Brian P. Daniels, Ph.D.

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Piscataway, New Jersey 08854

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Education

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

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

Current Support

2021-2023 **R21 MH125034** Daniels (PI)

NIH/NIMH

Maternal ZIKV infection as an environmental risk factor for mental illness

2021-2026 **R01 NS120895** Daniels (PI)

NIH/NINDS

Investigating astrocytic RIPK3 as a driver of protective neuroinflammation during viral

encephalitis

2021-2023 **R01 NS120895-S1** Daniels (PI)

NIH/NINDS

Research Supplement to Support Diversity (Supplementee: Juan Angel)

2022-2025 **R01 NS120895-S2** Daniels (PI)

NIH/NINDS

Research Supplement to Support Diversity (Supplementee: Irving Estevez)

Past Support

2019-2021 **CSCR20ERG003** Daniels (PI)

New Jersey Commission on Spinal Cord Research

Investigating RIPK3 as a driver of inflammatory astrocyte activation in

spinal cord injury.

2019-2021 Research Grant Daniels (PI)

American Parkinson's Disease Association

Title: Investigating astrocytic RIPK3 activation in Parkinson's disease.

2017-2018 F32 AI12954 Daniels (PI), Oberst (Sponsor)

Ruth L. Kirschstein Postdoctoral NRSA

Title: RIP3 mediated restriction of neuropathogenesis during viral encephalitis

2014-2015 F31 NS087866 Daniels (PI), Klein (Sponsor)

Ruth L. Kirschstein Predoctoral NRSA

Title: Interferon regulation of the blood-brain barrier during West Nile encephalitis

2011-2014 DGE-1143954 Daniels (PI), Klein (Sponsor)

NSF Graduate Research Fellowship

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

- Angel JP and Daniels BP. (2022) Paradoxical roles for programmed cell death signaling during viral infection of the central nervous system. Current Opinion in Neurobiology. 77:102629. doi: 10.1016/j.conb.2022.102629
- Kung PL, Chou TW, Lindman M, Chang NP, Estevez I, Buckley BD, Atkins C, and Daniels BP. (2022) Zika virusinduced TNFα signaling dysregulates expression of neurologic genes associated with psychiatric disorders. Journal of Neuroinflammation. 19:100. doi: 10.1186/s12974-022-02460-8
- Chou TW*, Chang NP*, Krishnagiri M, Patel AP, Lindman M, Angel JP, Kung PL, Atkins C, and Daniels BP. (2021) Fibrillar α-synuclein induces neurotoxic astrocyte activation via RIP kinase signaling and NF-κB. Cell Death & Disease. 12:756. doi:10.1038/s41419-021-04049-0 (*Equal contribution)
- Xu R, Boreland AJ, Li X, Erickson C, Jin M, Atkins C, Pang Z, Daniels BP, and Jiang P. (2021) Developing human pluripotent stem cell-based organoids with a controllable microglia ratio for modeling brain development and pathology. Stem Cell Reports. 16:1-15. doi:10.1016/j.stemcr.2021.06.011
- **Daniels BP** and Oberst A. (2020) Outcomes of RIP kinase signaling during neuroinvasive viral infection. Current Topics in Microbiology and Immunology. Springer, Berlin, Heidelberg. doi: 10.1007/82 2020 204 (Book Chapter)
- Williams JL, Manivasagam S, Smith BC, Sim J, Vollmer LL, Daniels BP, Russell JH, and Klein RS. (2020) Astrocyte-T cell crosstalk regulates region-specific neuroinflammation. Glia. 2020:1-14. doi:10.1002/glia.23783
- 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. (2019) RIPK3 activation leads to continued cytokine synthesis after loss of cell membrane integrity. Cell Reports. 28:2275-2287. doi:10.1016/j.celrep.2019.07.077
- 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. (2019) STING is required for host defense against neuropathological West Nile virus infection. *PLOS Pathogens*. 15(8): e1007899. doi:10.1371/journal.ppat.1007899

- 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) The nucleotide sensor ZBP1 and kinase RIPK3 induce the enzyme IRG1 to promote an antiviral metabolic state in neurons. *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-1β 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, Pasieka 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-λ 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 pathogenassociated 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.1002698

Selected Talks and Conference Presentations

2023	American Society for Neurochemistry Annual meeting
	Selected symposium proposal and talk, Lexington, KY
2022	Brain Immunology and Glia (BIG) Center, University of Virginia School of Medicine
	Invited Talk, Charlottesville, VA
2022	FASEB Research Conference: Translational Neuroimmunology
	Invited Talk, Ashville, NC
2021	Rutgers Cell Biology and Neuroscience Society: Student-Invited Speaker
	Invited Talk, New Brunswick, NJ
2021	Pfizer, Inc.: Inflammation and Immunology Research Unit
	Invited Talk, virtual seminar
2021	American Society for Neurochemistry Annual Meeting
	Selected symposium proposal and talk, virtual conference
2021	American Parkinson's Disease Association Virtual Research Roundtable
	Invited speaker and panelist, virtual event
2020	The STEM Village Immunology Seminar Series
	Invited talk, virtual event
2020	National Institutes of Allergy and Infectious Disease, Rocky Mountain Laboratories
	Invited talk (pending rescheduling due to COVID-19), Hamilton, MT
2020	Fox Chase Cancer Center, Research Institute
	Invited talk (pending rescheduling due to COVID-19), Philadelphia, PA
2019	Robert Wood Johnson Medical School, Child Health Institute
	Invited Talk. New Brunswick, NJ.
2019	Lerner Research Institute, Department of Neuroscience
	Invited Talk. The Cleveland Clinic, Cleveland, OH
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	
2016	American Association of Immunologists Annual Meeting	
	Selected Talk. Seattle, WA.	
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

2019	Fauly Canaan Faculty Thaval Awand
2019	Early Career Faculty Travel Award
	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

Mentorship and Mentee Honors

	Graduate Students		
2021-present	Irving Estevez: PhD Student, Neuroscience		
•	Awardee: Research Supplement to Promote Diversity, NINDS (2022-2025) Selected Talk: American Society for Neurochemistry Annual Meeting (2022)		
2020	Selected Talk and Travel Award: American Society for Virology Annual Meeting (2022)		
2020-present	Tsui-Wen (Tracy) Chou: PhD Student, Microbiology and Molecular Genetics		
	Selected Talk: American Society for Neurochemistry Annual Meeting (2022)		
	Young Investigator Educational Enhancement Award, ASN (2022)		
	Selected Talk and Travel Award: American Society for Virology Annual Meeting (2022)		
	Marissa Lindman: PhD Student, Microbiology and Molecular Genetics		
	Travel Award: FASEB Translational Neuroimmunology (2022)		
	Selected Talk, Travel Award (Trainee Abstract Award): AAI Annual Meeting (2022)		
	Selected Talk, Registration Award: American Society for Virology Annual Meeting (2021)		
	Selected Talk, Registration Award: FASEB Translational Neuroimmunology (2020)		
2019-present	Nydia Chang: PhD Student, Neuroscience		
	Ruth L. Kirschstein Predoctoral NRSA: F31 NS124242 (2022-2024)		
	Selected Talk and Travel Award: FASEB Translational Neuroimmunology (2022)		

Travel Award: Cold Spring Harbor Meeting – Glia in Health and Disease (2022)

Young Investigator Educational Enhancement Award, ASN (2021) Brian Daniels CV 5 Keystone Joint Neuroimmunology/Neurodegeneration Registration Award (2021) Selectee for AAAS Catalyzing Advocacy in Science and Engineering Workshop (2019)

Postbaccalaureate Scholars

Juan Angel 2021-present

Awardee: Research Supplement to Promote Diversity, NINDS (2021-2023)

Undergraduate Students

Micheal McCourt 2022-present

Diego Piscoya

Louis Stokes Allicance for Minority Participation (LSAMP) Fellowship (2022)

2021-present **Ben Buckley**

Division of Life Sciences Summer Undergraduate Research Fellowships (2022)

2020-present Nicholas Panzera

Selected Talk: American Society for Virology Annual Meeting (2021)

Division of Life Sciences Summer Undergraduate Research Fellowships (2021, 2022)

2021-2022 Sarah Adams

*Currently: Medical Scribe, St. Peter's University Hospital

2019-2022 Po-Lun Kung

> Henry Rutgers Scholar (School of Arts and Sciences Outstanding Thesis Award) (2022) Department of Cell Biology and Neuroscience Research Excellence Award (2022)

Selected Talk: American Society for Virology Annual Meeting (2021)

Division of Life Sciences Summer Undergraduate Research Fellowships (2020, 2021) *Currently: PhD Student, Developmental, Stem Cell, and Regenerative Biology Program,

University of Pennsylvania

2019-2021 Medha Krishnagiri

Parkinson's Foundation Summer Student Fellowship (2020)

*Currently: Policy Analyst, NIH/NIAMS Scientific Planning, Policy, and Analysis Branch MPH Student, University of Maryland

Winnie Wong

Division of Life Sciences Summer Undergraduate Research Fellowship (2020)

Aresty Undergraduate Research Fellowship (2019)

*Currently: DDS Student, The University at Buffalo

2019-2020 Aisha Patel

Henry Rutgers Scholar (School of Arts and Sciences Outstanding Thesis Award) (2020)

Department of Cell Biology and Neuroscience Outstanding Thesis Award (2020) Division of Life Sciences Summer Undergraduate Research Fellowship (2019)

*Currently, Physician Assistant Training Program, Touro University Manhattan

Srija Indukuri

*Currently: Data analyst, Camber Pharmaceuticals

Rotation and Visiting Students

2022 Evan DaPrano

Rotation Student, Neuroscience

2019 **Kimberly Newman**

Rotation Student, Neuroscience

2019 Hahram Kim

Undergraduate Summer Intern

Amherst College Meiklejohn Fellowship (2019)

*Currently: Postgraduate Associate, Yale University

Teaching

Graduate Teaching

Rutgers University

2020-present Current Concepts of Immunology (Course director, co-instructor)

Minicourse: Programmed Cell Death and Inflammation (Sole Instructor) 2023

2021 **Advanced Studies in Neuroscience** (Co-instructor)

Undergraduate Teaching

Rutgers University

2020-present **Immunology** (Course director, co-instructor) 2020-2022 **Laboratory in Immunology** (Co-Instructor)

Bard College

2017 Citizen Science: Science as Storytelling (Sole Instructor)

Seattle University

2016 Fundamentals of Immunology (Sole Instructor)

Washington University in St. Louis

Scientific Literacy/Intro to Environmental Biology (Teaching Assistant) 2013

2011 Principles of the Nervous System (Head Teaching Assistant)

2011 **Summer Premedical Institute** (Co-Instructor)

Southern Wesleyan University

2010 Cell and Molecular Biology (Teaching Assistant)

Scientific Literacy (Teaching Assistant) 2009-2010 **Biochemistry** (Teaching Assistant) 2009 **Genetics** (Teaching Assistant) 2009

Honors Freshman Seminar (Teaching Assistant) 2007-2010 2007-2010 General Biology for Majors (Supplemental Instructor)

Institutional Service

Rutgers University

Thesis Committees 2020-present

Doctoral

-Maraj Alam (Neuroscience) -Julie Dobkin (MMG)

-Austin Graves (MMG) -Kimberly Newman (Neuroscience) -Michael Rallo (Neuroscience)

-Chadni Patel (CDB)

Masters

-Kimberly Vanexel (Comp. Bio)

Undergraduate

-Patrick Adly-Gendi (CBN) -Simona Alomary (CBN) -Tanvi Banota (CBN) -Nithisha Cheedalla (CBN) -Cynthia Daut (CBN) -Tanav-Veer Gandhi (CBN) -Robert Juniewicz (Biology) -Ritika Raghavan (CBN)

-Ashley Yang (CBN)

2022-present Faculty Search Committee, Department of Cell Biology and Neuroscience

- -Search Area: Neural regulation by non-neuronal cells
- -Member

2020-present	Diversity and Engagement Committee, Department of Cell Biology and Neuroscience -Member
2019-present	Curriculum Committee, Department of Cell Biology and Neuroscience -Member
2021-2022	Faculty Search Committee, Department of Cell Biology and Neuroscience -Search Area: Metabolism -Member.
2020-2022	University BSL3 Initiative Committee -Member
2019-2022	Admissions Committee, Robert Wood Johnson Medical School MD/PhD Program -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
2009	Southern Wesleyan University 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

Professional Service

	Grant Review Service
2021-2022	Center for the Advancement of Science in Space (CASIS)
	-Reviewer
2022	Dutch Research Council/Netherlands Organization for Scientific Research
	-Reviewer
2022	Trish Multiple Sclerosis Research Foundation (Australia)
	-Reviewer
2022	Special Emphasis Panel: NIMH COVID-19 Mental Health Research
	-Reviewer
2021-2022	HIV Molecular Virology, Cell Biology and Drug Development (HVCD) Study Section
	-Early Career Reviewer Program: March 2021
	-Ad hoc reviewer: November 2021, March 2022

2020	National Science Foundation -Reviewer/Panelist			
	Conference Service			
2023	Symposium Chair: "Regulation of neuroinflammation by glial cell death signaling" -American Society for Neurochemistry Annual Meeting, Lexington, KY			
2022	Session Chair: "Flavivirus III: Pathogenesis"			
	-American Society for Virology Annual Meeting, Madison, WI			
2021-2022	Program Committee Member: "Glial Mechanisms and Injury"			
	Annual Meeting, Roanoke, VA			
2021	Session Co-Chair: "Flavivirus III: Pathogenesis"			
	-American Society for Virology Annual Meeting, Virtual			
2021	Symposium Co-Chair: "Unconventional roles for astrocytes in disease"			
• • • • •	-American Society for Neurochemistry Annual Meeting, Virtual			
2019	Session Leader: "Choosing a postdoc to meet my needs"			
	-American Society for Virology Annua	l Meeting, Minneapolis, MN		
	Editorial Service			
2022-2023	Managing Guest Editor			
2022-2023	Special Issue: "Postinfectious cognitive	e and psychiatric segualae"		
	Journal of Neuroimmunology	and psychiatric sequatae		
2018-present	Journal Reviewer			
	-ACS Infectious Diseases	-Cell Death and Disease		
	-Clinical and Translational Medicine	-Frontiers in Microbiology		
	-Journal of Clinical Investigation	-Journal of Immunology		
	-Journal of Neuroinflammation	- Journal of Virology		
	-Molecular Neurobiology	-Nature Communications		
	-Neuroscience Letters	-Neurotherapeutics		
	-Parasites and Vectors	-PLOS Negl. Trop. Dis.		
	-PLOS Pathogens	-Scientific Reports		
	-Trends in Neurosciences			

Professional Development

Graduate Coursework Completed
Introduction to Online Learning (2 credits)
-University of California, San Diego 2022