

## Brian P. Daniels, Ph.D.

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### Education

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- 2015      **Ph.D., Neuroscience**  
Washington University, Saint Louis, Missouri
- 2010      **B.S., Behavioral Biology** (*Summa Cum Laude*)  
Southern Wesleyan University, Central, South Carolina
- 2010      **B.A., English Language and Literature** (*Summa Cum Laude*)  
Southern Wesleyan University, Central, South Carolina

### Professional Appointments

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- 2019-present      **Assistant Professor**  
Department of Cell Biology and Neuroscience  
Rutgers University, New Brunswick, New Jersey
- 2015-2018      **Postdoctoral Research Fellow**  
Department of Immunology  
University of Washington, Seattle, Washington

### Research Support

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#### Current Support

- 2019-2020      **Research Grant**      Daniels (PI)  
American Parkinson's Disease Association  
Title: Investigating RIPK3 as a driver of inflammatory astrocyte activation in Parkinson's disease.

#### Past Support

- 2017-2018      **Ruth L. Kirschstein Postdoctoral NRSA**      Daniels (PI), Oberst (Sponsor)  
NIH/NIAID: F32 AI12954  
Title: RIP3 mediated restriction of neuropathogenesis during viral encephalitis
- 2014-2015      **Ruth L. Kirschstein Predoctoral NRSA**      Daniels (PI), Klein (Sponsor)  
NIH/NINDS: F31 NS087866  
Title: Interferon regulation of the blood-brain barrier during West Nile encephalitis
- 2011-2014      **NSF Graduate Research Fellowship**      Daniels (PI), Klein (Sponsor)  
National Science Foundation: DGE- 1143954  
Title: Brain endothelial cell polarity and immune trafficking at the blood-brain barrier

2009

**SCICU Undergraduate Research Grant**

Daniels (PI), Rouse (Sponsor)

South Carolina Independent Colleges and Universities

Title: Hippocampal lesions and spatial memory loss in rats due to latent toxoplasmosis

## Publications

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- Orozco SL, **Daniels BP**, Yatim N, Messmer MN, Quarato G, Snyder AG, Ralli-Jain P, Frase S, Tait SWG, Green DR, Albert ML, and Oberst A. RIPK3 activation leads to continued cytokine synthesis after loss of cell membrane integrity. (*in press*) **Cell Reports**
- Wuertz KM, Treuting PM, Hemann EA, Esser-Nobis K, Snyder AG, Graham JB, **Daniels BP**, Wilkins C, Snyder J, Voss KM, Oberst A, Lund J, and Gale Jr. M. Sting is required for host defense against neuropathological West Nile virus infection. (*in press*) **PLOS Pathogens**
- Snyder AG, Hubbard NW, Messmer MN, Kofman SB, Hagan CE, Orozco SL, Chiang K, **Daniels BP**, Baker D, and Oberst A (2019). Intratumoral activation of the necroptotic pathway components RIPK1 and RIPK3 potentiates anti-tumor immunity. **Science Immunology**. 4(36): eaaw2004. doi: 10.1126/sciimmunol.aaw2004
- Daniels BP**, Kofman SB, Smith JR, Norris GT, Snyder AG, Kolb JP, Gao X, Locasale JW, Martinez J, Gale Jr. M, Loo YM, and Oberst A. (2019) ZBP1 and RIPK3 induce an antiviral metabolic state in neurons via IRG1. **Immunity**. 50:1-13. doi:10.1016/j.immuni.2018.11.017
- Daniels BP**, Snyder AG, Olsen TM, Orozco S, Oguin III TH, Tait SWG, Martinez J, Gale Jr. M, Loo YM, and Oberst A. (2017) RIPK3 restricts viral pathogenesis via cell death-independent neuroinflammation. **Cell**. 169:301-313. doi:10.1016/j.cell.2017.03.011
- Daniels BP**, Jujjavarapu H, Durrant DM, Williams JL, Green RR, Lazear HM, Gale Jr. M, Diamond MS, and Klein RS. (2017) Regional astrocyte interferon signaling restricts pathogenesis during neurotropic viral infection. **Journal of Clinical Investigation**. 127(3):843-856. doi:10.1172/JCI88720
- Gutierrez KD, Davis MA, **Daniels BP**, Olsen TM, Ralli-Jain P, Tait SW, Gale Jr. M, and Oberst A. (2017) MLKL activation triggers NLRP3-mediated processing and release of IL-1 $\beta$  independent of gasdermin-D. **Journal of Immunology**. 198(5):2156-2164. doi:10.4049/jimmunol.1601757
- Pal P, **Daniels BP**, Balaban A, Oskman A, Diamond MS, Sinnis P, Klein RS, and Goldberg DE. (2016) The histidine-rich protein II of *Plasmodium falciparum* triggers an inflammasome-dependent response that compromises blood-brain barrier integrity and promotes cerebral malaria pathogenesis. **mBio**. 7(3):e00617-16. doi:10.1128/mBio.00617-16
- Durrant DM, **Daniels BP**, Pasiaka TJ, Dorsey D, and Klein RS. (2015) CCR5 limits cortical viral loads during West Nile virus infection of the central nervous system. **Journal of Neuroinflammation**. 12:233. doi:10.1186/s12974-015-0447-9
- Miner JJ, **Daniels BP**, Shrestha B, Proenca-Modena JL, Lew ED, Lazear HM, Gorman MJ, Lemke G, Klein RS, and Diamond MS. (2015) The TAM receptor tyrosine kinase MerTK protects against neuroinvasive viral infection by maintaining blood-brain barrier integrity. **Nature Medicine**. 21(12):1464-72. doi:10.1038/nm.33974

- Daniels BP** and Klein RS. (2015) Knocking on closed doors: Host interferons dynamically regulate blood-brain barrier function during viral infections of the central nervous system. *PLOS Pathogens*. 11(9):e1005096. doi:10.1371/journal.ppat.1005096 (Review article)
- Lazear HM\*, **Daniels BP\***, Pinto AK, Huang AC, Vick SC, Gale Jr. M, Klein RS, & Diamond MS. (2015) Interferon- $\lambda$  restricts West Nile virus neuroinvasion by enhancing integrity of the blood-brain barrier. *Science Translational Medicine*. 7(284):284ra59. doi: 10.1126/scitranslmed.aaa4304 (\*Equal contribution)
- Daniels BP** and Klein RS. (2015) Viral sensing at the blood-brain barrier: new roles for innate immunity at the CNS vasculature. *Clinical Pharmacology and Therapeutics*. 97(4):372-79 (Review article)
- Daniels BP**, Sestito SR, & Rouse ST. (2015) An expanded task battery in the Morris water maze reveals effects of *Toxoplasma gondii* infection on learning and memory in rats. *Parasitology International*. 64(1):5-12. doi:10.1016/j.parint.2014.09.002
- Durrant DM, Williams JL, **Daniels BP**, & Klein RS. (2014) Chemokines referee inflammation within the central nervous system during infection and disease. *Advances in Medicine*. 2014:806741. doi:10.1155/2014/806741 (Review article)
- Durrant DM, **Daniels BP**, & Klein RS. (2014) IL-1R1 signaling regulates CXCL12-mediated T cell localization and fate within the CNS during West Nile virus encephalitis. *Journal of Immunology*. 193(8):4095-4106. doi:10.4049/jimmunol.1401192
- Daniels BP**, Holman DW, Cruz-Oregno L, Jujjavarapu H, Durrant DM & Klein RS. (2014) Viral pathogen-associated molecular patterns regulate blood-brain barrier integrity via competing innate cytokine signals. *mBio*. 5(5):e01476-14. doi:10.1128/mBio.01476-14
- Cruz-Orengo L\*, **Daniels BP\***, Dorsey D, Basak SA, Grajales-Reyes JG, McCandless EE, Piccio L, Schmidt RE, Cross AH, Crosby SD, & Klein RS. (2014) Enhanced sphingosine-1-phosphate receptor 2 expression underlies female CNS autoimmunity susceptibility. *Journal of Clinical Investigation*. 124(6):2571-2584. doi:10.1172/JCI73408 (\*Equal contribution)
- Williams JL, Patel JR, **Daniels BP**, Klein RS. (2014) Targeting CXCR7/ACKR3 as a therapeutic strategy to promote remyelination in the adult central nervous system. *Journal of Experimental Medicine*. 211(5):791-799. doi:10.1084/jem.20131224
- Daniels BP**, Cruz-Orengo L, Paseika TJ, Couraud PO, Romero IA, Weksler B, Cooper J, Doering TL, & Klein RS. (2013) Immortalized human cerebral microvascular endothelial cells maintain the properties of primary cells in an *in vitro* model of immune migration across the blood brain barrier. *Journal of Neuroscience Methods*. 212(1):173-179. doi:10.1016/j.jneumeth.2012.10.001
- Szretter KJ, **Daniels BP**, Cho H, Gainey MD, Yokoyama WM, Gale Jr M, Virgin HW, Klein RS, Sen GC, & Diamond MS. (2012) 2'-O methylation of the viral mRNA cap by West Nile virus evades Ifit1-dependent and -independent mechanisms of host restriction in vivo. *PLOS Pathogens*. 8(5): e1002642. doi:10.1371/journal.ppat.1002642

## Talks and Conference Presentations

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- 2019 **Lerner Research Institute, Department of Neuroscience Seminar**  
Invited Talk. The Cleveland Clinic, Cleveland, OH  
\*Scheduled for November 2019
- 2019 **American Society for Virology Annual Meeting**  
Selected Talk. Minneapolis, MN
- 2019 **I3D Symposium: Immune cells at the forefront of health and disease**  
Invited talk. Rutgers New Jersey Medical School, Newark, NJ
- 2018 **American Society for Neurochemistry Annual Meeting**  
Poster. Riverside, CA
- 2017 **Cell Symposium – Neuroimmune Axis**  
Poster. Sitges, Spain
- 2016 **American Association of Immunologists Annual Meeting**  
Selected Talk. Seattle, WA.
- 2015 **Keystone Symposium- Neuroinflammation in Diseases of the CNS.**  
Poster. Taos, NM.
- 2013 **International Symposium on Neurovirology**  
Poster. Washington, DC.
- 2013 **Global Health and Infectious Disease Conference**  
Poster. Washington University, Saint Louis, MO.
- 2010 **South Carolina Academy of Science Annual Meeting**  
Selected Talk. Charleston, SC.
- 2010 **South Carolina Independent Colleges and Universities Research Symposium**  
Invited Talk. Columbia, SC.
- 2009 **Carolina Undergraduate Social Science Symposium**  
Selected Talk. Aiken, SC.

## Awards and Honors

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- 2019 **Early Career Faculty Travel Grant**  
American Association of Immunologists
- 2018 **Postdoc Mentoring Award, Finalist**  
University of Washington, Seattle, WA
- 2016 **Trainee Abstract Award**  
American Association of Immunologists
- 2015 **David M. Kipnis Outstanding Dissertation in the Biomedical Sciences Award**  
Washington University School of Medicine, Saint Louis, MO
- 2010 **Honors Program Graduate**  
Southern Wesleyan University, Central, SC
- 2010 **Honor Society for Scholars of English**  
Sigma Tau Delta
- 2009 **National Honor Society**  
Alpha Chi
- 2008-2010 **National Science and Mathematics Access to Retain Talent (SMART) Grant**  
U.S. Department of Education
- 2006-2010 **Palmetto Fellowship**  
South Carolina Commission on Higher Education

## Teaching Experience

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- 2017            **Faculty of the Citizen Science Program**  
Bard College, Annandale on Hudson, New York  
-Citizen Science: Science as Storytelling
- 2016            **Adjunct Instructor**  
Seattle University, Seattle, Washington  
-Fundamentals of Immunology
- 2011-2013      **Graduate Teaching Assistant**  
Washington University, Saint Louis, Missouri  
-Principles of the Nervous System  
-Scientific Literacy/Intro to Environmental Biology
- 2011            **Instructor, Summer Premedical Institute**  
Washington University, Saint Louis, Missouri  
-The Central Dogma                      -Intro to Neuroscience  
-Intro to Bioethics                        -Scientific Literacy
- 2007-2010      **Supplemental Instructor/Teaching Assistant**  
Southern Wesleyan University, Central, South Carolina  
-General Biology for Majors      -Cell/Molecular Biology  
-Genetics                                      -Biochemistry  
-Honors Freshman Seminar              -Scientific Literacy

## Professional Development in Teaching

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- 2014            **Project-based Applied Learning (PAL) Conference**  
University of Georgia, Athens
- 2011-2014      **STEM Pedagogy Workshops**  
Washington University Center for Teaching and Learning  
-Teaching Reading and Critical Evaluation of Scientific Literature  
-Applying Cognitive Science to Improve Teaching  
-Grading and Responding to Concerns About Grades  
-Leading Discussion Sections  
-Teaching Problem Solving

## Institutional and Other Service

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- 2019-present    Rutgers University  
**Curriculum Committee, Department of Cell Biology and Neuroscience**  
-Member
- 2019-present    **Admissions Committee, Robert Wood Johnson Medical School MD/PhD Program**  
-Ad hoc member

- 2016 University of Washington  
**Center for Innate Immunity and Immune Disease**  
 -Education outreach volunteer
- 2013-2015 Washington University  
**Production Team, Medical School Musical**  
 -Creative director
- 2013-2015 **Future Educators**  
 -Chairperson
- 2012 **NSF Graduate Student Grant Writing Workshop**  
 -Student mentor
- 2011-2012 **Neuroscience Student Journal Club**  
 -Co-coordinator
- 2010-2013 **Young Scientist Program**  
 -Teaching and community outreach volunteer
- Southern Wesleyan University
- 2009 **Faculty Colloquium Planning Committee**  
 -Student organizer
- 2008 **Freshman Seminar Common Reader Selection Committee**  
 -Student representative
- 2008 **Faculty Member of the Year Selection Committee**  
 -Student representative
- 2008 **First Year Curriculum Caucus**  
 -Honors student representative
- 2007-2008 **Student Government Association**  
 -Sophomore Class President