

CURRICULUM VITAE

Dr. Irving Coy Allen, PhD

Virginia Polytechnic Institute and State University
Virginia-Maryland Regional College of Veterinary Medicine
Department of Biomedical Sciences and Pathobiology
Blacksburg, VA 24061

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h-index: 26

CURRENT POSITION

November 2012 - Assistant Professor of Inflammatory Diseases
present Department of Biomedical Sciences and Pathobiology
Virginia-Maryland College of Veterinary Medicine
Virginia Tech
Blacksburg, Virginia 24061

Secondary Appointments:

January 2014 - Assistant Professor of Health Sciences
present Translational Biology, Medicine, and Health Program
Virginia Tech
Blacksburg, Virginia 24061

April 2017 - Assistant Professor
Present Department of Basic Science Education
Virginia Tech Carilion School of Medicine
Roanoke, Virginia 24016

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 I. 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. MS thesis work: Utilization of the Polymerase Chain Reaction and Fluorescent *In Situ* Hybridization to Assess Fine Scale and Global Distribution Patterns of *Pfiesteria* species.
- 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. PhD Dissertation work: G Protein-Coupled Receptors in the Neuropathophysiology of Asthma.
- 2007 - 2011 Postdoctoral training in the laboratory of Dr. Jenny P.Y. Ting, Lineberger Comprehensive Cancer Center, The University of North Carolina at Chapel Hill. NLR signaling in host-pathogen interactions, inflammatory diseases, and cancer.
- 2011 - 2012 Research Associate/Research Assistant Professor (non-tenure track) in the laboratory of Dr. Jenny P.Y. Ting, Department of Microbiology and Immunology, The University of North Carolina at Chapel Hill. (K Grant Pathway to Independence, mentored position)

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

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

EDITORIAL RESPONSIBILITIES**EDITORIAL BOARDS:**

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

AD HOC REVIEWER: *PNAS; Mucosal Immunology; Scientific Reports; Gut; Clinical Cancer Research; The Journal of Immunology; Inflammatory Bowel Diseases; Journal of Leukocyte Biology; Oncogene; Journal of Virology; mBIO; mSphere; Cellular and Molecular Life Sciences; American Journal of Physiology-Lung Cellular and Molecular Physiology; American Journal of Physiology-Heart and Circulatory Physiology; 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**

2015	Austrian Science Fund, <i>Ad Hoc</i> Reviewer (1 proposal)
2015	National Science Foundation (24 proposals) Grant Review Panel: Graduate Research Fellowship Program
2015	European Research Council (ERC) Consolidator Grant – 2015 Step 2 Evaluator (1 proposal)
2015	Swiss National Science Foundation Division of Biology and Medicine (1 proposal)
2016	Austrian Science Fund, <i>Ad Hoc</i> Reviewer (2 proposals)
2016	National Institutes of Health

Tumor Microenvironment (TME) Study Section
Oncology 1, Basic Translational Integrated Review Group
06/23/2016 – 06/24/2016 (4 proposals)

- 2016 Swiss National Science Foundation
Division of Biology and Medicine (1 proposal)
- 2017 Austrian Academy of Sciences, *Ad Hoc* Reviewer (2 proposals)
- 2018 National Science Foundation (19 proposals)
Grant Review Panel: Graduate Research Fellowship Program
- 2018 NIH/National Cancer Institute Special Emphasis Panel
ZCA1 SRO-Q (01)
Center for Scientific Review, Program Evaluation of NIH Peer
Review Processes
02/03/18 (1 proposal)

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 2017 Alzheimer’s Association Research Grant Program
Ad Hoc Reviewer (1 proposal)

PROFESSIONAL SERVICE:

- 2013 – 2015 Society for Mucosal Immunology Website Committee
- 2013 – 2016 Virginia Academy of Science Publications Committee
- 2013 – 2016 Virginia Academy of Science Archives Committee
- 2014 AAAS Panelist at the USA Science and Engineering Festival
- 2014 – 2017 Society for Leukocyte Biology Development Committee
- 2015 17th International Congress of Mucosal Immunology, Subject Area
Abstract Reviewer for Travel Awards and Programming
- 2015 – 2019 Chair of the Society for Mucosal Immunology Website Committee
- 2015 Virginia Velocity Business Plan Bioscience Judging Committee –

- 2016 Nationwide Competition sponsored by the Governor of Virginia
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 - 2019 The American Gastroenterologist Association International Clinical and Research Education (CORE) Program Mentor (Participating Institutions: Baylor University; Harvard University; Virginia Mason Medical Center; Virginia Tech; and Yale University)
- 2017 Invited Representative to the 2017 PLoS One International Section Editor Summit, March 24-25, Cambridge, UK. 15 Representatives from 10 different countries were invited to meet and discuss ways to improve PLoS One.
- 2017 - 2018 Organizing Committee for the 2018 Southeastern Immunology Symposium, June 16-17, Birmingham, AL
- 2017 - 2019 Society for Mucosal Immunology Professional Development and Education Committee
- 2017 – 2020 Society for Leukocyte Biology Professional Development Committee
- 2017 - 2018 Society for Leukocyte Biology Annual Meeting, Satellite Symposium Organizer and Co-Chair, “Emerging Concepts in NLR Sensing and Signaling”, October 13-17, Chandler, AZ

UNIVERSITY SERVICE:

- 2007 - 2012 IACUC Laboratory Animal Coordinator, UNC Office of Animal Care and Use, UNC Chapel Hill
- 2011 - 2012 Training and Compliance Group Member, Office of Animal Care and Use, Laboratory Animal Training Consultant and Trainer, UNC Chapel Hill
- 2013 - 2014 University Veterinarian and Director of the Office of Animal Resources Search Committee, Virginia Tech
- 2013 – 2015 Undergraduate Honor System Faculty Hearing Board Member, Virginia Tech
- 2015 John Johnson Award for Graduate Student Excellence in Microbiology Selection Committee, Virginia Tech
- 2015 Interdepartmental Microbiology Graduate Program Admissions Application Reviewer, Virginia Tech
- 2015 - 2016 Clinical Laboratory Veterinarian Search Committee, Office of the University Veterinarian, Virginia Tech
- 2015 – 2018 Institutional Biosafety Committee Member, Virginia Tech
- 2016 Integrated Microbiology Program, Steering Committee Member, Virginia Tech
- 2016 Faculty Design Team for the Adaptive Brain and Behavior Destination Area, Virginia Tech
- 2017 Assistant Professor in Immunology Search Committee, Department of Dairy Science, Virginia Tech

UNIVERSITY PROGRAM DEVELOPMENT AND LEADERSHIP:

2015 – present Head of the NIH K and New Investigator R01 Proposal Preparation Program, Virginia Tech
<https://www.research.vt.edu/professional-development/kro1-program>
 Sponsored through the Virginia Tech Office of the Vice President for Research and Innovation. 3% Time Buyout; \$10,000/yr annual budget.

UNIVERSITY FACILITY LEADERSHIP

2015 – present Germfree and Gnotobiotic Rodent Facility Research Leader
 Established the facility and manage current research operations
 Sponsored through the Virginia Maryland College of Veterinary Medicine. \$10,000/yr annual budget.

COLLEGE SERVICE:

2013 - 2014 Cancer Biology Faculty Search Committee, VTCRI
 2014 – 2018 Research Committee, VMCVM
 2015 MMI Faculty Interviewer for Class of 2019, VMCVM
 2015 – 2017 DVM Honor Code Facilitator, VMCVM
 2016 MMI Faculty Interviewer for Class of 2020, VMCVM
 2016 - 2018 Summer Veterinary Student Research Program Selection Committee
 2016 - 2017 Department Head Search Committee, Department of Biomedical Sciences and Pathobiology, VMCVM
 2016 – 2017 TBMH Program Admissions Committee
 2017 MMI Faculty Interviewer for Class of 2021, VMCVM
 2017 Molecular Virology Search Committee, VTCRI
 2017 - 2018 Graduate BMVS Curriculum Revision Committee, VMCVM
 2017 Immunology/Infectious Disease Destination Area Search Committee Member, VTCRI
 2018 MMI Faculty Interviewer for Class of 2022, VMCVM
 2018 VA-MD College of Veterinary Medicine Strategic Content Manager Search Committee, Stakeholder Group, Virginia Tech

DEPARTMENT SERVICE:

2013 - 2017 Peer Teaching Evaluation Committee, DBSP

INTELLECTUAL PROPERTIES DISCLOSURE (PRE-PATENT)

1. Davalos, R.V., **Allen, I.C.** A novel approach for stimulating the immune system. Patent TBD. 26 Feb. 2018. (**Disclosed while at Virginia Tech**)

PUBLICATIONS**PEER REVIEWED SCHOLARLY WORKS:**

** Denotes ICA as Corresponding Author

† Denotes Graduate Student in Dr. Allen's Laboratory

‡ Denotes Undergraduate Student in Dr. Allen's Laboratory

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., Keijek, 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., Arthur, 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
28. Roberts,R.A., Shen,T., **Allen,I.C.**, Hasan,W., Napier,M., DeSimone,J.M., Ting,J.P.Y. (2013). Analysis of the murine response to pulmonary delivery of precisely fabricated nano- and microscale particles. *PLoS One*. 8(4): e62115. PubMed PMID: 23593509; PubMed Central PMCID: PMC3625166. *IF*: 4.244
 29. Abdul-Sater,A.A., Tattoli,I., Jin,L., Grajkowski,A., Levi,A., Koller,B.H., **Allen,I.C.**, Beaucage,S.L., Fitzgerald,K.A., Ting,J.P.Y., Cambier,J.C., Girardin,S.E., and Schindler,C. (2013). Cyclic-diGMP and Cyclic-diAMP activates the NLRP3 Inflammasome. *EMBO Reports*. 14(10):900-6. PMID: 24008845. *IF*: 7.189
 30. **Allen,I.C.**** (2014). The Utilization of Oropharyngeal Intratracheal PAMP Administration and Bronchoalveolar Lavage to Evaluate the Host Immune Response in Mice. *Journal of Visualized Experiments*. Apr 2;(86). e51391. PMID: 24747836. *IF*: 1.325.
 31. Williams, T.M.†, Leeth,R.A.‡, Rothschild,D.E.†, McDaniel,D.K.†, Coutermarsh Ott,S.L.†, Simmons,A.E.‡, Kable,K.H.‡, Heid,B., **Allen,I.C.**** (2015). Caspase-11 Attenuates Gastrointestinal Inflammation and Experimental Colitis Pathogenesis. *AJP- Gastrointestinal and Liver Physiology*. Jan 15;308(2):G139-50. PMID: 25414099. *IF*: 3.853.
 32. Williams, T.M.†, Leeth R.A.‡, Rothschild D.E.†, Coutermarsh-Ott, S.L.†, McDaniel D.K.†, Simmons A.E.‡, Heid B., Cecere T.E., **Allen,I.C.**** (2015). The NLRP1 Inflammasome Attenuates Colitis and Colitis-Associated Tumorigenesis. *The Journal of Immunology*. Apr 1;194(7):3369-80. PMID: 25725098. *IF*: 5.570.
 33. Perkowski, E.F., McCann, J.R., Sullivan, J.T., Malik, S., **Allen, I.C.**, Godfrey, V., Hayden, J.D., Braunstein, M. (2016). An orphaned Mce-associated protein of *Mycobacterium tuberculosis* is a virulence factor that stabilizes Mce transporters. *Molecular Microbiology*. April 1;100(1):90-107. PMID: 26712165. *IF*: 5.026.
 34. Rothschild, D.E.†, Srinivasan, T., Aponte, L.‡, Shen, X., **Allen, I.C.**** (2016). The Ex Vivo Culture and Pattern Recognition Receptor Stimulation of Mouse Intestinal Organoids. *Journal of Visualized Experiments*. May 18;(111). PMID: 2728514. *IF*: 1.325.
 35. Brickler, T., Grisham, K., Meza, A.‡, Coutermarsh-Ott, S.†, Williams, T.†, Rothschild, D.†, **Allen, I.C.**, Theus, M. (2016). Non-essential role for the NLRP1 Inflammasome complex following traumatic brain injury. *Mediators of Inflammation*. 2016:6373506. PMID: 27199506. *IF*: 3.418.
 36. Coutermarsh-Ott, S.L.†, Simmons, A.‡, Capria, V.‡, LeRoith, T., Wilson, J.E., Heid, B., Washington, C., Qin, Q., Ting, J., Hontecillas-Magarzo, R., Bassaganya-Riera, J., Dervisis, N., **Allen, I.C.**** (2016). NLRX1 Suppresses Tumorigenesis and Attenuates Histiocytic Sarcoma through the Negative Regulation of NF-κB Signaling. *Oncotarget*. May 31;7(22):33096-110. PMID: 27105514. *IF*: 6.63.
 37. Yuan, L., Wang, H., Gao, K., Wen, K., **Allen, I.C.**, Li, G., Zhang, W., Kocher, J., Yang, X., Giri-Rachman, E., Li, G., Clark-Deener, S. (2016). Lactobacillus rhamnosus GG modulates innate immune response to rotavirus vaccine through Toll-like 9 signaling pathway in intestinal mononuclear cells of

- gnotobiotic pigs transplanted with human gut microbiota. *BMC Microbiology*. Jun 14;16(1):109. PMID: 27301272. IF: 3.251.
38. Coutermarsh-Ott, S.L.[†], Doran, J.T.[‡], Campbell, C.[‡], Williams, T.M.[†], Lindsay, D.S., **Allen, I.C.**** (2016). Caspase-11 Modulates Inflammation and Attenuates *Toxoplasma gondii* Pathogenesis. *Mediators of Inflammation* 2016;2016:9848263. PMID: 27378827. IF: 3.418.
39. Goswami, I., Morrison, R.G., Coutermarsh-Ott, S.[†], **Allen, I.C.**, Davalos, R.V., Verbridge, S.S., Bickford, L.R. (2016). Influence of electric field ablation on cell signaling in triple negative breast cancer cells. *Bioelectrochemistry*. 113 (2017):42-50. IF: 4.172.
40. Rothschild, D.E.[†], Zhang, Y., Diao, N., Lee, C., Chen, K., Caswell, C.C., Slade, D.J., Helm, R.F., LeRoith, T., Li, L., **Allen, I.C.**** (2016). Enhanced mucosal defense and reduced tumor burden in mice with the compromised negative regulator IRAK-M. *EBioMedicine*. Feb;15:36-47.
*Almetric Score = 61: In the top 5% of all research outputs scored by Almetric
41. McDaniel, D.[†], Jo, A., Ringel, V.[†], Coutermarsh-Ott, S.[†], Powell, M., Long, T., Oestreich, K., Davis, R., and **Allen, I.C.**** (2017). PEO-PDLLA Core-Shell Nanoparticles have Similar Cellular Uptake Dynamics and Biodistribution in Th1 and Th2 Microenvironments. *Nanomedicine: Nanotechnology, Biology, and Medicine*. Dec 29;13(3):1255-1266. IF: 5.671.
42. Andrew L., Hontecillas, R., Philipson, C., Tubau-Juni, N., Abedi, V., Heltzel, C., Philipson, N., Kale, S., Carbo, A., Uren, A., Dickerman, A., Michalak, P., Corl, B.A., Eden, K., **Allen, I.C.**, and Bassaganya-Riera, J. (2017). NLRX1 regulates effector and metabolic functions of CD4+ T cells. *Journal of Immunology*. Mar 15;198(6):2260-2268. IF: 4.92.
43. Coutermarsh-Ott, S.L.[†], Broadway, K.M., Scharf, B.E., **Allen, I.C.**** (2017). Effect of *Salmonella enterica* serovar Typhimurium VNP20009 and VNP20009 with restored chemotaxis on 4T1 mouse mammary carcinoma progression. *Oncotarget*. May 16;8(20):33601-33613. PMID: 28431394. IF: 6.63.
44. Read, K.A., Powell, M.D., Baker, C.E., Sreekumar, B.R., Martin, E., Cooley, I.D., Ringel-Scaia, V.M.[†], **Allen, I.C.**, and Oestreich, K.J. (2017). Integrated STAT3 and Ikaros Zinc Finger transcription factor activities regulate Bcl-6 expression in CD4+ T cells. *Journal of Immunology*. Oct 1;199(7):2377-2387. PMID: 28848064. IF: 4.92.
45. Theus, M.H., Brickler, T., Meza, A.L.[‡], Coutermarsh-Ott, S.[†], Hazy, A., Gris, D., and **Allen, I.C.**** (2017). Loss of NLRX1 exacerbates neural tissue damage and NF-κB Signaling following brain injury. *Journal of Immunology*. Nov 15;199(10):3547-3558. PMID: 28993512. IF: 4.92.
46. Mu, Q, Li, S., Lee, J., Chung, M., Kirby, J., Tavella, V., Cecere, T., Eden, K.[†], **Allen, I.C.**, Ahmed, A., Reilly, C., Luo, X. (2017). Antibiotics ameliorate lupus like symptoms in mice. *Scientific Reports*. Oct 20;7(1):13675. PMID: 29057975. IF: 4.259.
47. Kristin Eden[†], Daniel E. Rothschild[†], Dylan K. McDaniel[†], Bettina Heid, and **Irving C. Allen****. (2017). Noncanonical NF-κB Signaling and the Essential Kinase NIK Modulate Critical Features Associated with Eosinophilic Esophagitis

Pathogenesis. *Disease Models and Mechanisms*. Dec 19;10(12): 1517-1527.
*IF: 4.978. *Cover Article*

REVIEW ARTICLES:

** Denotes ICA as Corresponding Author

† Denotes Graduate Student in Dr. Allen's Laboratory

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*
6. McDaniel, D.K.†, Eden, K.†, Ringel, V., **Allen, I.C.** (2016). Emerging Roles for Non canonical NF-κB signaling in the Modulation of Inflammatory Bowel Disease Pathobiology. *Inflammatory Bowel Diseases*. Sep;22(9):2265-79. PMID: 27508514. *IF: 5.475. Invited Review*
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. *Invited Review. 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-κB Signaling. *Journal of Leukocyte Biology*. (In Press). *IF: 4.558. Invited Review*.

EDITORIALS:

1. 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:

1. Mouse Models of Innate Immunity. *Methods in Molecular Biology*, Volume 1031 **Irving C. Allen**, ed. New York: Humana Press. 2013.
 *16,964 Chapter Downloads in 2013; Top 25% most downloaded Springer eBooks
Authored Chapters:

1. **Allen, I.C.**** (2013). Bacteria-Mediated Acute Lung Inflammation. *Methods in Molecular Biology*. 1031:163-75. PMID: 23824899.
 2. **Allen, I.C.**** (2013). Delayed-type Hypersensitivity Models in Mice. *Methods in Molecular Biology*. 1031:101-7. PMID: 23824893.
 3. Moore, C.B. and **Allen, I.C.**** (2013). Primary Ear Fibroblast Derivation from Mice. *Methods in Molecular Biology*. 1031:65-70. PMID: 23824888.
2. Mouse Models of Allergic Disease. *Methods in Molecular Biology*, Volume 1032 **Irving C. Allen**, ed. New York: Humana Press. 2013.
- Authored Chapters:
1. **Allen, I.C.**** (2013). Induction of Allergic Airway Disease Using House Dust Mite Allergen. *Methods in Molecular Biology*. 1032:159-72. PMID: 23943452.
 2. **Allen, I.C.**** (2013). Contact Hypersensitivity Models in Mice. *Methods in Molecular Biology*. 1032:139-44. PMID: 23943450.

INVITED BOOK CHAPTERS:

** Denotes ICA as Corresponding Author

† Denotes Graduate Student in Dr. Allen's Laboratory

1. 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.
2. 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.
3. McDaniel, D.K.†, Ringel-Scaia, V.M.†, Coutermarsh-Ott, S.L.†, **Allen, I.C.**** (2017). 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. (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.

PUBLICATIONS CURRENTLY SUBMITTED/UNDER REVIEW:

** Denotes ICA as Corresponding Author

† Denotes Graduate Student in Dr. Allen's Laboratory

‡ Denotes Undergraduate Student in Dr. Allen's Laboratory

1. Ringel-Scaia, V.M.[†], Qin, Y., Thomas, C.A.[‡], Wade, P. and **Allen, I.C.****. The NLRP1 inflammasome maintains gastrointestinal immune system homeostasis by regulating the microbial ecosystem of the colon and preventing dysbiosis. *Journal of Innate Immunity*. (Submitted 10/27/17; Under Revision). *IF: 4.847*
2. Mouse Models of Innate Immunity, 2nd Edition. *Methods in Molecular Biology*. **Irving C. Allen, ed.** New York: Humana Press. (Under Contract; Delivery Date 09/01/2018). Invited Book.
3. Roth, K.L., Epley, C.C., Novak, J.J., McAndrew, M.L., McDaniel, D.K.[†], Davis, J., **Allen, I.C.**, Morris, A.J., Grove, T.Z. Photo-triggered release of 5-fluorouracil from a MOF drug delivery vehicle. *Chemical Communications*. (Submitted 02/26/18). *IF: 6.834*

SELECTED SCIENTIFIC PRESENTATIONS (out of 47):

**** Denotes ICA as Corresponding Author**

1. "NLRX1 attenuates inflammation and tumorigenesis through the negative regulation of AKT and NF- κ B signaling". S Coutermarsh-Ott; A Simmons; V Capria; T LeRoith; C Washington; N Dervisis; V Yuzbasiyan-Gurkan; R Hontecillas-Magarzo; J Bassaganya-Riera; J Ting, **Allen, I.C.**** Oral and Poster Presentation, International Conference: Keystone Conference Z4: Mechanisms of Pro-inflammatory Diseases, April 19-24, 2015, Olympic Valley, CA.
2. "Evaluating NLR Modulation of Canonical and Non-Canonical NF- κ B Signaling in IBD". **Allen, I.C.**** Invited Speaker at Immunology 2015: Society of Leukocyte Biology Guest Symposium. The American Association of Immunologist Annual Meeting May 8-12, 2015. New Orleans, LA.
3. "Beyond the Inflammasome: Regulatory NLRs in Inflammation and Tumorigenesis". **Allen, I.C.**** Oral and Poster Presentation at Immunity in Health and Disease. 48th Annual Meeting of The Society for Leukocyte Biology. September 27-29, 2015. Raleigh, NC.
4. "A NOD to Innate Immunity: Novel Roles for NLR Proteins in Inflammation and Cancer". **Allen, I.C.**** Invited Speaker. Kansas State University. October 7, 2015. Manhattan, KS. Host: Dr. Brian Geisbrecht.
5. "Keeping Inflammation in Check: Novel Roles for NLR Proteins in Immune System Homeostasis and Tumorigenesis in the Gut". **Allen, I.C.**** Invited Speaker. The Immunity, Inflammation, and Disease Seminar Series. National Institutes of Environmental Health Sciences. November 4, 2015. Raleigh, NC. Host: Dr. Jennifer Martinez.
6. "The Goldilocks Conundrum: Novel Roles for NLR Proteins in Maintaining Immune System Homeostasis in Health and Disease". **Allen, I.C.**** Invited Speaker. The University of Maryland College Park. March 31, 2016. College Park, MD. Host: Dr. Yanjin Zhang.
7. "IRAK-M Splice Variant Attenuates Inflammatory Bowel Disease and Colitis Associated Tumorigenesis". **Allen, I.C.****. Oral, Poster, and ePoster Presentation at the International Meeting of the Society for Mucosal Immunology, Mucosal Immunology Course and Symposium, Microbiota and Mucosal Immunity: Rules of Engagement in Health and Disease. June 27-30, 2016. Toronto, Canada.

8. "Caspase-11 modulates inflammation and attenuates *Toxoplasma gondii* pathogenesis". **Allen, I.C.****. Oral and Poster Presentation at the International Congress of Immunology (ICI) 2016 annual meeting. August 21-26, 2016. Melbourne, Australia.
9. "Map3K14 signaling attenuates the development of colorectal cancer through activation of the non-canonical NF- κ B signaling cascade". **Allen, I.C.****. Oral and Poster presentation at Immunology 2017, the annual meeting of the American Association of Immunologist, May 12-18, 2017. Washington, DC.
10. "Ablation of NF- κ B Inducing Kinase (NIK) Results in Eosinophilic Esophagitis (EoE) and Gastric Hyperplasia". **Allen, I.C.****. Oral presentation at the 18th International Congress of Mucosal Immunology (ICMI 2017), July 19-22, 2017. Washington, DC.

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.

RESEARCH SUPPORT:

Total Grant and Industry Research Support as PI or Co-I: \$2,706,779

Total Extramural Support as PI: \$1,461,692

Total Extramural Support as Co-I: \$719,492

Total Intramural Support as PI: \$344,682

Total Intramural Support as Co-I: \$180,913

1. NLR Regulation of Innate Immune Responses to Respiratory Virus Infection

F32-AI082895 (PI: Allen) 09/01/09 – 12/31/10

National Institutes of Health - NIAID

This proposal aimed to identify the contribution of select pro-inflammatory NLRs in mediating the host innate immune response to influenza A virus infection.

2. NLR Regulation of Gastrointestinal Inflammation and Tumorigenesis

PF-10-053-01-LIB (PI: Allen) 01/01/10 – 06/30/11

The American Cancer Society

This proposal focused on the contribution of the NLRP3 inflammasome in mediating colorectal cancer.

3. NLR Regulation of Gastrointestinal Inflammation and Tumorigenesis

P30-DK34987 (PI: Allen) 07/01/09 – 2/29/11
UNCCH/CGIBD

This proposal evaluated the ability of select pro-inflammatory NLRs to regulate experimental colitis and colitis associated cancer in mice.

4. 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

VT-MD Regional College of Veterinary Medicine - IRC

This proposal will evaluate the contribution of a sub-class of proteins that negatively regulate TLR signaling during experimental colitis and colitis associated tumorigenesis in mice.

5. NLR Regulation of Gastrointestinal Inflammation and Tumorigenesis

K01-DK092355 (PI: Allen) 07/01/11 – 06/30/16

National Institutes of Health - NIDDK

This proposal aims to study the contribution of the NLRP1 and NLRP3 inflammasomes and the anti-inflammatory NLR NLRP12 in colitis and colitis associated tumorigenesis.

6. Development of Novel Genetically Modified Mice to Evaluate Non-Canonical NF- κ B Signaling in Inflammatory Bowel Disease

Pilot Grant (PI: Allen) 07/01/14 - 06/30/15

VT-MD Regional College of Veterinary Medicine - IRC

This proposal seeks to generate a panel of genetically modified mice targeting critical elements of the non-canonical NF- κ B signaling pathway that are susceptible to cell specific Cre-recombinase disruption. These animals will be utilized to determine additional mechanistic insight associated with NLR signaling during IBD and inflammation driven tumorigenesis in the colon.

7. Intrinsic and Extrinsic Determinants of CD4+ TCM Cell Fate

Pilot Grant (Co-PI: Oestreich; Co-PI: Allen) 03/01/15 – 06/30/16

VTCRI Collaborative Research Project

This proposal seeks to foster collaboration between faculty members at VTCRI and VMCVM by supporting pilot studies and proposals seeking to generate preliminary data to support future funding opportunities. (\$20,000 original proposal; \$3,000 end of fiscal year additional support).

8. Novel vaccine system against viral infections

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

The objective of this study is to explore the vp13 enhancer in Hepatitis E virus for vaccine development based on a partial product of the viral ORF2 and the FcRn-mediated IgG transfer pathway.

9. Harnessing CRISPR Technology for Gene Therapy Applications

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

Virginia Tech Institute for Critical Technology and Applied Science

This proposal aims to study the feasibility of nanoparticle delivery of the CRISPR-Cas9 system *in vivo* to alter genetic defects associated with hyper-inflammatory disorders in adult animals.

10. 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

VT-MD Regional College of Veterinary Medicine - IRC

This proposal seeks to evaluate the contribution of NLRX1 in the development of the rare cancer histiocytic sarcoma in mouse and canine models. Specifically, this proposal will elucidate the role of NLRX1 in modulating AKT and NF- κ B signaling in disease.

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

Pilot Grant (PI: Oestreich; Co-I: Allen) 07/01/15 – 06/30/16

VT-MD College of Veterinary Medicine - IRC

This proposal seeks to define novel mechanisms associated with T-cell differentiation, which will be explored utilizing both *in vitro* and *in vivo* systems and novel genetically modified mouse models.

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

Pilot Grant (PI: Inzana; Co-I: Allen, Bandara, Bassaganya-Riera, Mohapatra)

07/01/15 – 06/30/16

VT-MD College of Veterinary Medicine - IRC

This proposal seeks to determine if a vaccine complex consisting of a highly attenuated Type A O-antigen mutant combined with its LPS conjugated to cholera toxin B subunit will induce a robust Th1 and Th2 immune response that is protective against respiratory tularemia.

13. Evaluating NLR Modulation of Canonical and Non-Canonical NF- κ B Signaling in IBD

R03-DK105975 (PI: Allen; Co-I: Cecere) 07/01/15 – 06/30/17

National Institutes of Health - NIDDK

This proposal seeks to generate and utilize a panel of genetically modified mice targeting critical elements of the non-canonical NF- κ B signaling pathway that are susceptible to cell specific Cre-recombinase disruption to determine additional mechanistic insight associated with NLR signaling during IBD and inflammation driven tumorigenesis in the colon.

14. 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

Virginia Tech Institute for Critical Technology and Applied Science

This proposal seeks to synthesize drug carrier nanoparticles and construct NanoBEADS (nanoparticle conjugated to bacteria) to facilitate localization and distribution in mammary tumors.

15. 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

This proposal seeks to develop a immunosignature method for the non-invasive and reliable diagnosis of alimentary lymphoma (ALA) and inflammatory bowel disease (IBD) in cats.

16. 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

VT-MD College of Veterinary Medicine & Edward Via College of Osteopathic Medicine

This proposal seeks to evaluate the contribution of unique regulatory NLR proteins in modulating gastrointestinal inflammation during Celiac Disease.

17. 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

Virginia Tech Institute for Critical Technology and Applied Science

This pilot proposal will evaluate the feasibility of nanoparticle-mediated delivery of PI3K and AKT inhibitors in histiocytic sarcoma. We will test the hypothesis that nanoparticle encapsulation of these highly insolvent drugs will allow for controlled release, improve delivery and reduced toxicities.

18. 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

VT-MD College of Veterinary Medicine - IRC

The purpose of this proposal is to evaluate the hypothesis that dysregulated non-canonical NF-kB signaling is a significant component of IBD pathogenesis in humans and can be utilized as a biomarker associated with therapeutic response.

19. 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

VT-MD College of Veterinary Medicine - IRC

The purpose of this proposal is to identify novel transcriptional regulators that mediate Bcl-6 expression and the initiation of Tfh and Tcm cell development.

20. 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

This clinical project will use an IRE device to treat pancreatic cancer patients and will track the immune response to this IRE treatment.

21. 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

ICTAS Center for Engineered Health

High-Frequency Irreversible electroporation (H-FIRE) is an emerging technology for non-thermal and selective cancer ablation. The purpose of this proposal is to characterize the effects of H-FIRE on the tumor microenvironment in pre-clinical breast cancer models.

22. Role of the Non-Canonical NF- κ B 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

This proposal is to facilitate human clinical specimen collection from IBD patients and evaluate the hypothesis that dysregulated non-canonical NF- κ B signaling is associated with therapeutic response to specific classes of biologic therapeutics.

23. Evaluation of pro-inflammatory TH2 mediated biomarkers and NF- κ B 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

This study will evaluate NF- κ B signaling pathways in patients with EoE and how PPI therapy could potentially cause dysregulation of NF- κ B signaling pathways. This study will also develop a diagnostic method using only non-invasive serum biomarkers, clinical symptomology data and a learning support vector machine (SVM) to accurately diagnose EoE.

24. 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

This pilot study aims to use an ablative technique to induce effective tumor cell killing, release of cancer neoantigens, and jump-starting the anti-tumor immune response in canine hepatocellular carcinoma patients.

25. Defining the roles of inflammasomes in Zika virus infection

4-VA (Co-PIs: Lukens; Ewald; Hahn; Allen) 05/01/17 – 04/30/18

The goal of this VT/UVA collaborative project is to identify the unique molecular components of Zika virus-induced inflammasome signaling.

26. Maternal microbiota educates neonatal IgA response

Pilot Grant (PI: Luo; Co-I: Allen) 07/01/17 – 06/30/18

VT-MD College of Veterinary Medicine - IRC

The proposed research aims to reveal the mechanism(s) by which maternal microbiota educates neonatal immune development

27. 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)

VT-MD College of Veterinary Medicine – IRC 07/01/17 – 06/30/18

The objective of this proposal is to better define parameters associated with protective ventilation in anesthetized dogs by comparing respiratory mechanics, gas exchange, cardiovascular effects, and inflammation in healthy animals exposed to various levels of PEEP.

28. 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

VT-MD College of Veterinary Medicine – IRC

This proposal will evaluate the contribution of the non-canonical NF- κ B signaling cascade in eosinophil biology.

29. 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

VT-MD College of Veterinary Medicine – IRC

T follicular helper (T_{FH}) cells play critical roles in the generation of humoral immune responses and are important targets of therapeutic strategies that aim to prevent or treat human disease, including the development of efficacious vaccines. The objective of this proposal is to better understand the processes that underlie their formation and function.

30. Mechanisms of Innate Immune Responses to Mindfulness Meditation

Dean's Discovery Fund

(Co-PI: Allen; Co-PI: Richey; Co-I: Epperley; Komelski; Lawson) 07/01/17 – 06/30/18

Virginia Tech College of Science

The purpose of this proposal is to characterize, under experimental conditions, the mechanisms by which mindfulness meditation influences immune system dynamics to reduce key mediators of inflammation.

31. NLR Modulation of the Gut Microbiome during Celiac Disease

VCOM/VMCVM One Health

(Co-PI: Allen; Co-PI: Berglind) 07/01/17 – 06/30/18

The goal of this One Health award is to evaluate the hypothesis predicts that there are significant differences in the composition of the host microbiome in the gastrointestinal tract of NLR deficient mice, which results in increased wheat sensitivity.

33. Regulation of T helper cell differentiation by integrated STAT and Ikaros zinc finger transcription factor mechanisms

R56 AI127800-01A1

National Institutes of Health – NIAID

(PI: Oestreich; Co-I: Allen; Smyth; Xie) 08/01/2017 – 07/31/2018

The purpose of this proposal is to identify novel transcriptional regulators that mediate Bcl-6 expression and the initiation of T_{fh} and T_{cm} cell development.

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

Focused Ultrasound Foundation

(PI: Ruth; Co-I: Allen; Dervisis; Daniel; Lanz; Lahmers) 01/01/2018 – 12/31/2018

The purpose of this proposal is to evaluate the use of high frequency ultrasound to modulate the tumor microenvironment and systemic anti-tumor immune system in dogs with naturally occurring solid tumors, including soft tissue sarcomas and mast cell tumors.

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

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

The purpose of this proposal is to assess the toxicity, pathological effects, and airway clearance of Magnéli phase titanium oxide nanoparticles in the mammalian lung using mouse models.

36. Careers in Immunology Fellowship

American Association of Immunologist

(PI: Allen; Fellow: Veronica Ringel) 09/01/17 – 08/31/18

This pre-doctoral fellowship award supports the development of the PI and fellow by providing one year of salary support for the fellow.

37. 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

(PI: Allen; Co-I: Oestreich, Davalos, Martin) 01/01/18 – 06/30/18

Irreversible electroporation (IRE) is an emerging technology for non-thermal and selective cancer ablation. The purpose of this proposal is to develop novel models to characterize the effects of this treatment on pancreatic cancer.

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

Seed Funding ICTAS Center for Engineered Health

(Co-PI: Allen; Davis; Dervisis) 01/01/18 – 06/30/18

This pilot proposal will evaluate the feasibility of nanoparticle-mediated delivery of PI3K inhibitors in histiocytic sarcoma. We will test the hypothesis that nanoparticle encapsulation of these highly insolvent drugs will allow for controlled release, improve delivery and reduced toxicities using novel animal models.

39. 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

Virginia Tech and the University of Maryland CVM Joint Seed Grant

This proposal seeks to better define the immune system subversion mechanisms and the role of NLRX1 in hepatitis E virus infection using novel model organisms.

INDUSTRY SUPPORT:

1. TechLab Inc: Lactoferrin as a biomarker for the diagnosis and monitoring of inflammatory bowel disease and intestinal lymphoma in dogs. (PI: Zimmermen; **Co-I: Allen; Dervisis; Klahn; Leib; DeMonaco**) 01/01/2016 – 12/31/2016

CURRENT STUDENT FELLOWSHIP AND PROGRAM SUPPORT:**1. Animal Model Research for Veterinarians (AMRV)**

9-T32-OD010430-06 (PI: Meng)

National Institutes of Health

This program is designed to provide veterinarians with research skills in the areas of animal models of human diseases. Dr. Allen serves as a faculty mentor on this training grant for 2 current students.

2. Virginia Tech Post-baccalaureate Research and Education Program (VT PREP)

3R25 GM066534-14 (PI: Smith)

This program is designed to provide post-graduate students from underrepresented populations with research skills and graduate training to prepare them for full time graduate school programs. Dr. Allen serves as a faculty mentor on this training grant and has mentored 2 previous students.

3. Virginia Tech Initiative for Maximizing Student Development (VT IMSD)

2R25 GM0727-09 (PI: Smith)

This program is designed to increase the number of minorities with a Ph.D. in biomedical and behavioral sciences and engineering. Dr. Allen serves as a faculty mentor on this training grant and has mentored 2 previous students.

PROGRAM SUPPORT:**1. The Virginia Tech Immunology Summer Journal Club**

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

These funds were provided through the Society of Leukocyte Biology Pizza-n-Pubs grant program to establish journal club chapters at participating universities. At VT, we established a summer journal club program using these funds.

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

These funds were provided to launch The NIH K and New Investigator R01 Proposal Preparation Program. This program is designed to assist Virginia Tech junior faculty, fellows, and post-docs in the preparation of Career Development (NIH K) award applications and early career investigators in preparation for their first R01 grant.

VIRGINIA TECH DIDACTIC INSTRUCTION:**CURRICULUM DEVELOPMENT**2017 - 2018 Integrative Health and Biomedical Sciences (IHBS)

The IHBS program at Virginia Tech is a highly interdisciplinary pre-doctoral training program offered through the Virginia Maryland College of Veterinary Medicine. I served on the 6 member PhD Review Committee that was charged with redesigning the existing Biomedical and Veterinary Sciences (BMVS) graduate program and developing the new curriculum for the IHBS.

COURSE LEADER OR BLOCK LEADER**BMVS 6714 Frontiers of Immunology in Health and Disease** – Course Leader

Fall 2014 (3 CH; 20 students) – Graduate Curriculum
 Fall 2015 (3 CH; 17 students) – Graduate Curriculum
 Fall 2016 (3 CH; 5 students) – Graduate Curriculum
 Fall 2017 (3 CH; 10 students) – Graduate Curriculum

TBMH 5054 Fundamentals of Immunity & Infectious Diseases – Block Leader
 Spring 2015 (8 CH; 5 students) – Graduate Curriculum
 Spring 2016 (8 CH; 5 students) – Graduate Curriculum
 Spring 2017 (8 CH; 5 students) – Graduate Curriculum

TBMH 5054 Fundamentals of Immunity & Infectious Diseases – Course Leader
 Spring 2018 (3 CH; 5 students) – Graduate Curriculum

BMVS 4994 Undergraduate Research – Course Leader
 2013-present (3 CH; 1 - 6 students per semester) - Undergraduate Curriculum

INVITED GUEST LECTURES:

BIOL 4734/ Immunology/Advanced Inflammation Biology (3 CH; ~30 students)

BIOL 5734 – Undergraduate/Graduate Curriculum

04/16/13 “Inflammation and Mucosal Immunology”

04/15/14 “Hypersensitivity”

04/17/14 “Allergy”

04/24/14 “Tumor Immunity”

04/28/15 “Tumor Immunity”

11/01/16 “Cancer Immunology”

11/03/16 “Inflammation as an Emerging Hallmark of Cancer”

11/07/17 “Inflammation and Cancer”

BIOL 6704 Advanced Topics in Immunology (3 CH; 8 students) – Graduate Curriculum

09/19/13 “NLR Inflammasomes”

09/26/13 “Mucosal Immunology”

10/03/13 “Tumor Immunology”

TBMH 5004 Translational Biology, Medicine, and Health (8 CH; ~15 students) - Graduate Curriculum

11/14/16 “Immune Cells and Crosstalk: Introduction to Immunology”

10/23/17 “Immune Cells and Crosstalk: Introduction to Immunology”

TBMH 5024 Fundamentals of Cancer (8 CH; ~5 students) – Graduate Curriculum

03/03/15 “Tumor Microenvironment”

03/04/15 “Macrophage Polarization”

03/21/16 “Intestinal Mucosal Immune System”

03/13/17 “Cancer Immunity”

03/15/17 “Tumor Microenvironment”

TBMH 5404 Scientific Logic and Analysis (1CH; 5 students) – Graduate Curriculum

09/09/15 “Clinical Cancer Research”

VT LLI Making Sense of the Latest Health Research in Nutrition and Exercise -

03/17/16 Continuing Education (18 students)
 “The Good, The Bad, and the Ugly: Balancing Our Resident Microbes To Promote Health and Wellness”

BMES 5984 Cancer Diagnostics & Therapeutics (3CH; 15 Students) – Graduate
 Virginia Tech Wake Forest University School of Biomedical Engineering
 and Sciences

09/27/16 “Cancer Immunology”

BCHM 4784/ Advanced Applications in Molecular Life Sciences (3CH; 25 Students)

BCHM 5784 Combined Undergraduate and Graduate Students

02/28/17 “Advances in Immunotherapeutics”

HNFE 5144 Molecular Aspects of Nutrition and Disease (3CH; 10 Students) - Graduate

03/02/17 “Immune Function in the Intestinal Tract”

02/22/18 “Diet, Inflammation, and Cancer”

BIOL 4874 Cancer Biology (3CH; 10 Students)

05/01/18 “Tumor Immunology and Immunotherapy”

TEACHING CERTIFICATIONS AND PROFESSIONAL DEVELOPMENT:

Fall 2007 Certificate in College Teaching
 UNC Chapel Hill

Spring 2014 Master Online Instructor Certificate, Technology-enhanced Learning
 and Online Strategies, Virginia Tech

Spring 2014 Principles of Biomedical and Health Science Research
 On-Line Course Development, Technology-enhanced Learning and
 On-line Strategies, Virginia Tech, Blacksburg, VA. Meets Quality
 Metrics Standards for Virginia Tech. Featured at the Networked
 Learning and Design Strategies Faculty Showcase, May 13, 2014

STUDENT MENTORSHIP:

MAJOR ADVISOR OF CURRENT GRADUATE STUDENTS:

2014 – present Dylan McDaniel, PhD Mentor, Virginia Tech, Department of Biomedical
 Sciences and Pathobiology, Biomedical and Veterinary Science.

2014 – present Daniel Rothschild, PhD Mentor, Virginia Tech, Department of
 Biomedical Sciences and Pathobiology, Biomedical and Veterinary
 Science. DVM/PhD Program.

2015 – present Kristin Eden, PhD Mentor, Virginia Tech, Department of Biomedical
 Sciences and Pathobiology, Biomedical and Veterinary
 Science. NIH T32 AMRV

2015 – present Veronica Ringel, PhD Mentor, Virginia Tech, Program in Translational
 Biology Medicine and Health, Virginia Tech Carilion Research
 Institute.

2017 – present Rebecca Brock, PhD Mentor, Virginia Tech, Program in Translational Biology Medicine and Health, Virginia Tech Carilion Research Institute.

MAJOR ADVISOR OF FORMER GRADUATE STUDENTS:

2014 – 2017 Sheryl Coutermarsh-Ott, PhD, Biomedical and Veterinary Science. Current Position: Tenure Track Assistant Professor at the Virginia Maryland College of Veterinary Medicine

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

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

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. Taylor Simmons (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.

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
Awards were selected on the basis of the quality of the abstract submitted to the 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
Awards were selected on the basis of the quality of the abstract submitted to the annual international meeting Immunology 2017.
- 2017 Dan Rothschild, AAI 2017 Travel Award
Awards were selected on the basis of the quality of the abstract submitted to the annual international meeting Immunology 2017.
- 2018 Sheryl Coutermarsh-Ott, VMCVM Outstanding Doctoral Student Award
- 2018 Kristin Eden, VMCVM Nominee for the 2018 National Phi Zeta Research Award in the Basic Science Category

GRADUATE STUDENT FUNDING:

1. Evaluation of Noncanonical NF- κ B Signaling in Patients with Inflammatory Bowel Disease

VT Graduate Student Assembly, Graduate Research and Development Fund
(Student: Kristin Eden; Mentor: **Allen**) 12/11/15 – 12/10/16

This grant will focus on evaluating the contributions of noncanonical NF- κ B signaling and negative regulatory Nod-like receptors in the pathogenesis of IBD in human patients. The data generated from this pilot study will support future work in identifying new therapeutic targets in IBD, particularly for patients whose disease is refractory to current treatment methodologies.

2. Ex Vivo Microinjection of Mouse Colonic Organoids with *Fusobacterium nucleatum* to Study Host-Pathogen Interactions

VT Graduate Student Assembly, Graduate Research and Development Fund
(Student: Daniel Rothschild; Mentor: **Allen**) 01/01/17 – 12/31/17

This grant will focus on developing techniques to evaluate host-pathogen interactions and drug delivery using gastrointestinal organoid models.

3. Roles for NLRX1, NF- κ B, and AKT Signaling in Canine Histiocytic Sarcoma

VT Graduate Student Assembly, Graduate Research and Development Fund
(Student: Sheryl Coutermarsh-Ott; Mentor: **Allen**) 01/01/17 – 12/31/17

This grant will focus on developing animal models of canine histiocytic sarcoma to better define inflammatory signaling mechanisms associated with this rare cancer.

4. Old Dog, New Tricks: NIK as a Control Switch for Stem Cell Function in the Gut"

VT Graduate Student Assembly, Graduate Research and Development Fund
(Student: Kristin Eden; Mentor: **Allen**) 12/09/17 – 12/09/18

This grant will focus on evaluating the contributions of NIK in the pathogenesis of colorectal cancer. The data generated from this pilot study will support future work in identifying new therapeutic targets in cancer.

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. Ashwin Ramesh (PhD, BMVS, 2013-present, Mentor: Dr. Lijuan Yuan)
4. Nicholas Catanzaro (PhD, BMVS, 2014-present, Mentor: Dr. X.J. Meng)
5. Qizhi Qin (PhD, BMVS, 2014-present, Mentor: Dr. Nikolaos Dervisis)
6. Erica Twitchell (PhD, BMVS, 2014-present, Mentor: Dr. Lijuan Yuan)
7. Ami Jo (PhD, Chemical Engineering, 2015-present, Mentor: Dr. Richey Davis)
8. Michael Powell (PhD, TBMH, 2015-present, Mentor: Dr. Kenneth Oestreich)
9. Yeonwoo Lebovitz (PhD, TBMH, 2015-present, Mentor: Dr. Michelle Theus)
10. Bharath Sreekumar (PhD, TBMH, 2016-present, Mentor: Dr. Kenneth Oestreich)
11. Shaylen Greenberg (PhD, TBMH, 2016-present, Mentor: Dr. Pam Vandevord)
12. Michele Waters (PhD, SBES, 2016-present, Co-Mentors: Drs. Mark Van Dyke and Pam Vandevord)
13. Ishan Goswami (PhD, SBES, 2016-present, Mentor: Dr. Scott Verbridge)
14. Ariana Umana (PhD, Biochemistry, 2017-present, Mentor: Dr. Daniel Slade)
15. Justin Perry (PhD, HNFE, 2017-present, Mentor: Dr. David Brown)
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)

UNDERGRADUATE STUDENT RESEARCH MENTORSHIP:

1. Megan Clark (VT, Biochemistry '13, 2013), Currently in Medical School at West Virginia University
2. Vittoria Capria (UVA, Biology '13, MAOP, 2013), Completed MPH Program at Tufts University – Currently a IACUC Coordinator at Brown University
3. Alysha Simmons (VT, Animal and Poultry Science '14, IMSD, 2013-2014), Currently in PhD Program at Dartmouth
4. Rachel Leeth (VT, Animal and Poultry Science '14, 2013-2014), Currently a Research Technician at VT
5. John Doran (VT, Biological Sciences '15, 2014-present), Currently in Medical School at VCOM
6. Matthew Long (UVA, Biomedical Engineering '15, 2013), Graduate School at Midwestern University
7. Harrison Bergeron (VT, Biological Sciences '15, 2014), Currently a ORISE Fellow in the Foreign Animal Disease Diagnostic Laboratory, USDA-APHIS
8. Linette Aponte (University of Puerto Rico, Biology '16, MAOP, 2015 summer), Currently in Vet School at Purdue College of Veterinary Medicine
9. Armand Meza (VT, Psychology '16, IMSD, 2014-2016), Currently in PhD program at the University of Wisconsin - Madison
10. Haleigh Hixson (VT, Biology '16, 2015-2016), Currently a 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), Currently a Veterinary Technician; alternative for Vet School at the VMCVM
12. Caroline Campbell (VT, Biology '18, University Honors, 2014-2016)
13. Michelle Waligora (VT, Biology '18, University Honors, 2014-2016), Currently in DVM program at Midwestern University
14. Anastasia Karetnyi (VT, Biology '18, 2015-2017), Currently a research business consultant with Deloitte
15. Saman Khan (VT, Biology '17, 2016-2017), Currently in Doctor of Podiatric Medicine program at Temple University
16. Cassidy Thomas (VT, Biology '18, 2016-2017)
17. Jillian White (VT, Biology '18, 2016)
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)
21. Kathleen Huie (VT, Biology '18, 2017-present)

UNDERGRADUATE STUDENT HONORS:

- 2015 John Doran, received the Ciordia-Stewart Porter Research Award from the Southeastern Society of Parasitologists for the best undergraduate student paper presented at the annual meeting. April 9-11.
- 2015 Armand Meza, one of ten students 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. February 20-23.
- 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.

STUDENT PRESENTATIONS (Selected out of 53 total):

1. "Elucidating the Contribution of Negative Regulatory NLRs in Traumatic Brain Injury". Meza, A., Brickler, T., Countermarsh-Ott, S., Theus, M., and **Allen, I.C.**** Poster Presentation at the 2015 Society for Advancement of Chicanos/Hispanics and Native Americans in Science National Conference. Washington, DC. October 29-31, 2015.
2. "Interleukin-1 β Inhibition Attenuates Colitis in *Nlrp3*^{-/-} Mice". Freeman, C. Oral Presentation at the 16th Annual Biomedical Research Symposium and 4th Annual Phi-Zeta Research Day. Tuskegee University. Tuskegee, AL. September 17-18, 2015.
3. "NLRX1 attenuates Tumorigenesis Through the Negative Regulation of AKT and NF- κ B Signaling". Countermarsh-Ott, S., Simmons, A., Capria, V., LeRoith, T., Heid, B., Washington, C., Dervisis, N., Yuzbasiyan-Gurkan, V., Hontecillas-Magarzo, R.,

- Bassaganya-Riera, J., **Allen, I.C.**** Poster Presentation, Veterinary Cancer Society Annual Conference. Tysons, VA. October 15-17, 2015.
4. "NLRX1 attenuates Tumorigenesis Through the Negative Regulation of AKT and NF- κ B Signaling". Coutermarsh-Ott, S., Simmons, A., Capria, V., LeRoith, T., Heid, B., Washington, C., Dervisis, N., Yuzbasiyan-Gurkan, V., Hontecillas-Magarzo, R., Bassaganya-Riera, J., Allen, I.C.** Poster Presentation, American College of Veterinary Pathologists Combined Annual Meeting. Minneapolis, MN. October 17-21, 2015.
 5. "Loss of NLRX1 results in increased intestinal pathology and T cell responses in mice with inflammatory bowel disease". Eden, K., Hontecillas, R., Viladomiu, M., Philipson, C., Carbo, A., Leber, A., Philipson, N., Tattoli, I., Girardin, S.E., Allen, I.C., and Bassaganya-Riera, J. American College of Veterinary Pathologists Annual Meeting. Minneapolis, MN. October 17-21, 2015.
 6. "Evaluating the Inflammasome's Role in PAMP Recognition and Cytokine Production in Epithelial Organoids". Aponte-Santiago, L.A., Rothschild, D.E., Allen, I.C.** Poster Presentation at the Annual Biomedical Research Conference for Minority Students (ABRCMS). Seattle, WA. November 11-15, 2015.
 7. "Roles for NLRX1, NF- κ B, and AKT Signaling in Canine Histiocytic Sarcoma." Coutermarsh-Ott, S., Eden, K., Dervisis, N., Allen, I.C. 2016 Poster presentation at the ACVP and ASVCP Concurrent Annual Meeting. New Orleans, LA, December 3-7, 2016.
 8. "Lack of NF- κ B Inducing Kinase (NIK) Results in Eosinophilic Esophagitis (EoE) and Gastric Hyperplasia in Mice: Implications of Noncanonical NF- κ B Signaling in Human EoE." Eden, K., McDaniel, D.K., Heid, B., Allen, I.C. Oral and poster presentation at the ACVP and ASVCP Concurrent Annual Meeting. New Orleans, LA, December 3-7, 2016.
 9. "Lack of NF- κ B-Inducing Kinase (NIK) Results in Eosinophilic Esophagitis (EoE) and Gastric Hyperplasia in Mice: Implications for Noncanonical NF- κ B Signaling in Human EoE" Eden, K., McDaniel, D., Allen, I.C. Oral presentation at the Experimental Biology Meeting, Chicago, IL, April 22-26, 2017.
 10. "Lack of NF- κ B-Inducing Kinase (NIK) Results in Eosinophilic Esophagitis (EoE) and Gastric Hyperplasia in Mice: Implications for Noncanonical NF- κ B Signaling in Human EoE." Eden, K., McDaniel, D., Allen, I.C. Oral and poster presentation at the AAI Annual Meeting, Washington, DC, May 12-16, 2017.

PROFESSIONAL DEVELOPMENT:

PROGRAMS AND CERTIFICATES COMPLETED:

2003 (Jan.-Dec.)	<u>Certificate in Scientific and Technical Writing</u> , Duke University Continuing Education, Durham, NC
2014 (Jan – Aug)	<u>Proposal Development Institute</u> , Office of the Vice President for Research and Instruction, Virginia Tech, Blacksburg, VA
2015 - 2016	<u>Diversity Ally Certificate</u> , Diversity Development Institute, Virginia Tech, Blacksburg, VA
2016 – 2017	<u>Diversity Advocate Certificate</u> , Diversity Development Institute, Virginia Tech, Blacksburg, VA
2018 (Jan – April)	<u>Shandong University Faculty Professional Development Program</u>

Peer mentor to 3 visiting faculty members, sponsored through the Virginia Tech Language and Culture Institute

NONCERTIFICATE PROFESSIONAL DEVELOPMENT COURSES COMPLETED:

- 2013 (Nov. 22) Entering Mentoring: Workshop in Mentoring Undergraduate Students in STEM-Related Research, HHMI Sciencering and NSF-STEP, Virginia Tech, Blacksburg, VA
- 2013 (April 11-12) NIDDK K Awardees' Workshop, NIH, Bethesda, MD
- 2013 (Aug. 20-21) New Faculty: Community and Computing, Faculty Development Institute, Virginia Tech, Blacksburg, VA
- 2014 (May) Responsible Conduct of Research, Research Integrity Office, Virginia Tech, Blacksburg, VA
- 2015 (April) Open Textbook Adoption Workshop, University Libraries, Virginia Tech, Blacksburg, VA
- 2015 (Oct) Securing the Human, Networked Learning Initiative, Virginia Tech, Blacksburg, VA
- 2016 (Nov) DiversityEdu: Unconscious Bias in Academic Hiring & Advancement, 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
- 11/17/17 Dr. Vilma Yuzbasiyan-Gurkan, Michigan State, External Examiner

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-present 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
- 2014-present Translational Biology, Medicine, and Health Graduate Program
- 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 Sciences Graduate Program
- 2016-present ICTAS Center for Engineered Health, Precision Medicine Focus Area

COMMUNITY SERVICE - "Ut Prosim":

- May 2013 - Montgomery County Planning Commissioner
- June 2018 Members of the Planning Commission are appointed by the county Board of Supervisors. The Planning Commission serves in an

advisory capacity to the Board on planning, zoning and land use issues. I am currently serving my second term on the Commission.

- Virginia Certified Planning Commissioner
Completed the 78th Virginia Certified Planning Commissioner Program
- Montgomery County Planning Commission Liaison to the Town of Blacksburg Planning Commission
- Secretary of the Montgomery County Planning Commission
January 2016 – December 2017
- Chairman of the Montgomery County Planning Commission
January 2018 – present

PROFESSIONAL BUSINESS EXPERIENCE:

- January 2004 - Member of the Board of Directors for Friends of Triangle Seniors and Food Food Assistance (FTSFA), Chapel Hill, NC
August 2005
FTSFA was a local non-profit organization whose goal was to enable senior citizens to sustain respectable and independent lifestyles, ensure access to quality healthcare by providing transportation to and from medical facilities and free food assistance. I participated as a volunteer grant writer for this organization and as a member of the Board of Directors.
- January 2004 - Volunteer Grant Writer for Local Non-Profit Organizations
May 2006
Assisted 8 local non-profit organizations with grant writing services to obtain funding from local, state and national funding organizations.
- March 2012 Study Abroad in Shanghai and Hangzhou, China
This international study program provided an in-depth exposure to the Chinese business environment and an appreciation of how business practices vary from the United States. Interactions with local business professionals, invoked a richer understanding of the cultural, economic, historical and political forces that have influenced the business environment in China. 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.
- June 2012 - Bioscience Management Internship, PRA International, Raleigh, NC
August 2012
Served as a consultant to the Contract Research Organization PRA International. Utilizing big data analytics, we identified business development opportunities for PRA and uncovered novel ways for the company to expand their business model to create additional value for their clients beyond clinical trial management.
- October 2012 Poster Presentation at the 8th Annual NC Biosciences Forum
“The Utilization of Big Data Analytics to Identify Business Development Opportunities for a Contract Research Organization”. Sponsored by the

BioSciences Management Initiative and NC State University Poole
College of Management. October 26, 2012.