech
- 2016 Member, Steering Committee, Integrated Microbiology Program, Virginia Tech
- 2016 Faculty Design Team, Adaptive Brain and Behavior Destination Area, Virginia Tech
- 2019 – 2022 Faculty Representative, Commission on Graduate and Professional Studies and Policies
 ➤ Member, Degree Requirement Standards Criteria and Academic Policy Sub-Committee
- 2020 – present Co-Chair, Center for Emerging, Zoonotic and Arthropod-borne Pathogens (CEZAP), Infectious Disease Immunology Focus Area

UNIVERSITY PROGRAM DEVELOPMENT AND LEADERSHIP:

- 2015 – present Organizer and Head, NIH K and New Investigator R01 Proposal Preparation Program, Virginia Tech
<https://www.research.vt.edu/professional-development/kro1-program>

UNIVERSITY FACILITY LEADERSHIP

- 2015 – present Research Director, Germfree and Gnotobiotic Rodent Facility

COLLEGE SERVICE:

- 2014 – 2018 Member, Research Committee, VMCVM

Irving C. Allen	
2015	<u>MMI Faculty Interviewer</u> for Class of 2019, VMCVM
2015 - 2017	<u>DVM Honor Code Facilitator</u> , VMCVM
2016	<u>MMI Faculty Interviewer</u> for Class of 2020, VMCVM
2016 - 2018	<u>Member</u> , Summer Veterinary Student Research Program Selection Committee
2017	<u>MMI Faculty Interviewer</u> for Class of 2021, VMCVM
2017 - 2018	<u>Member</u> , Graduate BMVS Curriculum Revision Committee, VMCVM
2018	<u>MMI Faculty Interviewer</u> for Class of 2022, VMCVM
2018	<u>Search Committee Member</u> , VA-MD College of Veterinary Medicine Strategic Content Manager, Stakeholder Group, Virginia Tech
2018	<u>Search Committee Member</u> , Graduate Program Coordinator, Biomedical and Veterinary Sciences (BMVS), VMCVM
2019	<u>MMI Faculty Interviewer</u> for Class of 2023, VMCVM
2019	<u>Reviewer</u> , Phi Zeta Research Competition, VMCVM
2019	<u>Evaluator</u> , M4 Student Research, VTSOM

DEPARTMENT SERVICE:

2013 - 2017	<u>Member</u> , Peer Teaching Evaluation Committee, DBSP
2013 - 2014	<u>Search Committee Member</u> , Cancer Biology Faculty Search Committee, VTCRI
2016 - 2017	<u>Search Committee Member</u> , Department Head Search Committee, Department of Biomedical Sciences and Pathobiology, VMCVM
2016 – present	<u>Member</u> , TBMH Program Admissions Committee
2017	<u>Search Committee Member</u> , Immunology/Infectious Disease Destination Area, VTCRI
2017 - 2019	<u>Search Committee Member</u> , Assistant Professor in Mucosal Immunology, Department of Dairy Science, Virginia Tech
2017 - 2018	<u>Search Committee Member</u> , Virology/Immunology, VTCRI
2019	<u>Member</u> , DBSP Committee for Research Advancement, Virginia Tech

INTELLECTUAL PROPERTIES

1. U.S. Patent Application: REAL-TIME TREATMENT MONITORING USING IRREVERSIBLE ELECTROPORATION-BASED TECHNIQUES; Serial No.: 16/352,759; Filing Date: March 12, 2019; Inventors: Rafael V. Davalos, **Irving Coy Allen**, Natalie Beitel White, Nik Dervisis, VTIP No.: 18-097 T|H Docket No.: 222204-1350; Patent Pending
2. U.S. Patent Application: IN VITRO PRODUCTION OF ACTIVATED CYTOTOXIC T LYMPHOCYTES AS A RESPONSE TO EXPOSURE TO IRREVERSIBLE ELECTROPORATION; Inventors: Rafael V. Davalos, **Irving C. Allen**, Scott S. Verbridge, Nastaran Alinezhadbalalami; Disclosure Date: September 25, 2019
3. U.S. Patent Application: VACCINES AGAINST BRUCELLA ABORTUS; Inventors: Clayton C. Caswell, **Irving C. Allen**; Disclosure Date: February 14, 2020

PUBLICATIONS

PEER REVIEWED SCHOLARLY WORKS:

1. Rublee, P.A., J.W. Kempton, E.F. Schaefer, **C. Allen**, J. Harris, D.W. Oldach, H.Bowers, T. Tengs, J.M. Burkholder, and H.B. Glasgow. (2001). Use of molecular probes to assess geographic distribution of *Pfiesteria* species. *Environmental Health Perspectives*. 105 (Supplement 5): 765-767. PMID:11677186; PMCID: PMC1240608. IF: 7.52

2. Rhodes, L., Burkholder, J.M., Glasgow, H. B., Rublee, P. A., **Allen, C.**, Adamson, E. (2002). *Pfiesteria shumwayae* in New Zealand. *New Zealand Journal of Marine and Freshwater Research*. 36:621-630. DOI:10.1080/00288330.2002.9517117.
3. Schmidt, S., Postel, E.A., Agarwal, A., **Allen, I.C. Jr.**, Walters, S.N., De La Paz, M.A., Scott, W.K., Haines, J.L., Pericak-Vance. M.A., Gilbert, J.R. (2003). Detailed Analysis of Allelic Variation in the *ABCA4* Gene in Age-Related Maculopathy. *Investigative Ophthalmology and Visual Science*. July 44(7):2868-2875. PubMed PMID: 12824224. *IF*: 3.73
4. Raiford, K.L., Shao, Y., **Allen, I.C.**, Martin, E.R., Menold, M.M., Wright, H.H., Abramson, R.K., Worley, G., DeLong, G.R., Vance, J.M., Cuccaro, M.L., Gilbert, J.R., and Pericak-Vance, M.A. (2004). No Association between the *APOE* Gene and Autism. *American Journal of Medical Genetics Part B (Neuropsychiatric Genetics)*. 125B:57-60. PubMed PMID: 14755445. *IF*: 3.368
5. Li, Y., Pericak-Vance, M. A., Haines, J.L., Siddique, N., McKenna-Yasek, Diane, Hung, W., Sapp, P., **Allen, I.C.**, Chen, W., Hosler, B., Saunders, A.M., Dellefave, L.M., Brown, R.H., Siddique, T. (2004). Apolipoprotein E is associated with age at onset of amyotrophic lateral sclerosis. *Neurogenetics*.5:209-213. PMID: 15657798. *IF*: 3.37
6. **Allen, I.C.**, Hartney, J.M., Coffman, T.M., Penn, R.B., Wess, J., Koller, B.H. (2006). Thromboxane A2 Induces Airway Constriction through an M3 Muscarinic Acetylcholine Receptor Dependent Mechanism. *American Journal of Physiology - Lung, Cell and Molecular Physiology*. 290: 526-533. PubMed PMID: 16243899. *IF*: 4.19
7. **Allen, I.C.**, Pace, A.J., Jania, L.A., Ledford, J.G., Latour, A.M., Snouwaert, J.N., Therien, A.G., Bernier, V., Stocco, R., and Koller, B.H. (2006). Expression and function of NPSR1/GPRA in the lung before and after induction of asthma like disease. *American Journal Of Physiology - Lung, Cell and Molecular Physiology*. 291(5): 1005-1017. PubMed PMID: 16829631. *IF*: 4.19
8. **Allen, I.C.**, Scull, M.A., Moore, C.B., Holl, E.K., Taxman, D.J., Guthrie, E.H., Pickles, R.J., Ting, J.P.Y. (2009). The NLRP3 Inflammasome Is Essential for the Regulation of Innate Immune Responses to Influenza A Virus Infection. *Immunity*. Apr;30(4):556-65. PubMed PMID: 19362020; PubMed Central PMCID: PMC2803103. *IF*: 20.72
9. Cyphert, J.M., Kovarova, M., **Allen, I.C.**, Hartney, J.M., Murphy, D. L., Wess, J. Koller, B.H. (2009). Co-operation between mast cells and neurons is essential for antigen mediated bronchoconstriction. *The Journal of Immunology*. June;182(12): 7430-7439. PubMed PMID: 19494266; PubMed Central PMCID: PMC3901060. *IF*: 5.67
10. Willingham, S.B.* , **Allen, I.C.***, Bergstralh, D.T.* , Brickey, W.T., Taxman, D.J., Duncan, J.A. Ting, J.P.Y. (2009). *Klebsiella pneumoniae* induces IL-1 β release and pyronecrosis through NLRP3. *The Journal of Immunology*. August;183(3):2008-2015. PubMed PMID: 19587006; PubMed Central PMCID:PMC3652593. *IF*: 5.67. *Authors Contributed Equally.
11. Craven, R.R., Gao, X., **Allen, I.C.**, Gris, D., Bubeck-Wardenburg, J., Schneewind, O., Ting, J.P., Duncan, J.A. (2009). *Staphylococcus aureus α hemolysin induces caspase-1 activation and inflammatory cell death through activation of the NLRP3 inflammasome. *PLoS One*. Oct 14;4(10):e7446. PubMed PMID: 19826485; PubMed Central PMCID: PMC2758589. *IF*: 4.244*
12. **Allen, I.C.**, Tekippe, E.M., Woodford, R.M., Uronis, J.M., Holl, E.K., Rogers, A.B., Herfarth, H.H., Jobin, C., Ting, J.P.Y. (2010). The NLRP3 Inflammasome Functions as a Negative Regulator of Tumorigenesis during Colitis Associated Cancer. *The Journal of Experimental Medicine*. May 10;207(5):1045-56. PubMed PMID: 20385749; PubMed Central PMCID: PMC2867287. *IF*: 14.10
13. McElvania TeKippe, E., **Allen, I.C.**, Hulseberg, P., Sandor, M., Braunstein, M., Ting, J.P.Y. (2010). Granuloma Formation and Host Defense in Chronic *Mycobacterium tuberculosis*

- Infection Requires PYCARD/ASC but not NLRP3 or Caspase-1. *PLoS One*. Aug 20;5(8). pii: e12320. PubMed PMID: 20808838; PubMed Central PMCID: PMC2924896. *IF*: 4.244
14. Arthur, J.C., Lich, J.D., Ye, Z., **Allen, I.C.**, Gris, D., Schneider, M., Roney, K.E., O'Connor, B.P., Moore, C.B., Morrison, A., Sutterwala, F.S., Koller, B.H., Bertin, J., Liu, Z., Ting, J.P.Y. (2010). Cutting edge: NLRP12 controls dendritic and myeloid cell migration to affect contact hypersensitivity. *The Journal of Immunology*. Oct 15;185(8):4515-9. PubMed PMID: 20861349; PubMed Central PMCID: PMC3641837. *IF*: 5.67
 15. Huang, M.T., Mortensen, B.L., Taxman, B.J., Craven, R., Taft-Benz, S., Keijjek, T., Fuller, J.R., Davis, B.K., **Allen, I.C.**, Brickey, W.J., Gris, D., Wen, H., Kawula, T.H., Ting, J.P.Y. (2010). Deletion of ripA alleviates suppression of the inflammasome and MAP kinase by *Francisella tularensis*. *The Journal of Immunology*. Nov 1;185(9):5476-85. PubMed PMID: 20921527. *IF*: 5.67
 16. Van Deventer, H. W., Burgents, J.E., Wu, Q.P., Brickey, W.J., McFadden, R.M., **Allen, I.C.**, Serody, J.S., Ting, J.P.Y. (2010). The inflammasome component, NLRP3, impairs antitumor vaccine by enhancing accumulation of peritumoral myeloid derived suppressor cells. *Cancer Research*. Dec 15;70(24):10161-9. PubMed PMID: 21159638; PubMed Central PMCID: PMC3059219. *IF*: 8.58
 17. Taxman, D.J., Guthrie, E.H., Huang, M., Moore, C.B., Bergstralh, D.T., **Allen, I.C.**, and Ting, J.P.Y. (2011). The NLR adaptor ASC/PYCARD regulates DUSP10, MAPK and chemokine induction independent of the inflammasome. *The Journal of Biological Chemistry*. Jun 3;286(22):19605-16. PubMed PMID: 21487011; PubMed Central PMCID: PMC3103340. *IF*: 5.02
 18. **Allen, I.C.**, Moore, C.B., Schneider, M., Lei, Y., Davis, B.K., Scull, M.A., Gris, D., Roney, K.E., Zimmermann, A.G., Bowzard, J.B., Ranjan, P., Monroe, K.M., Vance, R.E., Pickles, R.J., Sambhara, S., Ting, J.P.Y. (2011). NLRX1 Protein Attenuates Inflammatory Responses to Infection by Interfering with the RIG-I MAVS and TRAF6-NF- κ B Signaling Pathways. *Immunity*. Jun 24; 34(6): 854-865. PubMed PMID: 21703540; PubMed Central PMCID: PMC3166771. *IF*: 20.72
 19. Cyphert, J.*, **Allen, I.C.***, Cote, R.J., Latour, A.M., Snouwaert, J.N., Coffman, T.M., and Koller, B.H. (2011). Allergic Inflammation Induces a Persistent Mechanistic Switch in Thromboxane-Mediated Airway Constriction in the Mouse. *The American Journal of Physiology - Lung Cellular and Molecular Physiology*. Jan;302(1):L140-51. PubMed PMID: 21984570; PubMed Central PMCID: PMC3349367. *IF*: 4.19. *Authors Contributed Equally.
 20. Segovia, J., Sabbah, A., Mgbemena, V., Tsai, S., Chang, T.H., Berton, M.T., Morris, I.R., **Allen, I.C.**, Ting, J.P.Y., Bose, S. (2012). TLR2/MyD88/NF- κ B pathway, reactive oxygen species, potassium efflux activates NLRP3/ASC inflammasome during respiratory syncytial virus infection. *PLoS One*. Jan;7(1): e29695. PubMed PMID: 22295065; PubMed Central PMCID: PMC3266238. *IF*: 4.244
 21. **Allen, I.C.**, Lich, J.D., Arthur, J.C., Jania, C.M., Roberts, R.A., Callaway, J.B., Tilley, S.L., Ting, J.P.Y. (2012). Characterization of NLRP12 during the Development of Allergic Airway Disease in Mice. *PLoS One*. Jan; 7(1):e30612. PubMed PMID: 22291998; PubMed Central PMCID: PMC3264608. *IF*: 4.244
 22. Kebaier, C., Chamberland, R.R., **Allen, I.C.**, Gao, X., Broglie, P.M., Hall, J.D., Jania, C., Doerschuk, C.M., Tilley, S.L., Duncan, J.A. (2012). *Staphylococcus aureus* α -Hemolysin Mediates Virulence in a Murine Model of Severe Pneumonia through Activation of the NLRP3 Inflammasome. *The Journal of Infectious Diseases*. Mar 1;205(5):807-17. PubMed PMID: 22279123; PubMed Central PMCID: PMC3274379. *IF*: 5.91
 23. **Allen, I.C.**, Jania, C.M., Wilson, J.E., Tekeppe, E.M., Hua, X., Brickey, W.J., Kwan, M., Koller, B.H., Tilley, S.L., Ting, J.P.Y. (2012). Analysis of NLRP3 in the Development of Allergic

- Airway Disease in Mice. *The Journal of Immunology* Mar 15;188(6):2884-93. PubMed PMID: 22323538; PubMed Central PMCID: PMC3294123. *IF: 5.67*
24. **Allen, I.C.**, Wilson, J.E., Schneider, M., Lich, J.D., Authur, J.C., Woodford, R.M., Uronis, J.M., Davis, B.K., Roberts, R.A., Rogers, A.B., Herfarth, H.H., Jobin, C., and Ting, J.P.Y. (2012). NLRP12 Functions as a Negative Regulator of Noncanonical NF- κ B Signaling and Tumorigenesis during Colitis Associated Cancer. *Immunity*. May 25;36(5):742-54. PubMed PMID: 22503542; PubMed Central PMCID: PMC3658309. *IF: 20.72*
25. Schneider, M., Zimmermann, A.G., Roberts, R., Zhang, L., Swanson, K.V., Wen, H., Davis, B.K., **Allen, I.C.**, Holl, E.K., Ye, Z., Rahman, A.H., Conti, B.J., Eitas, T., Koller, B.H., and Ting, J.P.Y. (2012). NLRC3 Attenuates TLR Signaling via Modification of TRAF6 and NF- κ B. *Nature Immunology*. September 13(9):823-31. PubMed PMID: 22863753; PubMed Central PMCID: PMC3721195. *IF: 26.20*
26. Holl, E.K., Roney, K., **Allen, I.C.**, Steinbach, E., Arthur, J., Buntzman, A., Plevy, S., Frelinger, J. Ting, J.P.Y. (2012). Plexin-B2 and Plexin-D1 in Dendritic Cell: Expression and IL-12/IL-23p40 production. *PLoS One*. 7(8):e43333. PubMed PMID: 22916243; PubMed Central PMCID: PMC3419716. *IF: 4.244*
27. **Allen, I.C.**, McElvania-TeKippe, E., Lich, J.D., Arthur, J.C., Sullivan, J.T., Braunstein, M., Ting, J.P.Y. (2013). Characterization of NLRP12 during the in vivo host immune response to *Klebsiella pneumoniae* and *Mycobacterium tuberculosis*. *PLoS One*. 8(4):e60842. PubMed PMID: 23577168; PubMed Central PMCID: PMC3618512. *IF: 4.244*
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REVIEW ARTICLES:

1. **Allen, I.C.** (2009). Searching for an Improved Mouse Model of Allergic Airway Disease Using Dual Allergen Exposures. *Disease Models and Mechanisms*. Nov-Dec;2(11-12):519-20. PubMed PMID: 19892879. *IF: 5.01*
2. **Allen, I.C.** (2011). A NOD to zebrafish models of inflammatory bowel disease pathogenesis. *Disease Models and Mechanisms*. Nov 7; 4(6): 711-712. PubMed PMID:22065838; PubMed Central PMCID: PMC3209637. *IF: 5.01*
3. **Allen, I.C.** (2014). Non-inflammasome Forming NLRs in Inflammation and Tumorigenesis. *Frontiers in Immunology*. Apr 22;5:169. PMID: 24795716. *IF: 5.695.*
4. Davis, B.K., Philipson, C., Hontecillas, R., Eden, K., Bassaganya-Riera, J., **Allen, I.C.** (2014). Emerging Significance of NLRs in Inflammatory Bowel Disease. *Inflammatory Bowel Diseases*. Dec; 20(12):2412-32. PMID: 25153506. *IF: 5.475. Invited Review*
5. Coutermarsh-Ott, S.L., Eden, K., **Allen, I.C.** (2016). Beyond the Inflammasome: Regulatory NLR Modulation of the Host Immune Response Following Virus Exposure. *Journal of General Virology*. Apr;97(4):825-38. PMID: 26763980. *IF: 3.23. Invited Review*
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7. Ringel, V.M., McDaniel, D.K., **Allen, I.C.** (2016). The Goldilocks Conundrum: NLR Inflammasome Modulation of Gastrointestinal Inflammation during Inflammatory Bowel Disease. *Critical Reviews in Immunology*. 36(4):283-314. PMID: 28322135. *IF: 3.731. Invited Review*
8. Rothschild, D.E., McDaniel, D.K., Ringel-Scaia, V.M., and **Allen, I.C.** (2018). Modulating Inflammation through the Negative Regulation of NF- κ B Signaling. *Journal of Leukocyte Biology*. 2018 Feb 1. PMID: 29389019. *IF: 4.558. Invited Review*.
9. Theus, M., Lebovitz, Y., Ringel-Scaia, V.M., and **Allen, I.C.** (2018). Emerging Developments in Microbiome and Microglia Research: Implications for Neurodevelopmental Disorders. *Frontiers in Immunology*. Sep 3;9:1993. *IF: 6.429. Invited Review*.
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11. Nagai-Singer, M.A., Morrison, H.A., **Allen, I.C.** (2019). NLRX1 is a Multifaceted and Enigmatic Regulator of Immune System Function. *Frontiers in Immunology*. Oct 11;10:2419. PMID: 31681307. *IF: 4.716. Invited Review*.
12. Tupik, J.D., Nagai-Singer, M.A., **Allen, I.C.** (2020). To Protect or Adversely Affect? The Dichotomous Role of the NLRP1 Inflammasome in Human Disease. *Molecular Aspects of Medicine*. Apr 28:100858. PMID: 32359693. *IF: 10.238. Invited Review*.
13. Brock, R.M., Beitel-White, N., Davalos, R.N., **Allen, I.C.** Starting a Fire without Flame: The Induction of Cell Death and Inflammation in Electroporation-Based Tumor Ablation Strategies. *Frontiers in Oncology*. (In Press). *IF: 4.137.*

EDITORIALS:

- Holl, E.K., **Allen, I.C.**, Martinez, J. Holding the Inflammatory System in Check: TLRs and NLRs. *Mediators of Inflammation*. 2016;2016:8156816. doi: 10.1155/2016/8156816. PMID: 27642239. IF: 3.418.

BOOKS:

- Mouse Models of Innate Immunity. *Methods in Molecular Biology*, Volume 1031
Irving C. Allen, ed. New York: Humana Press. 2013.
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Authored Chapters:
 - Allen, I.C.** (2013). Bacteria-Mediated Acute Lung Inflammation. *Methods in Molecular Biology*. 1031:163-75. PMID: 23824899.
 - Allen, I.C.** (2013). Delayed-type Hypersensitivity Models in Mice. *Methods in Molecular Biology*. 1031:101-7. PMID: 23824893.
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- Mouse Models of Allergic Disease. *Methods in Molecular Biology*, Volume 1032
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 - Allen, I.C.** (2013). Induction of Allergic Airway Disease Using House Dust Mite Allergen. *Methods in Molecular Biology*. 1032:159-72. PMID: 23943452.
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- Mouse Models of Innate Immunity, 2nd Edition. *Methods in Molecular Biology*, Volume 1960.
Irving C. Allen, ed. New York: Humana Press. 2019. Invited Book.
Authored Chapters:
 - Ringel-Scaia, V.M., Powell, M.D., Read, K.A., **Allen, I.C.**, Oestreich, K. (2019). Systemic *Listeria monocytogenes* infection as a model to study T helper cell immune responses. *Methods in Molecular Biology*. 2019;1960:149-160. PMID: 30798529.
 - McDaniel, D.K. and **Allen, I.C.** (2019). Using *Klebsiella pneumoniae* to Model Acute Lung Inflammation in Mice. *Methods in Molecular Biology*. 2019;1960:169-180. PMID: 30798531.

INVITED BOOK CHAPTERS:

- Tilley, S.L., **Allen, I.C.**, Koller, B.H. (2006). Generation of Genetically Manipulated Mouse Lines for the Study of Asthma. In: Genetics of Asthma and COPD, edited by Dirkje Postma and Scott Weiss. New York: Taylor & Francis Group, LLC, p.127-158.
- Ringel, V., **Allen, I.C.** (2016). The Application of Nanotechnology to Gastrointestinal Cancers. In Gastrointestinal Cancers: Prevention, Detection and Treatment, Volume 2. Edited by Amit Tyagi and Sahdeo Prasad. New York: NOVA Science Publishers, p.271-290.
- McDaniel, D.K., Ringel-Scaia, V.M., Coutermarsh-Ott, S.L., **Allen, I.C.** (2018). Utilizing the Lung as a Model to Study Nanoparticle Based Drug Delivery Systems. *Targeted Drug Delivery: Methods and Protocols*. Part of the *Methods in Molecular Biology* Series. Rachael Sirianni and Bahareh Behkam, eds. New York: Humana Press. 1831:179-190. PMID: 30051432.
- Hendricks-Wenger, A., Nagai-Singer, M.A., Uh, K., Vlasisavljevich, E., Lee, K., **Allen, I.C.** Employing Novel Porcine Models of Subcutaneous Pancreatic Cancer to Evaluate Tumor Ablation Strategies. Biosensors and Biodetection, 3rd edition. In *Methods in Molecular Biology*. Ed. Avraham Rasooly and Ben Prickril. Humana Press. 2020. Invited Book Chapter. (In Press).

THESIS AND DISSERTATION:

1. **Allen, Irving C. Jr.** Utilization of the Polymerase Chain Reaction and Fluorescent *In Situ* Hybridization to Assess Fine Scale and Global Distribution Patterns of *Pfiesteria* species. MS Thesis, Department of Biology. The University of North Carolina at Greensboro. Greensboro, NC, 2000. 101 pp.
2. **Allen, Irving C. Jr.** G Protein-Coupled Receptors in the Neuropathophysiology of Asthma. Ph.D Dissertation, The Curriculum of Genetics and Molecular Biology. The University of North Carolina at Chapel Hill. Chapel Hill, NC, 2006. 232 pp.

OUTREACH AND EXTENSION PUBLICATIONS:

1. **Allen, I.C.** Spring 2018. Emerging Concepts in NLR Sensing and Signaling. iSLB, Volume 1, 4. Retrieved from <https://slb.memberclicks.net/assets/docs/iSLB/Spring%202018%20iSLB.pdf>
2. **Allen, I.C.** Summer 2018. Lunch-n-Learn: A Step-By-Step Plan to Engage Students in Leukocyte Biology. iSLB, Volume 2. Retrieved from <https://slb.memberclicks.net/assets/docs/iSLB/Summer%202018%20iSLB.pdf>
3. **Allen, I.C.** Summer 2018. Negative Regulators of Immune System Signaling Pathways. iSLB, Volume 2. Retrieved from <https://slb.memberclicks.net/assets/docs/iSLB/Summer%202018%20iSLB.pdf>

PUBLICATIONS CURRENTLY SUBMITTED/UNDER REVIEW:

1. Mu, Q., McDaniel, D.K., Brock, R.M., **Allen, I.C.**, Reilly, C.M., and Luo, X. Influences of maternal microbiota on neonatal IgA response and autoimmunity in the adult. *Nature Immunology*. (Revised 6/15/20; Under Review). *IF: 21.809*
2. Dillon, K., Powell, C., Morrison, H., Carrazzone, R., Ringel-Scaia, V., Winckler, E., Council-Troche, R., **Allen, I.C.**, Matson, J. Tissue-specific persulfide delivery to the gut: Effects on the microbiome. *Chemical Science*. (Submitted 4/10/20; Under Review). *IF: 9.556*.
3. Hendricks-Wenger, A., Aycok, K.N., Nagai-Singer, M.A., Coutermarsh-Ott, S., Lorenzo, M.F., Gannon, J., Uh, K., Farrell, K., Beitel-White, N., Brock, R.M., Simon, A., Morrison, H.A., Tuohy, J., Clark-Deener, S., Vlaisavljevich, E., Davalos, R.N., Lee, K., **Allen, I.C.** Establishing a SCID-Like Porcine Model of Human Cancer for Novel Therapy Development: A Pilot Study with Pancreatic Adenocarcinoma and Irreversible Electroporation. *Scientific Reports*. (Submitted 4/20/20). *IF: 3.138*.
4. Nagai-Singer, M.A., Hendricks-Wenger, A., Brock, R.M., Morrison, H.A., Tupik, J.D., **Allen, I.C.** Machine versus Mortal: How to use computer-based image analysis to improve quantification of metastatic burden in 4T1 breast cancer model. *Journal of Visualized Experiments*. (Submitted 6/30/20). *IF: 1.108*.

SEMINARS, PRESENTATIONS, AND ABSTRACTS**INVITED SEMINARS**

1. 2014 - "A NOD to Innate Immunity: Novel Roles for NLR Proteins in Gastrointestinal Inflammation and Tumorigenesis". The University of North Carolina at Greensboro. April 16, 2014. Host: Dr. Parke Rublee.
2. 2014 - American Association for the Advancement of Science. Panelist at the USA Science and Engineering Festival. Washington, D.C. April 26-27
3. 2015 - "Evaluating NLR Modulation of Canonical and Non-Canonical NF- κ B Signaling in IBD". Immunology 2015: Society of Leukocyte Biology Guest Symposium. The American Association of Immunologist Annual Meeting. New Orleans, LA. May 8-12.
4. 2015 - "A NOD to Innate Immunity: Novel Roles for NLR Proteins in Inflammation and Cancer". Invited Speaker. Kansas State University. Manhattan, KS. October 7, 2015. Host: Dr. Brian Geisbrecht.

5. 2015 - "Keeping Inflammation in Check: Novel Roles for NLR Proteins in Immune System Homeostasis and Tumorigenesis in the Gut". Invited Speaker. The Immunity, Inflammation, and Disease Seminar Series. National Institutes of Environmental Health Sciences. Raleigh, NC. November 4, 2015. Host: Dr. Jennifer Martinez.
6. 2015 - "The Goldilocks Conundrum: Novel Roles for NOD-like Receptors in Maintaining Immune System Homeostasis in the Gut". East Carolina University. Greenville, NC. November 17, 2015. Host: Dr. Marty Roop.
7. 2015 - "The Goldilocks Conundrum: Novel Roles for NLR Proteins in Maintaining Immune System Homeostasis and Tumorigenesis". The Beirne B. Carter Center for Immunology Research Seminar Series. The University of Virginia. Charlottesville, VA. December 7, 2015. Host: Dr. John Lukens.
8. 2016 - "The Goldilocks Conundrum: Novel Roles for NLR Proteins in Maintaining Immune System Homeostasis in Health and Disease". Invited Speaker. The University of Maryland College Park. March 31, 2016. College Park, MD. Host: Dr. Yanjin Zhang.
9. 2016 - "The Goldilocks Conundrum: Novel Roles for NOD-like Receptors in Maintaining Immune System Homeostasis in the Gut". Invited Speaker. TechLab. August 10, 2016. Blacksburg, VA. Host: James Boone, Director of Collaborative Studies.
10. 2018 - "Beyond the Inflammasome: Regulatory NLRs in Immune System Homeostasis". Invited Speaker. Annual Meeting of the Society for Leukocyte Biology. Chandler, AZ. October 12-16.
11. 2019 - "Attacking Cancer Through One Health Research Initiatives". Invited Speaker. Hollins University. March 6, 2019. Roanoke, VA. Host: Dr. Elizabeth Gleim.
12. 2019 - "The Good, The Bad, and The Ugly: Evaluating the Impact of Pulmonary Exposure to Incidental and Therapeutic Nanomaterials". Invited Speaker. Louisiana State University. November 22, 2019. Baton Rouge, LA. Host: Dr. Jeyaseelan Samithamby.
13. 2019 - "Deploying Novel Tumor Ablation Strategies to Engage the Innate and Adaptive Immune Systems in the Fight Against Cancer". Invited Speaker. Carter Immunology Center at University of Virginia. October 14, 2019. Charlottesville, VA. Host: Dr. Timothy Bullock.
14. 2019 - "Building the Right Team through Great Leadership". Panelist at the 2019 Annual Meeting of The Society for Leukocyte Biology. November 18, 2019. Boston, MA.

SELECTED SCIENTIFIC PRESENTATIONS AND ABSTRACTS (out of 125):

1. "Utilization of high-frequency irreversible electroporation (H-FIRE) to modulate the tumor microenvironment and promote systemic immune system activation in breast cancer." V. M. Ringel-Scaia, R. M. Brock, S. L. Coutermarsh-Ott, K. E. Huie, N. Beitel White, M. F. Lorenzo, R. V. Davalos, **I. C. Allen**. 5th European Congress of Immunology. September 2-5, 2018. Amsterdam, NL.
2. "Non-thermal irreversible electroporation modulates the tumor microenvironment and metastatic potential of pancreatic cancer." Brock, R.M. White, N. Ringel-Scaia, V.M., Coutermarsh-Ott, S., Eden, K., Lorenzo, M.F., Cotouri, J., Manuchehrabadi, N., Davalos, R.V., **Allen, I.C.** Poster presentation at AACR-KCA Joint Conference on Precision Medicine in Solid Tumors, Seoul, South Korea, November 15-17, 2018.
3. "Irreversible electroporation stimulates a pro-inflammatory tumor microenvironment in pancreatic cancer." Brock, R.M., White, N., Ringel-Scaia, V.M., Coutermarsh-Ott, S., Eden, K., Cotouri, J., Manuchehrabadi, N., Davalos, R.V., **Allen, I.C.** Poster Presentation. AAI Annual Meeting, San Diego, CA, May 9-13, 2019.
4. "Histotripsy Initiates Local and Systemic Immunological Response and Reduces Tumor Burden in Breast Cancer." Hendricks, A., Howell, J., Schmieley, R., Kozlov, S., Simon, A., Coutermarsh-Ott, S., Vlasisavljevich, E., **Allen, IC.** Poster presentation at American Association of Immunology, San Diego, CA. May 12, 2019.

5. "Noncanonical NF-kB controls stem cell signatures in the colonic mucosa and affects susceptibility to inflammation-induced carcinogenesis," Morrison, H.A, Eden, K., Rothschild, D., Brown, S., Holl, E., **Allen, I.C.** Poster presentation at the AAI Annual Meeting, San Diego, VA, May 11th, 2019.
6. "Newfound role for noncanonical NF- κ B signaling in Inflammatory Bowel Disease: Gene expression levels serve as a proxy for predicting anti-TNF therapy responsiveness," Morrison, H.A., Stephens M., Eden, K., Nguyen, V.Q., Sorrentino, D.R., Sorrentino, S., Brock, R.M., Lang, M., Grider, D.J., **Allen, I.C.** Poster presentation at the AAI Annual Meeting, San Diego, VA, May 12th, 2019.
7. "Irreversible Electroporation: A solution to pancreatic cancer's immunosuppressive tumor microenvironment." Brock, R.M., White, N., Ringel-Scaia, V.M., Coutermarsh-Ott, S., Eden, K., Manuchehrabadi, N., Davalos, R.V., **Allen, I.C.** Poster Presentation. 8th Annual Southeastern Immunology Symposium, Emory University, Atlanta, GA, June 8-9, 2019.
8. "Elucidating the Role of the Noncanonical NF- κ B Signaling Pathway in Inflammation-Induced Carcinogenesis: Pathway Controls Stem Cell Niche in Colonic Mucosa," Morrison, H.A., Eden, K., Rothschild, D., Stephens, M., Brown, S., Holl, E., **Allen, I.C.** Poster presentation at Southeastern Immunology Symposium, Atlanta, GA, June 7th, 2019.
9. "Investigation of the Local and Systemic Immune Response to Histotripsy Ablation of Breast Cancer in a Mouse Model." Hendricks, A., Schmieley, R., Howell, J., Simon, A., Coutermarsh-Ott, S., **Allen, I.C.**, Vlasisavljevich, E. Oral presentation at International Symposium of Therapeutic Ultrasound and European Symposium of European Focused Ultrasound Charitable Society, Barcelona, Spain, June 14, 2019.
10. "Irreversible Electroporation is an Effective Tumor Ablation Strategy that Induces Immunologic Cell Death and Promotes Systemic Anti-Tumor Immunity". **Allen, I.C.** Oral Presentation and Poster Presentation. AACR Tumor Immunology and Immunotherapy Conference. November 17 - 21, 2019. Boston, MA.

MEDIA COVERAGE:

1. September 18, 2013 "Biomedical researcher produces books on innate immunity, allergic disease", *Virginia Tech News*. Interviewed by Michael Sutphin.
2. February 05, 2015 "Cancer and the Immune System", Interviewed by Jim Metzner on *National Public Radio*, Pulse of the Planet
3. February 09, 2015 "Cancer the Chess Master", Interviewed by Jim Metzner on *National Public Radio*, Pulse of the Planet
4. February 10, 2015 "Cancer – Mutations", Interviewed by Jim Metzner on *National Public Radio*, Pulse of the Planet
5. January 25, 2017 "Virginia Tech researchers help the body protect itself against inflammation and colon cancer", *Virginia Tech News*. Interviewed by Lindsay Key.
6. March 1, 2017 "Researchers pair with artists to make science more accessible", *Roanoke Times*. Interviewed by Robby Korth.
7. July 1, 2017 "Graduate Students awarded prestigious immunology fellowships", *Virginia Tech News*. Interviewed by Kelsey Foster.
8. September 24, 2019 "Veterinary college's Irving Coy Allen collaborates for a cause", *Virginia Tech News*. Interviewed by Leslie Jernegan.

RESEARCH SUPPORT:

Total Grant and Industry Research Support as PI or Co-I: \$11,988,573

Total Extramural Support as PI: \$3,383,400

Total Extramural Support as Co-I: \$7,837,578

Total Intramural Support as PI: \$430,682

Total Intramural Support as Co-I: \$306,913

EXTRAMURAL

- 1. NLR Regulation of Innate Immune Responses to Respiratory Virus Infection**
 F32-AI082895 (PI: Allen) 09/01/09 – 12/31/10 \$101,764
 National Institutes of Health - NIAID
- 2. NLR Regulation of Gastrointestinal Inflammation and Tumorigenesis**
 PF-10-053-01-LIB (PI: Allen) 01/01/10 – 06/30/11 \$165,000
 The American Cancer Society
- 3. NLR Regulation of Gastrointestinal Inflammation and Tumorigenesis**
 P30-DK34987 (PI: Allen) 07/01/09 – 2/29/11 \$30,000
 UNCCH/CGIBD
- 4. NLR Regulation of Gastrointestinal Inflammation and Tumorigenesis**
 K01-DK092355 (PI: Allen) 07/01/11 – 06/30/16 \$709,052
 National Institutes of Health – NIDDK
- 5. Evaluating NLR Modulation of Canonical and Non-Canonical NF-kB Signaling in IBD**
 R03-DK105975 (PI: Allen; Co-I: Cecere) 07/01/15 – 06/30/17 \$161,000
 National Institutes of Health – NIDDK
- 6. Immunosignature Differentiation of Lymphoma and Inflammatory Bowel Disease in Cats**
 Winn Foundation (PI: Zimmerman; Co-I: Allen, Dervisis, Klahn, Leib)
 01/01/16 – 12/31/16 \$34,990
- 7. The Contribution of NLR Proteins in Modulating Gastrointestinal Inflammation Following Exposure to Wheat Gluten**
 One Health Center Seed Funding (Co-PI: Allen; Co-PI: Berglind)
 11/10/15 – 06/30/17 \$75,000
 VT-MD College of Veterinary Medicine & Edward Via College of Osteopathic Medicine
- 8. Using an Approved Device to Increase the Immune Response in Pancreatic Cancer Patients**
 Research in Progress (Co-PI: Davalos; Co-PI: Martin; Co-I Allen)
 Cures Within Reach 11/01/16 – 10/31/17 \$50,000
- 9. Role of the Non-Canonical NF-xB Inflammatory Cascade in Therapeutic Response and Pathogenesis of Inflammatory Bowel Disease**
 RAP Tier I (Co-PI: Sorrentino; Co-PI: Allen; Co-I: Vu; Knight)
 Carilion Clinic 07/01/17 – 12/31/18 \$40,000
- 10. Evaluation of pro-inflammatory TH2 mediated biomarkers and NF-kB signaling pathways in the Diagnosis and Treatment of Eosinophilic Esophagitis (EoE)**
 RAP Tier II (PI: Michael Hart; Co-I: Allen; Knight; Grider; Katoh; Tenzer)
 Carilion Clinic 07/01/17 – 12/31/18 \$10,000
- 11. Defining the roles of inflammasomes in Zika virus infection**
 4-VA (Co-PIs: Lukens; Ewald; Hahn; Allen) 05/01/17 – 04/30/18 \$30,000
- 12. NLR Modulation of the Gut Microbiome during Celiac Disease**
 VCOM/VMCVM One Health \$42,500
 (Co-PI: Allen; Co-PI: Berglind) 07/01/17 – 06/30/18
- 13. Regulation of T helper cell differentiation by integrated STAT and Ikaros zinc finger transcription factor mechanisms**
 R56 AI127800-01A1 NIH/NIAID 08/01/2017 – 07/31/2018 \$175,000

14. Investigation of the immunostimulatory response to high frequency ultrasound in dogs with naturally occurring solid tumors

Focused Ultrasound Foundation **\$174,402**
(PI: Ruth; **Co-I: Allen**; Dervisis; Daniel; Lanz; Lahmers) 01/01/2018 – 12/31/2018

15. Effects of Magnéli phase titanium oxide nanoparticles in the mammalian respiratory tract

Duke University Center for Environmental Implications of Nanotechnology **\$4,000**
(Center PI: Hochella; **Project PI: Allen**) 09/01/2017 – 12/31/2017

16. Careers in Immunology Fellowship

American Association of Immunologist **\$23,376**
(**PI: Allen**; **Fellow: Veronica Ringel**) 09/01/17 – 08/31/18

17. Mechanistic role of probiotic Lactobacillus reuteri in autoimmune lupus

R01AR073240 NIH/NIAMS 07/01/18 – 06/30/23 **\$1,900,000**
(PI: Luo, X.; **Co-I: Allen, IC**; Cecere, TE; Li, S; Reilly, CM; Helm, R)

18. Identifying novel regulatory pathways underlying T helper 1 cell immune responses

R01AI134972 NIH/NIAID 07/01/18 – 06/30/23 **\$1,972,864**
(PI: Oestreich; **Co-I: Allen**; Smyth; Xie)

19. Top-Down or Bottom-Up Tumorigenesis: Defining the role of non-canonical NF-κB signaling in colorectal cancer

VCOM/VMCVM One Health **\$50,000**
(**Co-PI: Allen**; Co-PI: Brown) 07/01/18 – 06/30/19

20. Elucidating Mechanisms Modulated by NIK and Non-Canonical NF-κB Signaling In Colorectal Cancer

VCOM/VMCVM One Health **\$50,000**
(**Co-PI: Allen**; Co-PI: Brown) 07/01/19 – 06/30/20

21. Development of Novel Porcine Models of Orthotopic Pancreatic Cancer for FUS and Histotripsy Tumor Ablation Applications

Focused Ultrasound Foundation 07/01/19 – 06/30/20 **\$100,000**
(**PI: Allen**; Co-I: Vlaisavljevich; Lee; Clarke-Deener; Coutermarsh-Ott; Byron)

22. Employing Novel Porcine Models of Orthotopic Pancreatic Cancer to Evaluate Histotripsy Based Tumor Ablation Strategies

R21EB028429 NIH/NIBIB 07/01/19 – 06/30/21 **\$427,815**
(**PI: Allen**; Co-I: Vlaisavljevich; Lee; Clarke-Deener; Coutermarsh-Ott; Byron)

23. Effects of probiotic strains on intestinal immunity of germ-free mouse

Zhejiang University VT Foundation 06/01/19 – 05/31/20 **\$20,320**
(PI: Luo; **Co-I: Allen**)

24. A Tissue Engineering Approach to Analyzing Host-Microbe Interactions in Cancer

R21CA238630 NIH/NCI 08/01/19 – 07/31/21 **\$358,627**
(PI: Slade, Verbridge; **Co-I: Allen**, Lu)

25. Non-invasive Focused Ultrasound Ablation for the Treatment of Cholangio-carcinoma Liver Tumors

Focused Ultrasound Foundation 07/01/19 – 06/30/20 (PI: Vlaisavljevich; **Co-I: Allen**) **\$100,000**

26. Targeting the peptidoglycan cell wall of *Borrelia burgdorferi* to diagnose and treat Lyme disease **\$600,000**Steven and Alexandra Cohen Foundation 01/01/20 – 12/31/22 (PI: Jutras; **Co-I: Allen**)**27. Defining Mechanisms Regulated by Noncanonical NF- κ B Signaling that Modulate Eosinophilic Esophagitis** **\$50,000**

iTHRIVE Pilot Translational and Clinical Studies Program

(Co-PI: Allen; Co-PI: McGowan)

02/01/20 – 01/31/21

28. Nanoparticle-mediated Histotripsy (NMH) for Noninvasive and Targeted Ablation of Metastatic Breast Cancer **\$602,632**

R21EB027979

NIH/NIBIB Trailblazer 01/20/20-12/31/22 (PI: Vlasisavljevich; **Co-I: Allen**; Munson)**29. Histotripsy for treatment of canine appendicular osteosarcoma** **\$13,000**

Oak Grant AKC Canine Health Foundation 02/01/20 – 01/31/21

(PI: Tuohy; **Co-I: Allen**; Vlasisavljevich; Klahn; Coutermarsh-Ott; Dervis; Clapp)**30. Targeting the peptidoglycan cell wall of *Borrelia burgdorferi*** **\$350,000**Global Lyme Alliance 07/01/20 – 06/30/22 (PI: Jutras; **Co-I: Allen**; Helm)**31. Development of an improved vaccine against *Brucella abortus*** **\$155,643**R03AI151494 NIH/NIAID (PI: Caswell; **Co-I: Allen**) 03/01/20-02/28/22**32. A novel strategy for generating safe and effective Flavivirus vaccines** **\$1,250,000**

R01AI153433 NIH/NIAID

(PI: Aguste; **Co-I: Allen**; Meng; Swagata)

06/01/2020-05/31/2025

33. Utilizing Novel Model Systems to Define Novel Mechanisms Controlled by the Unique Kinase NIK during Colorectal Cancer

VCOM/VMCVM One Health

\$50,000

(Co-PI: Allen; Co-PI: Brown; Hagar) 07/01/20 – 06/30/21

INTRAMURAL**1. Elucidating the Contribution of Negative Regulators of TLR Signaling in Inflammatory Bowel Disease and Tumorigenesis**Pilot Grant (PI: Allen) 07/01/13 - 06/30/14 **\$20,000**

VT-MD Regional College of Veterinary Medicine – IRC

2. Development of Novel Genetically Modified Mice to Evaluate Non-Canonical NF- κ B Signaling in Inflammatory Bowel DiseasePilot Grant (PI: Allen) 07/01/14 - 06/30/15 **\$20,000**

VT-MD Regional College of Veterinary Medicine - IRC

3. Intrinsic and Extrinsic Determinants of CD4+ TCM Cell Fate **\$23,000**Pilot Grant (Co-PI: Oestreich; **Co-PI: Allen**) 03/01/15 – 06/30/16

VTCRI Collaborative Research Project

4. Novel vaccine system against viral infections **\$20,000**Seed Grant (**Co-PI: Allen**; Co-PI: Zhang) 07/01/15 – 06/30/16

Virginia Tech and the University of Maryland CVM Joint Seed Grant

5. Harnessing CRISPR Technology for Gene Therapy Applications **\$120,000**

JFC Seed Proposal (PI: Allen; Co-I: Davis) 07/01/15 – 06/30/17

Virginia Tech Institute for Critical Technology and Applied Science

6. Elucidating the Contribution and Therapeutic Potential of NLRX1 Signaling in Histiocytic Sarcoma

Pilot Grant (PI: Allen; Co-I: Dervisis; Co-I: Coutermarsh-Ott)
07/01/15 – 06/30/16 \$20,000
VT-MD Regional College of Veterinary Medicine - IRC

7. Identification of the Transcriptional Network Governing T Follicular Helper Cell Development

Pilot Grant (PI: Oestreich; Co-I: Allen) 07/01/15 – 06/30/16 \$20,000
VT-MD College of Veterinary Medicine - IRC

8. Sustained Delivery of a Live *Francisella tularensis* Vaccine Strain by Encapsulation

Pilot Grant (PI: Inzana; Co-I: Allen, Bandara, Bassaganya-Riera, Mohapatra)
VT-MD College of Veterinary Medicine - IRC 07/01/15 – 06/30/16 \$20,000

9. Bacteria-based Autonomous Drug Delivery Agents for Cancer Therapy

Translational Nanomedicine Grant Proposal (PI: Behkam; Co-I: Allen; Davis; Riffle)
07/01/15 – 06/30/16 \$20,000
Virginia Tech Institute for Critical Technology and Applied Science

10. Inhibition of the PI3K Pathway for treating Cancer using Nanoparticle-Based Drug Delivery

Enhanced Drug Delivery Seed Grant (Co-PI: Davis; Co-PI: Allen)
02/01/16 – 01/31/17 \$5,000
Virginia Tech Institute for Critical Technology and Applied Science

11. Evaluating Novel Inflammatory Signaling Pathways from Patients with Inflammatory Bowel Disease

Pilot Grant (PI: Allen; Co-I: Sorrentino; Eden) 07/01/16 – 06/30/17 \$20,000
VT-MD College of Veterinary Medicine - IRC

12. Defining the Roles of Ikaros Zinc Finger (IkZF) Transcription Factors in Central Memory (Tcm) and T Follicular Helper (Tfh) Cell Development

Pilot Grant (PI: Oestreich; Co-I: Allen) 07/01/16 – 06/30/17 \$20,000
VT-MD College of Veterinary Medicine - IRC

13. Anti-Tumor Microenvironment Modulation Using High Frequency Irreversible Electroporation (H-FIRE)

Seed Funding (PI: Allen; Co-I: Verbridge, Davalos) 01/01/17 – 06/30/17 \$15,000
ICTAS Center for Engineered Health

14. Irreversible electroporation for liver cancer immunotherapy – A pilot study

Veterinary Memorial Fund (PI: Dervisis; Co-I: Allen; Barry; Muro; Stadler; Davalos)
VMCVM 09/01/17 – 06/30/18 \$21,000

15. Maternal microbiota educates neonatal IgA response

Pilot Grant (PI: Luo; Co-I: Allen) 07/01/17 – 06/30/18 \$17,014
VT-MD College of Veterinary Medicine - IRC

16. Objective method of positive end-expiratory pressure (PEEP) choice to be used in protective ventilation strategies during anesthesia in dogs.

Pilot Grant (PI: Soares; Co-I: Allen; Henao-Guerrero; Pavlisko; Grant) \$19,899
VT-MD College of Veterinary Medicine – IRC 07/01/17 – 06/30/18

17. Defining Roles for Noncanonical NF- κ B Signaling in Eosinophilic Esophagitis

Pilot Grant (PI: Allen; Co-I: Verbridge; Eden) 07/01/17 – 06/30/18 \$20,000

18. Defining the role of a novel Aiolos/STAT3 transcriptional complex in T_{FH} cell differentiation

Pilot Grant (PI: Oestreich; **Co-I: Allen**) 07/01/17 – 06/30/18 \$20,000
VT-MD College of Veterinary Medicine – IRC

19. Mechanisms of Innate Immune Responses to Mindfulness Meditation

Dean's Discovery Fund \$19,682
(**Co-PI: Allen**; Co-PI: Richey; Co-I: Epperley; Komelski; Lawson) 07/01/17 – 06/30/18
Virginia Tech College of Science

20. Generating Patient Derived Xenograft Mouse Models of Pancreatic Cancer to Study the Tumor Microenvironment and Anti-Tumor Immunity following IRE Treatment

Seed Funding ICTAS Center for Engineered Health \$15,000
(**PI: Allen**; Co-I: Oestreich, Davalos, Martin) 01/01/18 – 06/30/18

21. Inhibition of the PI3K Pathway for treating Cancer using Nanoparticle-Based Drug Delivery

Seed Funding ICTAS Center for Engineered Health \$15,000
(**Co-PI: Allen**; Davis; Dervis) 01/01/18 – 06/30/18

22. Novel mechanisms of immune system modulation following hepatitis E virus infection

Seed Grant (**Co-PI: Allen**; Co-PI: Zhang) 01/01/18 – 06/30/18 \$20,000
Virginia Tech and the University of Maryland CVM Joint Seed Grant

23. Improving Immune System Engagement in Pancreatic Cancer Using Histotripsy

VMCVM IRC 07/01/18 – 06/30/19 \$20,000
(**PI: Allen**; Co-I: Vlaisavljevich; Oestreich)

24. Novel roles for a lymphocyte-associated transcriptional complex in promoting breast cancer metastasis

VMCVM IRC 07/01/18 – 06/30/19 \$20,000
(PI: Oestreich; **Co-I: Allen**, Xie)

25. Persulfide Prodrugs in the Gut: A Microbiome Study

VTCCD/ICTAS 01/01/19 – 06/30/19 \$5,000
(PI: Matson; **Co-I: Allen**, Slade)

26. Pattern Recognition Receptor Driven Suppression of Host-Antiviral Immune Signaling in Hepatitis E Virus Infection

Seed Grant (**Co-PI: Allen**; Co-PI: Zhang) 01/01/19 – 06/30/19 \$20,000
Virginia Tech and the University of Maryland CVM Joint Seed Grant

27. Nanoparticle-mediated Histotripsy for the Non-Invasive Treatment of Brain Cancer and other Neurological Disorders

ICTAS Junior Faculty Award 07/01/19 – 06/30/21 \$80,000
(PI: Vlaisavljevich; **Co-I: Allen**; Rossmeisl; Davis)

28. Characterization of the immunologic responses to HFIRE treatment in the brain

VMCVM IRC 07/01/19 – 06/30/20 \$16,000
(PI: Rossmeisl; **Co-I: Allen**, Davalos, Partridge, Kani, Hinkley, Coutermarsh-Ott)

29. Elucidating the microbiome contribution to hypereosinophilic syndromes in the absence of noncanonical NF- κ B signaling

VMCVM IRC 07/01/19 – 06/30/20 \$16,000

30. Defining Novel Pattern Recognition Receptor Functions During Hepatitis E Virus Infection

Seed Grant (Co-PI: Allen; Co-PI: Zhang) 12/05/19 – 05/30/20 **\$20,000**
Virginia Tech and the University of Maryland CVM Joint Seed Grant

31. Establishment of ACE2 transgenic mice colony for COVID-19 research at Virginia Tech **\$30,000**

Fralin Life Sciences Institute (PI: Allen; Co-I: Aguste) 04/09/20 – 06/30/20

INDUSTRY SUPPORT:

1. TechLab Inc: Lactoferrin as a biomarker for the diagnosis and monitoring of inflammatory bowel disease and intestinal lymphoma in dogs. **\$70,100**

(PI: Zimmermen; Co-I: Allen; Dervisis; Klahn; Leib; DeMonaco) 01/01/2016 – 12/31/2016

2. Boston Scientific: Cellular Response to Low Energy Ele **\$300,000**

(PI: Davalos) **Project 3 PI: Allen** 03/01/2017 – 07/31/2017

3. AngioDynamics: Characterization of Irreversible Electroporation in Pancreas **\$485,375**

(PI: Allen; Co-I: Davalos; Coutermarsh-Ott; Arena) 04/01/18 – 04/30/19

4. AngioDynamics: Characterization of Irreversible Electroporation in Pancreas - Ext

(PI: Allen; Co-I: Davalos) 09/12/18 – 04/30/19 **\$92,673**

5. AngioDynamics: Defining the Electrical Properties and Biological Impact of Tumor

Ablation Modalities for Use In the Prostate to Maximize Therapeutic Impact **\$425,845**

(Co-PI: Allen, Davalos, Verbridge; Co-I: Coutermarsh-Ott) 09/01/19 – 03/31/21

PROGRAM SUPPORT:

1. The Virginia Tech Immunology Summer Journal Club

The Society of Leukocyte Biology (PI: Allen) 06/01/15 – 12/31/17 **\$800**

2. NIH K and New Investigator R01 Proposal Preparation Program

Virginia Tech Office of the Vice President for Research and Instruction

Program Development Funds (PI: Allen) 01/01/16 – 05/15/17 **\$30,000**

VIRGINIA TECH DIDACTIC INSTRUCTION:

CURRICULUM DEVELOPMENT

2017 - 2018 Integrative Health and Biomedical Sciences (IHBS) for graduate students at Virginia Tech, Blacksburg, VA. This curriculum was designed to replace the current Biomedical and Veterinary Sciences (BMVS) Curriculum in the Virginia Maryland College of Veterinary Medicine.

COURSE AND BLOCK LEADER

2013-present Course Leader, Undergraduate Research (BMVS 4994) for undergraduate students at Virginia Tech, Blacksburg, VA.

2014-present Course Developer and Leader, Frontiers of Immunology in Health and Disease (BMVS 6714) for graduate students at Virginia Tech, Blacksburg, VA.

2015-present Course Developer and Leader, Fundamentals of Immunity and Infectious Diseases (TBMH 5054) for graduate students at Virginia Tech, Blacksburg, VA.

2018-present Course Developer and Leader, Current Technologies in Biomedical Sciences (BMVS 5594) for graduate students at Virginia Tech, Blacksburg, VA.

2018-present Block Leader, Immunology and Infectious Disease Gateway (TBMH 5004) for graduate students at Virginia Tech, Blacksburg, VA.

2018-present Course Leader, BMVS Seminar (BMVS 5944) for graduate students at Virginia Tech, Blacksburg, VA.

INVITED GUEST LECTURES:

- 2013 Guest lecture, "Inflammation and Mucosal Immunology" for graduate and undergraduate students in the Immunology and Advanced Inflammation Biology (BIOL 4734/5734) course at Virginia Tech, Blacksburg, VA.
- 2013 Guest lecture, "NLR Inflammasomes" for graduate and students in the Advanced Topics in Immunology (BIOL 6704) course at Virginia Tech, Blacksburg, VA.
- 2013 Guest lecture, "Mucosal Immunology" for graduate and students in the Advanced Topics in Immunology (BIOL 6704) course at Virginia Tech, Blacksburg, VA.
- 2013 Guest lecture, "Tumor Immunology" for graduate and students in the Advanced Topics in Immunology (BIOL 6704) course at Virginia Tech, Blacksburg, VA.
- 2014 Guest lecture, "Hypersensitivity" for graduate and undergraduate students in the Immunology and Advanced Inflammation Biology (BIOL 4734/5734) course at Virginia Tech, Blacksburg, VA.
- 2014 Guest lecture, "Allergy" for graduate and undergraduate students in the Immunology and Advanced Inflammation Biology (BIOL 4734/5734) course at Virginia Tech, Blacksburg, VA.
- 2014 Guest lecture, "Tumor Immunity" for graduate and undergraduate students in the Immunology and Advanced Inflammation Biology (BIOL 4734/5734) course at Virginia Tech, Blacksburg, VA.
- 2015 Guest lecture, "Tumor Microenvironment" for graduate students in the Fundamentals of Cancer (TBMH 5024) course at Virginia Tech, Blacksburg, VA.
- 2015 Guest lecture, "Macrophage Polarization" for graduate students in the Fundamentals of Cancer (TBMH 5024) course at Virginia Tech, Blacksburg, VA.
- 2015 Guest lecture, "Tumor Immunity" for graduate and undergraduate students in the Immunology and Advanced Inflammation Biology (BIOL 4734/5734) course at Virginia Tech, Blacksburg, VA.
- 2015 Guest lecture, "Clinical Cancer Research" for graduate students in the Scientific Logic and Analysis (TBMH 5404) course at Virginia Tech, Blacksburg, VA.
- 2016 Guest lecture, "The Good, The Bad, and the Ugly: Balancing Our Resident Microbes To Promote Health and Wellness" for continuing education students in the Life Long Learning Institute (LLI) sponsored through Virginia Tech, Blacksburg, VA.
- 2016 Guest lecture, "Intestinal Mucosal Immune System" for graduate students in the Fundamentals of Cancer (TBMH 5024) course at Virginia Tech, Blacksburg, VA.
- 2016 Guest lecture, "Immune Cells and Crosstalk: Introduction to Immunology" for graduate students in the Translational Biology, Medicine, and Health (TBMH 5004) course at Virginia Tech, Blacksburg, VA.
- 2016 Guest lecture, "Cancer Immunology" for graduate and undergraduate students in the Immunology and Advanced Inflammation Biology (BIOL 4734/5734) course at Virginia Tech, Blacksburg, VA.
- 2016 Guest lecture, "Inflammation as an Emerging Hallmark of Cancer" for graduate and undergraduate students in the Immunology and Advanced Inflammation Biology (BIOL 4734/5734) course at Virginia Tech, Blacksburg, VA.
- 2016 Guest lecture, "Cancer Immunology" for graduate students in the Cancer Diagnostics and Therapeutics (BMES 5984) course at Virginia Tech, Blacksburg, VA.

- 2017 Guest lecture, "Cancer Immunity" for graduate students in the Fundamentals of Cancer (TBMH 5024) course at Virginia Tech, Blacksburg, VA.
- 2017 Guest lecture, "Tumor Microenvironment" for graduate students in the Fundamentals of Cancer (TBMH 5024) course at Virginia Tech, Blacksburg, VA.
- 2017 Guest lecture, "Immune Cells and Crosstalk: Introduction to Immunology" for graduate students in the Translational Biology, Medicine, and Health (TBMH 5004) course at Virginia Tech, Blacksburg, VA.
- 2017 Guest lecture, "Inflammation and Cancer" for graduate and undergraduate students in the Immunology and Advanced Inflammation Biology (BIOL 4734/5734) course at Virginia Tech, Blacksburg, VA.
- 2017 Guest lecture, "Advances in Immunotherapeutics" for graduate and undergraduate students in the Advanced Applications in Molecular Life Sciences (BCHM 4784/5784) course at Virginia Tech, Blacksburg, VA.
- 2017 Guest lecture, "Immune Function in the Intestinal Tract" for graduate students in the Molecular Aspects of Nutrition and Disease (HNFE 5144) course at Virginia Tech, Blacksburg, VA.
- 2018 Guest lecture, "Immune Cells and Crosstalk: Introduction to Immunology" for graduate students in the Translational Biology, Medicine, and Health (TBMH 5004) course at Virginia Tech, Blacksburg, VA.
- 2018 Guest lecture, "Diet, Inflammation, and Cancer" for graduate students in the Molecular Aspects of Nutrition and Disease (HNFE 5144) course at Virginia Tech, Blacksburg, VA.
- 2018 Guest lecture, "Tumor Immunology and Immunotherapy" for undergraduate students in the Cancer Biology (BIOL 4874) course at Virginia Tech, Blacksburg, VA.
- 2019 Guest lecture, "Cancer Immunology" for graduate and undergraduate students in the Immunology and Advanced Inflammation Biology (BIOL 4734/5734) course at Virginia Tech, Blacksburg, VA.
- 2019 Guest lecture, "Inflammation as an Emerging Hallmark of Cancer" for graduate and undergraduate students in the Immunology and Advanced Inflammation Biology (BIOL 4734/5734) course at Virginia Tech, Blacksburg, VA.

TEACHING CERTIFICATIONS AND PROFESSIONAL DEVELOPMENT:

- 2007 Certificate in College Teaching, UNC Chapel Hill
- 2014 Master Online Instructor Certificate, Technology-enhanced Learning and Online Strategies, Virginia Tech
- 2014 Networked Learning and Design Strategies Faculty Showcase, "Principles of Biomedical and Health Science Research", On-Line Course Development, TLOS, Virginia Tech, Blacksburg, VA.

STUDENT MENTORSHIP:

MAJOR ADVISOR OF CURRENT GRADUATE STUDENTS:

- 2018 – present Alissa Hendricks, PhD Co-Mentor (with Dr. Eli Vlasisavljevic), Virginia Tech, Program in Translational Biology Medicine and Health
- 2018 – present Holly Morrison, PhD Mentor, Biomedical and Veterinary Science
- 2019 – present Margaret Nagi, PhD Mentor, Virginia Tech, Biomedical and Veterinary Science
- 2019 – present Brie Trusiano, PhD Mentor, Virginia Tech, DVM Resident, Biomedical and Veterinary Science
- 2019 – present Juselyn Tupik, PhD Mentor, Virginia Tech, DVM/PhD Program, Biomedical and Veterinary Science
- 2020 – present Hannah Ivester, PhD Mentor, Virginia Tech, Program in Translational Biology Medicine and Health

2020 – present Kahn Mohammad Imran, PhD Mentor, Virginia Tech, Program in Translational Biology Medicine and Health

MAJOR ADVISOR OF FORMER GRADUATE STUDENTS:

- 2013 – 2014 Tere Williams, Research Mentor, Virginia Tech Post-Baccalaureate Research and Education Program (PREP). Current Position: PhD Graduate Student at Albert Einstein College of Medicine, New York, NY
- 2014 – 2017 Sheryl Coutermarsh-Ott, PhD, Biomedical and Veterinary Science. Current Position: Assistant Professor at the Virginia Maryland College of Veterinary Medicine, Blacksburg, VA
- 2016 – 2017 Naya Eady, Co-Research Mentor with Dr. Caroline Leeth (Biology), Virginia Tech Post-Baccalaureate Research and Education Program (PREP). Current Position: PhD Graduate Student at Cornell, Ithaca, NY
- 2014 – 2018 Dylan McDaniel, PhD, Virginia Tech, Biomedical and Veterinary Science. Current Position: Adjunct Assistant Professor, Department of Neuroscience at Virginia Tech, Blacksburg, VA
- 2014 – 2018 Daniel Rothschild, PhD, Biomedical and Veterinary Science. DVM/PhD Program. Current Position: DVM Student at the Virginia Maryland College of Veterinary Medicine, Blacksburg, VA
- 2015 – 2018 Kristin Eden, PhD, Virginia Tech, Biomedical and Veterinary Science. Current Position: Assistant Professor and Instructor at the Virginia Tech Carilion School of Medicine, Roanoke, VA
- 2015 – 2019 Veronica Ringel, PhD, Virginia Tech, Program in Translational Biology Medicine and Health, Virginia Tech Carilion Research Institute. Current Position: Research Director, Charles River Laboratories, Ashland, OH
- 2016 – 2020 Rebecca Brock, PhD Mentor, Virginia Tech, Program in Translational Biology Medicine and Health, Virginia Tech Carilion Research Institute. Current Position: Post-Doc, Baylor School of Medicine, Houston, TX

ADDITIONAL GRADUATE STUDENT RESEARCH MENTORSHIP:

1. Kye Kable (VMCVM, NIH T35 SVSRP, 2014 Summer)
2. Corren Freeman (Tuskegee CVM, NIH T35 SVSRP, 2015 Summer)
3. Ellen Russell (VMCVM, NIH T35 SVSRP, 2016 Summer)
4. Chelsea Pollak (VMCVM, NIH T35 SVSRP, 2017 Summer)
5. Rudy Oyarzo (Austral University of Chile, Virginia Tech-Chile Exchange Student Internship, January 08 – March 31, 2018)
6. Taylor Simmons (VMCVM, NIH T35 SVSRP, 2018 Summer)
7. Shawn Kozlov (VMCVM, NIH T35 SVSRP, 2018 Summer)

GRADUATE STUDENT HONORS:

- 2014 Dylan McDaniel, Institute for Critical Technology and Applied Science (ICTAS) Doctoral Scholar Awardee
- 2015 Corren Freeman, 3rd Place Oral Presentation Winner of the 4th Annual Phi-Zeta Research Day. Tuskegee University. Tuskegee, AL.
- 2015 Sheryl Coutermarsh-Ott, 2nd Place in Poster Competition, Experimental Disease Category, American College of Veterinary Pathologists Combined Annual Meeting. Minneapolis, MN.
- 2015 Kristin Eden, VT Graduate Student Assembly, Graduate Research and Development Award
- 2016 Daniel Rothschild, Silver Award for Best Poster, 32nd Graduate Student Assembly Research Symposium. Virginia Tech. Blacksburg, VA.
- 2017 Kristin Eden, ACVP/ASIP Experimental Biology Travel Award, American College of Veterinary Pathologists Annual Meeting.

- 2017 Sheryl Coutermarsh-Ott, VMCVM Nominee for the 2017 National Phi Zeta Research Award in the Basic Science Category
- 2017 Daniel Rothschild, Gold Award, 33rd Graduate Student Assembly Research Symposium. Virginia Tech. Blacksburg, VA.
- 2017 Daniel Rothschild, Gold Award for Best Poster, 33rd Graduate Student Assembly Research Symposium. Virginia Tech. Blacksburg, VA.
- 2017 Kristin Eden, Gold Award for Best Oral Presentation, 33rd Graduate Student Assembly Research Symposium. Virginia Tech. Blacksburg, VA.
- 2017 Veronica Ringel, Bronze Award for Best Oral Presentation, 33rd Graduate Student Assembly Research Symposium. Virginia Tech. Blacksburg, VA.
- 2017 Kristin Eden, AAI 2017 Travel Award to the annual international meeting Immunology 2017.
- 2017 Dan Rothschild, AAI 2017 Travel Award to the annual international meeting Immunology 2017.
- 2017 Kristin Eden, VT Graduate Student Assembly, Graduate Research and Development Award
- 2017 Dan Rothschild, VT Graduate Student Assembly, Graduate Research and Development Award
- 2017 Sheryl Coutermarsh-Ott, VT Graduate Student Assembly, Graduate Research and Development Award
- 2018 Sheryl Coutermarsh-Ott, Virginia Tech, Virginia Maryland College of Veterinary Medicine, Virginia Tech Outstanding Doctoral Student Award
- 2018 Kristin Eden, VMCVM Nominee for the 2018 National Phi Zeta Research Award in the Basic Science Category
- 2018 Kristin Eden, First Place Best Oral Presentation, 29th Annual Research Symposium. Virginia Maryland College of Veterinary Medicine. Blacksburg, VA.
- 2018 Dylan McDaniel, Second Place Best Poster Presentation, 29th Annual Research Symposium. Virginia Maryland College of Veterinary Medicine. Blacksburg, VA.
- 2018 Rebecca Brock, VT Graduate Student Assembly, Graduate Research and Development Award
- 2018 Dylan McDaniel, Silver Award for Best Oral Presentation, 34th Graduate Student Assembly Research Symposium. Virginia Tech. Blacksburg, VA.
- 2018 Veronica Ringel-Scaia, AAI Travel Grant for the 5th European Congress of Immunology. September 2-5, 2018. Amsterdam, NL.
- 2018 Rebecca Brock, AACR Travel Grant for the AACR/KCR Joint Conference on Precision Medicine in Solid Tumors. November 15-17, 2018. Seoul, Korea.
- 2019 Kristin Eden, Virginia Tech, Virginia Maryland College of Veterinary Medicine, Virginia Tech Outstanding Doctoral Student Award
- 2019 Margaret Nagai-Singer, Institute for Critical Technology and Applied Science (ICTAS) Doctoral Scholar Awardee
- 2019 Brie Trusiano, Institute for Critical Technology and Applied Science (ICTAS) Doctoral Scholar Awardee
- 2019 Holly Morrison, Silver Award for Best Short Talk Presentation, 35th Graduate Student Assembly Research Symposium. Virginia Tech. Blacksburg, VA.
- 2019 Alissa Hendricks, Gold Award for Best Oral Presentation, 35th Graduate Student Assembly Research Symposium. Virginia Tech. Blacksburg, VA.
- 2019 Holly Morrison, Outstanding Graduate Student Poster Presentation, Virginia Drug Discovery Conference. May 22, 2019. Roanoke, VA
- 2019 Rebecca Brock, Meritorious Travel Award for the 3rd World Congress on Electroporation. September 3-6, 2019. Toulouse, France.

- 2019 Rebecca Brock, First Place, Biology Division, Oral Presentation, 3rd World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine, Food, and Environmental Technologies. September 6, 2019. Toulouse, France.
- 2020 Holly Morrison, Third Place, Myths and Mysteries Unraveled Category, Research Oral Presentation. Spring Graduate Research Symposium. April 15, 2020. Blacksburg, VA.
- 2020 Margaret Nagai-Singer, Second Place, Eye-opening Societal Interventions Category, Flash Talk Presentation. Spring Graduate Research Symposium. April 15, 2020. Blacksburg, VA.

THESIS AND DISSERTATION COMMITTEE SERVICE:

1. Cassandra Philipson (PhD, GBCB, Mentor: Dr. Josep Bassaganya-Riera; Graduated 2015)
2. Jack Guinan (MS, HNFE, Mentor: Dr. Eva Schmelz; Graduated 2017)
3. Qizhi Qin (PhD, BMVS, Mentor: Dr. Nikolaos Dervisis; Graduated 2018)
4. Erica Twitchell (PhD, BMVS, Mentor: Dr. Lijuan Yuan; Graduated 2018)
5. Ami Jo (PhD, Chemical Engineering, Mentor: Dr. Richey Davis; Graduated 2018)
6. Michele Waters (PhD, SBES, Co-Mentors: Drs. Mark Van Dyke and Pam Vandevord; Graduated 2018)
7. Ishan Goswami (PhD, SBES, Mentor: Dr. Scott Verbridge; Graduated 2018)
8. Ashwin Ramesh (PhD, BMVS, Mentor: Dr. Lijuan Yuan; Graduated 2019)
9. Nicholas Catanzaro (PhD, BMVS, Mentor: Dr. X.J. Meng; Graduated 2019)
10. Michael Powell (PhD, TBMH, Mentor: Dr. Kenneth Oestreich; Graduated 2019)
11. Yeonwoo Lebovitz (PhD, TBMH, Mentor: Dr. Michelle Theus; Graduated 2019)
12. Bharath Sreekumar (PhD, TBMH, Mentor: Dr. Kenneth Oestreich; Graduated 2019)
13. Shaylen Greenberg (PhD, TBMH, 2016-present, Mentor: Dr. Pam Vandevord)
14. Ariana Umana (PhD, Biochemistry, 2017-present, Mentor: Dr. Daniel Slade)
15. Justin Perry (PhD, HNFE, Mentor: Dr. David Brown; Graduated 2019)
16. Austin Fergusson (PhD, TBMH, 2017–present, Mentor: Dr. Rick Davis)
17. Xavier Puig (PhD, BMVS, 2017–present, Mentor: Dr. Xin Luo)
18. Brittanie Partridge (PhD, BMVS, 2018-present, Mentor: Dr. John Rossmeisl)
19. Holly Sullivan (PhD, TBMH, 2018-present, Mentor: Dr. John Richey)
20. Virginia Shen (MS, Resident, BMVS, 2018-present, Mentor: Dr. Sabrina Barry)
21. Kellie King (PhD, BMVS, 2018-present, Mentor: Dr. Clayton Caswell)
22. Nastaran Alinezhadbalalami (PhD, BEAM, 2019-present, Mentor: Dr. Rafael Davalos)
23. Youjing Zheng (PhD, BMVS, 2019-present, Mentor: Dr. Jia-Qiang He)
24. Tiffany Roach (PhD, Biology, 2019, Mentor: Dr. Chris Lawrence)
25. Lauren Bochicchio (PhD, TBMH, 2019-present, Mentor: Dr. Michelle Theus)
26. Grace Davis (MS, HNFE, 2019-present, Mentor: Dr. Eva Schmelz)
27. Christina Chuong (PhD, BMVS, 2019-present, Mentor: Dr. James Weger)
28. Mecaila McClune (PhD, Biochemistry, 2020-present, Mentor: Dr. Brandon Jutras)
29. Tristan Stoyanof (MS, BMVS, 2020-present, Mentor: Dr. Clayton Caswell)
30. Rebecca Salgado (PhD, BMVS, 2020-present, Mentor: Dr. Nisha Duggal)

UNDERGRADUATE STUDENT RESEARCH MENTORSHIP:

1. Megan Clark (VT, Biochemistry '13, 2013), Completed MD from West Virginia University; Current Position: Interventional Radiology Residency Training at UVA
2. Vittoria Capria (UVA, Biology '13, MAOP, 2013), Completed MPH Program at Tufts University; Current Position: IACUC Coordinator at Brown University
3. Alysha Simmons (VT, Animal and Poultry Science '14, IMSD, 2013-2014), Current Position: PhD Program at Dartmouth
4. Rachel Leeth (VT, Animal and Poultry Science '14, 2013-2014), Current Position: Research Technician at VT

5. John Doran (VT, Biological Sciences '15, 2014-present), Completed DO from VCOM; Current Position: Emergency Medicine Residency Training at University at Buffalo
6. Matthew Long (UVA, Biomedical Engineering '15, 2013), Current Position: Graduate School at Midwestern University
7. Harrison Bergeron (VT, Biological Sciences '15, 2014), Current Position: ORISE Fellow in the Foreign Animal Disease Diagnostic Laboratory, USDA-APHIS
8. Linette Aponte (University of Puerto Rico, Biology '16, MAOP, 2015 summer), Current Position: Vet School at Purdue College of Veterinary Medicine
9. Armand Meza (VT, Psychology '16, IMSD, 2014-2016), Current Position: PhD program at the University of Wisconsin - Madison
10. Haleigh Hixson (VT, Biology '16, 2015-2016), Current Position: Veterinary Technician and research volunteer at the National Elephant Herpesvirus Laboratory in Washington, DC
11. Emily Wampler (North Greenville University, Biology '16, MAOP, 2016 summer), Current Position: Veterinary Technician; alternative for Vet School at the VMCVM
12. Caroline Campbell (VT, Biology '19, University Honors, 2014-2016; 2018)
13. Michelle Waligora (VT, Biology '18, University Honors, 2014-2016), Current Position: DVM program at Midwestern University
14. Anastasia Karenyi (VT, Biology '18, 2015-2017), Current Position: Research Business Consultant with Deloitte
15. Saman Khan (VT, Biology '17, 2016-2017), Current Position: Doctor of Podiatric Medicine program at Temple University
16. Cassidy Thomas (VT, Biology '18, 2016-2017), Current Position: Medical School at UVA
17. Jillian White (VT, Biology '18, 2016), Current Position: Vet School at Ross University School of Veterinary Medicine
18. Re'Jae Holland (NC A&T State University, Biology '19, MAOP, 2017 summer)
19. Siena Sorrentino (VT, Biochemistry, '20, 2017 summer)
20. Katelynn Petrasic (VT, Biochemistry '18, 2016-2017), Current Position: Community Health Agent at Peace Corps
21. Kathleen Huie (VT, Biology '18, 2017-2018), Current Position: Biological Research Laboratory Technician at USAMRIID
22. Maia Tatum (UNC Wilmington, Chemistry '19, MAOP, 2018 summer)
23. Jenna Colturi (VT, Biochemistry '20, 2018 - 2019)
24. Morgan Stephens (VT, Biology '19, 2018 - 2019), Current Position: PhD program at Baylor University
25. Kimberly Winck (VT, Animal and Poultry Science '20, 2018 - 2019)
26. Casey Young (VT, Biology '20, 2018 - 2019)
27. Gianni Villegas (SUNY Oswego, Biology '20, Summer 2019, TOUR Scholar)
28. Christina Mounzer (VT, Human Nutrition, Foods, and Exercise '21, Summer 2019 - 2020, TOUR Scholar)
29. Allison Zeher (VT, Biochemistry '20, Fall 2019 - Spring 2020)
30. Jackie Sereno (VT, Biology '21, Fall 2019 - 2020)
31. Sofie Saunier (VT, Biological Systems Engineering '20, Fall 2019 - present)
32. Hannah Kiryluk (VT, Animal and Poultry Science '20, Fall 2019 - Spring 2020)
33. Danielle Pena (VT, Clinical Neuroscience '22, Summer 2019 - 2020)
34. Chole Tenenbaum (VT, General Engineering '22, Summer 2019, TOUR Scholar)

UNDERGRADUATE STUDENT HONORS:

- 2015 John Doran, Ciordia-Stewart Porter Research Award, Southeastern Society of Parasitologists
- 2015 Armand Meza, selected to present a research project and represent Virginia Tech at the 2015 Atlantic Coast Conference Meeting of the Minds Conference, Raleigh, NC. April 10-12.

- 2016 Haleigh Hixson, awarded Best Presentation for at the Virginias Collegiate Honors Council 2016 Spring Honors Conference, Lynchburg, VA. April 15-16.
- 2017 Saman Khan, awarded the Dennis Dean Undergraduate Research and Creative Scholarship Conference Best Poster Award.
- 2018 Kathleen Huie, one of three students selected to present an oral presentation and represent Virginia Tech at the 2018 Atlantic Coast Conference Meeting of the Minds Conference, Chestnut Hill, MA. April 6-8.
- 2020 Christina Mounzer, First Place, New Educational Viewpoints Category, Flash Talk Presentation. Spring Graduate Research Symposium. April 15, 2020. Blacksburg, VA.
- 2020 Hanna Kiryluk, Third Place, Myths and Mysteries Unraveled Category, Poster Presentation. Spring Graduate Research Symposium. April 15, 2020. Blacksburg, VA.
- 2020 Allison Zeher, Third Place, Old Problems, New Solutions Category, Poster Presentation. Spring Graduate Research Symposium. April 15, 2020. Blacksburg, VA.
- 2020 Hanna Kiryluk, First Place, Sigma Xi Virtual Students Scholars Symposium, Poster Presentation. May 14, 2020.

PROFESSIONAL DEVELOPMENT:

PROGRAMS AND CERTIFICATES COMPLETED:

- 2003 Certificate in Scientific and Technical Writing, Duke University Continuing Education, Durham, NC
- 2014 Proposal Development Institute, Office of the Vice President for Research and Instruction, Virginia Tech, Blacksburg, VA
- 2015 - 2016 Diversity Ally Certificate, Diversity Development Institute, Virginia Tech, Blacksburg, VA
- 2016 – 2017 Diversity Advocate Certificate, Diversity Development Institute, Virginia Tech, Blacksburg, VA
- 2018 Peer Mentor, Shandong University Faculty Professional Development Program, Virginia Tech Language and Culture Institute

NONCERTIFICATE PROFESSIONAL DEVELOPMENT COURSES COMPLETED:

- 2013 Entering Mentoring: Workshop in Mentoring Undergraduate Students in STEM-Related Research, HHMI Sciencering and NSF-STEP, Virginia Tech, Blacksburg, VA
- 2013 NIDDK K Awardees' Workshop, NIH, Bethesda, MD
- 2013 New Faculty: Community and Computing, Faculty Development Institute, Virginia Tech, Blacksburg, VA
- 2014 Responsible Conduct of Research, Research Integrity Office, Virginia Tech, Blacksburg, VA
- 2015 Open Textbook Adoption Workshop, University Libraries, Virginia Tech, Blacksburg, VA
- 2015 Securing the Human, Networked Learning Initiative, Virginia Tech, Blacksburg, VA
- 2016 DiversityEdu: Unconscious Bias in Academic Hiring & Advancement, Virginia Tech, Blacksburg, VA
- 2018 Responsible Conduct of Research, Research Integrity Office, Virginia Tech, Blacksburg, VA

HOSTED SPEAKERS AND VISITORS:

- 3/21/14 Dr. Leaf Huang, UNC Chapel Hill, New Horizons Seminar Series
- 3/30/17 Dr. Jennifer Berglind, VCOM, One Health Initiative

Irving C. Allen	
11/17/17	<u>Dr. Vilma Yuzbasiyan-Gurkan</u> , Michigan State, External Examiner
09/20/18	<u>Dr. Sarah Ewald</u> , University of Virginia, External Examiner
10/10/18	<u>Dr. Jarrod Brown</u> , University of Colorado, External Examiner
10/31/18	<u>Dr. John Lukens</u> , University of Virginia, BMVS Seminar Series
2/13/19	<u>Tina King</u> , Director of Intellectual Property, AngioDynamics, “Intellectual Property 101”

UNIVERSITY CENTER, INSTITUTE, AND PROGRAM AFFILIATIONS:

2013-present	VMRCVM Chiron Cancer Center
2013-present	Interdepartmental Microbiology Graduate Program
2013-present	Graduate Program in Inflammation
2014-2019	Virginia Bioinformatics Institute, Visiting Collaborator
2014-present	Macromolecules and Interfaces Institute (MII) at Virginia Tech
2014-present	Center for Epigenomic Engineering, ICTAS
2014-present	Fralin Life Science Institute, Infectious Disease and Microbial Sciences (IDMS) Group
2015-present	Affiliate Member of the Wake Forest Baptist Comprehensive Cancer Center
2015-present	Affiliate Member of the Virginia Tech-Wake Forest University School of Biomedical Engineering and Mechanics
2016-present	ICTAS Center for Engineered Health, Precision Medicine Focus Area
2019-present	Virginia Tech Center for Drug Discovery

COMMUNITY SERVICE - “Ut Prosim”:

2013 - 2022	<u>Montgomery County Planning Commissioner</u> <ul style="list-style-type: none"> ➤ <u>Liaison</u> to the Town of Blacksburg Planning Commission ➤ 2016 – 2017 <u>Secretary</u> ➤ 2018 – 2019 <u>Chairman</u>
2018	<u>Head Judge</u> , Medical and Health Science Category at the 2018 Virginia State Science & Engineering Fair

ENTREPRENEURSHIP:

2019-present	<u>Owner/President</u> , Allen Consulting and Management, LLC
2019-present	<u>Owner/President</u> , Home by the Sea, LLC

PROFESSIONAL BUSINESS EXPERIENCE:

2004-2005	<u>Member of the Board of Directors</u> , for Friends of Triangle Seniors and Food Assistance (FTSFA), Chapel Hill, NC
2004-2006	<u>Volunteer Grant Writer for Local Non-Profit Organizations</u> , assisted multiple local non-profit organizations with grant writing services to obtain funding from local, state and national funding organizations.
2012	<u>Study Abroad</u> in Shanghai and Hangzhou, China, conducted company visits and interviews provided first-hand exposure to a diverse range of firms representing manufacturing, telecommunications, biotechnology, legal and industrial sectors of the Chinese economy.
2012	<u>Bioscience Management Internship</u> , PRA International, Raleigh, NC
2012	<u>Poster Presentation</u> , “The Utilization of Big Data Analytics to Identify Business Development Opportunities for a Contract Research Organization” at the 8 th Annual NC Biosciences Forum. October 26, 2012. Raleigh, NC