

Curriculum Vitae

Brian C. Schaefer, Ph.D.

EDUCATION:

1989 (June) B.S.	Massachusetts Institute of Technology
1995 (June) Ph.D.	Harvard University (Immunology) Mentors: Samuel H. Speck, Ph.D, and Jack L. Strominger, M.D.

POSITIONS AND EMPLOYMENT:

1995 (June) - 1996 (May)	Research Fellow in Pathology, Harvard University, Dana-Farber Cancer Institute Mentors: Samuel H. Speck, Ph.D, and Jack L. Strominger, M.D.
1996 (June) - 2002 (October)	Post-doctoral Research Associate, Howard Hughes Medical Institute, Denver Colorado Mentors: Philippa Marrack, Ph.D, and John W. Kappler, Ph.D.
2002 (November) – 2009	Assistant Professor, Department of Microbiology and Immunology, Uniformed Services University (USU), Bethesda, MD
2009 – 2017	Associate Professor (with tenure), Department of Microbiology and Immunology, Uniformed Services University (USU), Bethesda, MD
2017 – current	Professor (with tenure), Department of Microbiology and Immunology, Uniformed Services University (USU), Bethesda, MD
2023 (February – October)	Director (Interim), Emerging Infectious Diseases Graduate Program, Uniformed Services University (USU), Bethesda, MD
2024 – current	Vice Chair, Department of Microbiology and Immunology, Uniformed Services University (USU), Bethesda, MD

SECONDARY APPOINTMENTS:

2003 – current	Emerging Infectious Diseases Graduate Program, Uniformed Services University of the Health Sciences (USUHS), Bethesda, MD
2003 – current	Molecular and Cell Biology Graduate Program, Uniformed Services University of the Health Sciences (USUHS), Bethesda, MD

SECONDARY APPOINTMENTS (CONTINUED):

2010 – current

Graduate Program in Neuroscience, Uniformed Services University of the Health Sciences (USUHS), Bethesda, MD

AWARDS AND HONORS:

1985 - 1989

1988

1988

1989

2004

2005

2016

2024

National Merit Scholar

Bernard Proctor Award for Undergraduate Research, Massachusetts Institute of Technology

John L. Asinari Award for Undergraduate Research, Massachusetts Institute of Technology

Phi Beta Kappa

Kimmel Scholar Award

Dana Foundation Program in Brain and Immunology

Uniformed Services University Henry Wu Award for excellence in basic science research

Uniformed Services University Outstanding Biomedical Educator

FELLOWSHIPS:

1989 - 1992

1989

2000 – 2002

Office of Naval Research Graduate Research Fellow

National Science Foundation Graduate Research Fellowship (Declined)

Leukemia and Lymphoma Society Special Fellow

PATENTS:

2007

US Patent 7,169,570: *Method to Identify Regulators of Cellular Activation Using Bcl10* – **BC Schaefer**, JW Kappler and P Marrack

2025

US Patent 12365917B2: *Immortalization of splenic and peripheral blood macrophages using a multi-cistronic v-raf/v-myc lentivirus*. **BC Schaefer**, and CR Beauregard

MOUSE STRAINS DEVELOPED:

2001

C57BL/6-Tg(UBC-GFP)30Scha/J

Ubiquitously expressed EGFP transgene on a pure C57BL/6 background. Repository strain at Jackson Laboratory (stock# 004353). Strain has been used and cited in hundreds of publications.

PROFESSIONAL SOCIETIES:

2006-current
2006-current

American Society for Cell Biology (ASCB)
American Association of Immunologists (AAI)

RESEARCH GRANTS (CURRENT):

3/2019 - 2/2024 (NCE to 2/2026)

NIH/NIAID: 1 U19 AI142764-01
Co-Investigator: Brian C. Schaefer (C. Broder, overall PI)
“Advancement of Vaccines and Therapies for Henipaviruses”

2/2023 – 9/2025

HU00011921048
Principal Investigator: Brian C. Schaefer
“Defining the mechanism of enhancement of the pathogen-directed host adaptive immune response following anti-lyssavirus monoclonal antibody therapy”

7/2024 – 6/2029

1U19AI181930
Research Project 3 PI: Brian C. Schaefer
(T. Geisbert overall program PI)
“Paramyxoviridae and Bunyavirales Vaccines and Antibodies Center (PABVAX)”

9/2024 – 9/2027

HU00012420091
Principal Investigator: Brian C. Schaefer
“Defining the functionality of virus-specific effector T cells and B cells in a pre-clinical BSL-2 mouse model of henipavirus infection.”

RESEARCH GRANTS (COMPLETED):

10/2019 – 9/2022 (NCE to 9/2024)

HU00011920118
Principal Investigator: Brian C. Schaefer
Global Health Engagement Research Initiative
“Efficacy testing of a novel human monoclonal antibody therapy for late-stage rabies/lyssavirus infection”

7/2017 - 6/2022 (NCE to 6/2024)

NIH/NIAID: 1 R01 AI125552-01A1
Principal Investigator: Brian C. Schaefer
“T cell receptor-activated autophagy as a regulator of T cell effector responses”

6/2014 - 4/2020

NIH/NIGMS: 1 U01 GM109887-01
Principal Investigator: Brian C. Schaefer
“Elucidating TCR signaling mechanisms via quantitative pattern analysis”
\$800,000 total direct costs

RESEARCH GRANTS (COMPLETED) – CONTINUED

10/2013 – 9/2016 (NCE 9/2017)	Uniformed Services University Program Project MIC-73-2515 Principal Investigator: Brian C. Schaefer “Therapies for neurotropic viral biothreat pathogens” \$2,300,000 total direct costs
10/2015 – 9/2018	Military Infectious Diseases Research Program Principal Investigator: Prouty/Guerry “Subunit vaccines against <i>Campylobacter jejuni</i> and enterotoxigenic <i>Escherichia coli</i> (ETEC)” \$100,000 total direct costs
5/2014 - 4/2016 (NCE 12/2016)	United States Military Cancer Institute Principal Investigator: Brian C. Schaefer “Immunosuppressive microenvironment induction during lung cancer tumorigenesis” \$300,000 total direct costs
10/2010 – 9/2015	Military Infectious Diseases Research Program D0235_11_NM Principal Investigator: Stephen Savarino “Subfimbrial Adhesins as Smart Targets for an Enterotoxigenic <i>Escherichia coli</i> Vaccine” \$80,000 total direct costs
5/2015	Shared Instrumentation Grant Prepared for Submission to NIH S10 Program (Internally funded by USU) Principal Investigator: Brian C. Schaefer Zeiss Elyra PS.1 Superresolution Microscope \$691,305 total direct costs
10/2011 – 9/2014	Uniformed Services University research grant R073UG Principal Investigator: Brian C. Schaefer “Modulation of NF-κB activation by DOBERMAN” \$150,000 total direct costs
8/2012 – 7/2014	CRADA with Johns Hopkins Applied Physics Lab (JHU-APL) G173VB USU Principal Investigator: Brian Schaefer “Synthetic Biology for Rapid Vaccination Against Novel Pathogens” \$80,000 total direct costs
2/2006 - 1/2012	NIH/NIAID: 1 R01 AI057481-01 Principal Investigator: Brian C. Schaefer “Protein redistribution in TCR-directed NF-κB activation” \$225,000/yr (\$1,125,000 total) direct costs

RESEARCH GRANTS (COMPLETED) – CONTINUED

6/2009 - 6/2013	Center for Neuroscience and Regenerative Medicine (CNRM), G173QZ Principal Investigator: Brian C. Schaefer “Modulation of NF- κ B-dependent immune responses for post-TBI neuroregeneration” \$795,000 total direct costs
5/2010 - 6/2012	Center for Neuroscience and Regenerative Medicine (CNRM), G173SW Principal Investigator: Brian C. Schaefer “Assessment of neurotrophin involvement and anti-inflammatory therapy in TBI” \$151,000 total direct costs
10/2009 – 9/2011	Uniformed Services University research grant R073RX Principal Investigator: Brian C. Schaefer “Inhibition of A20 activity to augment NF- κ B-dependent immunity” \$40,000 total direct costs
10/2006 – 9/2009	Uniformed Services University research grant C073NP Principal Investigator: Brian C. Schaefer “Ubiquitin modification in T cell receptor activation of NF- κ B” \$60,000 total direct costs
4/2008	NIH/NCRR: 1 S10RR022601-01A1 (PI: Chou-Zen Giam) Co-writer of grant and Investigator: B.C. Schaefer “Carl Zeiss LSM 510 Confocal Inverted Microscope System” \$417,087 total direct costs
1/2006 - 6/2008	United States Military Cancer Institute (PI: Chou-Zen Giam) Co-investigator: B.C. Schaefer “Molecular Dynamics of I κ B Kinase and NF- κ B Activation” \$70,000 total direct costs
7/2004 - 12/2006	Sidney Kimmel Foundation for Cancer Research – Kimmel Scholar Award Principal Investigator: Brian C. Schaefer “Role of NF- κ B signaling intermediates in the etiology of MALT lymphoma” \$200,000 total direct costs

RESEARCH GRANTS (COMPLETED) – CONTINUED

1/2005 - 6/2008

Dana Foundation Program in Brain and Immuno-imaging

Principal Investigator: Brian C. Schaefer

“Mechanism of CTLA-4 inhibition of antigen-mediated NF- κ B signaling in T cells”

\$120,000 total direct costs

1/2005 - 4/2006

Uniformed Services University exploratory research award RO73LS

Principal Investigator: Brian C. Schaefer

“Assembly of macromolecular signaling intermediates in TCR activation of NF- κ B”

\$140,000 total direct costs

CURRENT TRAINEES:

1. Nathaniel Lott, post-doctoral fellow
2. Jocelyn King, graduate student in Emerging Infectious Diseases Ph.D. program
3. Kiley Urquhardt, graduate student in Emerging Infectious Diseases Ph.D. program
4. Rebecca Hallameyer, graduate student in Molecular and Cellular Biology Ph.D. program

PREVIOUS GRADUATE STUDENT AND POST-DOCTORAL TRAINEES:

1. *Jeremy S. Rossman, Ph.D., Graduate Student (degree requirements completed August, 2006). Current position: President and founder of Research-Aid Networks, Chicago, IL, and Honorary Senior Lecturer in Virology at the University of Kent, Canterbury, U.K.
2. Felicia D. Langel, V.M.D., Ph.D., US Army LTC(R), Graduate Student (degree requirements completed May, 2006). Current position: Trial Attorney, Vaccine Litigation Section · U.S. Department of Justice.
3. **Lara Kingeter, Ph.D., Graduate Student (degree requirements completed Dec., 2008). Current position: Department Chair and Professor of Biology, Tarrant County College, NE Campus, Hurst, TX. Also, novelist under the pen name of Lara Lacombe.
4. ***Ayesha Liem, Ph.D., Postdoctoral Fellow, 2008 – 2010. Current Position: Adjunct Professor at Germanna Community College, Locust Grove, VA.
5. Natalia Cartwright (Stoicheva), Ph.D., Research Associate/Postdoctoral Fellow, 2003 – 2012.
6. Ashley Shaloo, Ph.D., Graduate Student (degree requirements completed Aug., 2012), Molecular and Cellular Biology Ph.D. program. Current position: Assistant Professor, SUNY, Alfred State College of Technology, Alfred, NY.
7. †Suman Paul, M.B.B.S., Ph.D., Graduate Student (degree requirements completed Apr., 2013), Emerging Infectious Diseases Ph.D. program. Current position: Assistant Professor, Johns Hopkins University School of Medicine, Baltimore, MD.
8. Michael Washington, Ph.D., Graduate Student (degree requirements completed Apr., 2014), Emerging Infectious Diseases Ph.D. program. Current position: LTC, US Army, Chief of microbiology laboratory at Ft. Benning, Georgia.
9. Mouna Lagraoui, Ph.D., Research Assistant Professor (Employed from 2012 – 2018).

PREVIOUS GRADUATE STUDENT AND POST-DOCTORAL TRAINEES – CONTINUED:

10. [‡]Kate Mastraccio, Ph.D., Graduate Student (degree requirements completed Nov. 2018), Emerging Infectious Diseases Ph.D. program. Current position: Research Scientist, ICON Inc., Whitesboro, NY.
11. Trung Ho, M.D., Ph.D., Graduate Student (Ph.D. requirements completed 2019), Emerging Infectious Diseases M.D., Ph.D. program. Current position: Emergency Medicine Resident at Naval Medical Center, Portsmouth VA.
12. Chelsi Beauregard, Ph.D., Graduate Student (degree requirements completed April 2020; co-mentored with Christopher Broder, Ph.D.). Current position: Associate Professor, Southern New Hampshire University, Manchester, NH.
13. [§]Maria Traver, Ph.D., Post-doctoral fellow and Scientist I, 2014 – 2022. Current position, Scientist at the Twinbrook Imaging Facility, NIAID, Rockville, MD.
14. [†]Kariana Rios, Ph.D., Graduate Student (degree requirements completed April 2021). Current position: US Army, 71A (microbiologist), Walter Reed National Military Medical Center, Bethesda, MD.
15. Imran Hussain, Ph.D., Graduate Student (degree requirements completed March 2023). Current position: Scientist at GlaxoSmithKline, Boston, MA.
16. Gina Dabbah, Ph.D. Graduate Student (degree requirements completed April 2024; co-mentored with Andrew Snow, PhD). Current position: Account Manager, Life Sciences · QIAGEN
17. ^{††}Celeste Huaman, Ph.D., Graduate Student (degree requirements completed April 2024). Current position: Associate Scientist, Uniformed Services University.
18. Nathaniel Lott, Ph.D., Graduate Student (degree requirements completed October 2025). Current position: Post-doctoral Fellow, Uniformed Services University

*Winner of the 2005 Outstanding Oral Presentation Award at Uniformed Services University Research Day and the 2006 Emma L. Bockman Memorial Award given to the most accomplished Uniformed Services University graduate student.

**Winner of the 2007 Outstanding Oral Presentation Award at Uniformed Services University Research Week and the 2008 Emma L. Bockman Memorial Award given to the most accomplished Uniformed Services University graduate student.

***FDA Orise Fellowship, 2011.

[†]Winner of *Young Investigator Award for Best Poster Presentation* at the International Graduate Student Immunology Conference 2012, Harvard Medical School, Boston, MA (April 2012). Winner of the 2012 Outstanding Oral Presentation Award at Uniformed Services University Research Week and the 2013 Emma L. Bockman Memorial Award given to the most accomplished Uniformed Services University graduate student. Honorable Mention for 2012 Emma L. Bockman Memorial Award. Supported by an American Heart Association pre-doctoral fellowship (Aug 2010 – July 2012); Supported by a Val Hemming Fellowship from the Henry M. Jackson Foundation (Sept 2012 – June 2013)

[‡]Recipient of a 2017 Military Health System Research Symposium Young Investigator Award; 1st Place for the Platform Presentation at 2018 USU Research Days; 2018 Emma Bockman Award Honorable Mention.

[§]Recipient of a 2015 Cancer Research Institute Irvington Fellowship

[†]USU Research Days Best Poster Presentation, 2019; Honorable mention, Emma L. Bockman Award, 2020

^{††}Winner of the 2024 Alison O'Brien Award for Excellence in research (awarded annually to the most accomplished graduate student in the Emerging Infectious Diseases Graduate Program)

THESIS COMMITTEES (excluding my own trainees)

Current (5 total; 2 as chair): Scott McManus (Chair), Allison Ruchinskas, Ben Epstein, Josie Blair, Melissa Kallarkal (Chair)

Past (34 total; 11 as chair): Amanda Zelkoski, Matthew Stinson, Eric Russ, Cassandra Grizer (as Chair), Savannah Kounelis-Wuillaume (as Chair), Katherine Pohida (as Chair), Sully Izadjoo, Kasandra Hunter, Kelsey Voss (as Chair), Philip Spreadborough (as Chair); Camille Lake (as Chair), Eric Laing, Tami Tamashiro, Sasha Larsen, Jeffrey Stinson (as Chair), Holly Evans, Kym Bliven, Sandra Bixler, John Buonora, Rachel Ribeiro, Kenny Lin, Norah Harwood, Andrew Moore (as Chair), Juliana Harris, Christina Clark (as Chair), Andrew Hickey, Anthony Foster, Brett Swierczewski, Kimberly Bishop, Sam Vasilevsky (as Chair), Mazen Makarem (as Chair), Erika Lamb, Katherine Lee, Robert Anthony

OTHER MENTORING

2003-current	Summer research interns: 4 undergraduates; 7 high school students
2007	International Baccalaureate thesis project mentor for students from the University of Perugia (Perugia, Italy): Vasil Raykov and Anna Tocheva (Currently Assistant Professor at the Icahn School of Medicine, Mount Sinai, NY)
2005-current	Supervision of Research Assistants/Associates: Nidhi Jain (Senior Scientist II, Generate Biomedicine), Anuj Kashyap (Scientist, AstraZeneca), Sean Maynard (Field Applications Scientist Manager, NanoCollect), Celeste Huaman (Associate Scientist, Uniformed Services University), Denise Daniele (Senior Technical Editor, General Dynamics), Caitlyn Clouse (Scientist II, Thermo Fisher Scientific), Madeline Rader (current employee), Allison Strazzella (current employee)

TEACHING - UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES:

2003-2011	Instructor, Medical Microbiology and Infectious Diseases (2 nd –year medical students and graduate students)
2011-current	Instructor, Foundation of Medicine Module of Medical Student Curriculum (1 st year medical students)
2003-current	Course co-director, Cellular and Molecular Immunology (MCO503) (graduate students)
2004-2007	Lecturer, Techniques in Cellular and Molecular Biology (MCB801) (graduate students)
2007-current	Lecturer, Advanced Topics and Techniques in Neuroscience (NSO802) (graduate students)
2009	Lecturer, The Role of Signal Transduction in Human Disease (MCB530) (graduate students)
2012-current	Lecturer, Techniques Used in Cellular and Molecular Biology (MCB801) (graduate students)
2012-2015	Lecturer, Introduction to Microbiology and Immunology (MCO301) (graduate students)
2016-current	Lecturer, Introduction to Immunology (MCB531) (graduate students)
2016-2021	Lecturer, Traumatic Brain Injury Neurobiology (NSO903) (graduate students)
2018-current	Faculty Facilitator, Grant Writing (NSO904) (graduate students)

MAJOR RESEARCH INTERESTS:

1. Development of novel therapies for neurotropic viral infections employing small animal models
2. Immune responses in the central nervous system, in the context of neurotropic viral infections
3. Virus-host interactions during lyssavirus and henipavirus infections
4. Elucidating the role of CARD19 and associated proteins in immune responses of myeloid cells
5. Regulation of NF- κ B signaling in cells of the immune system

MAJOR RESPONSIBILITIES:

UNIFORMED SERVICES UNIVERSITY

1. Department of Microbiology and Immunology – Vice Chair (2024 – current)
2. Faculty Advisory Comm. for the Biomedical Instrumentation Center (BIC) – Chair (2009 – current)
3. USU Animal Research Strategy (ARS) working group (Chair) (2019 – 2022)
4. USU Committee for Appointment, Promotion and Tenure (CAPT) (2020 – 2023)
5. USU School of Medicine Space Committee – Member (2017 – 2021)
6. Research Policy Committee of the Faculty Senate – Member (2006 – 2008)
7. Molecular and Cellular Biology Seminar Series – Coordinator (2004 – 2011)
8. Imaging Sub-Committee of the BIC – Chair (2003 – 2009)
9. Biomedical Instrumentation Committee (BIC) – Member (2005 – 2009)
10. Interim Director, USU Emerging Infectious Diseases Graduate Program (2023)
11. USU Department of Microbiology and Immunology, Departmental Committee for Appointment, Promotion and Tenure (CAPT), Chair (2025 – current)
12. Emerging Infectious Diseases Graduate Program Oral Exam Committee (2006 – current)
13. Interviewer of prospective students for the Emerging Infectious Diseases Graduate Program (2003 – current)
14. Center for Neuroscience and Regenerative Medicine Discussion Group (2008 – 2016)
15. Center for Neuroscience and Regenerative Medicine Neuroregeneration Working Group (2008 – 2016)
16. CNRM Histopathology Core – Steering Committee (2010 – 2016)
17. CNRM Translational Imaging Facility (TIF) – Steering Committee (2012 – 2018)
18. Equipment & Unfunded Requirements Review Committee (EURRC) (2009 – current)
19. Neuroscience Graduate Program qualifying exam committee (2011 - current)
20. Molecular and Cell Biology Program qualifying exam committee (2011 - current)
21. Academic and Research Computing Work Group (ARWG) - Basic Sciences Dept. Representative (2012 – 2017)
22. Immunology Journal Club Organizer/Director (2010 – 2013)
23. USU Department of Medicine Faculty Search Committee (2012)
24. USU Department of Microbiology and Immunology Faculty Search Committee (2014-5, 2024)
25. USU Interdisciplinary Search Committee for several positions in Graduate Education (2019)
26. USU Department of Pharmacology and Molecular Therapeutics Search Committee for Department Chair (2024 – 2025)

EXTRAMURAL

1. Associate Editor, *Frontiers in Cell and Developmental Biology*, Cell Death and Survival Section (2019-current)
2. Editorial Board, *Frontiers in Cell and Developmental Biology*, Cell Death and Survival Section (2013-2019)
3. NIH CMIB (Cell and Molecular Immunology-B) study section for review of R01/R21 grants. Ad hoc member: Feb 2011, May 2011, Feb 2013, May 2013, Feb 2014, Feb 2015, May 2016; Feb 2019
4. ZRG1 F07 NIH Immunology Fellowship and AREA Study Section – Ad hoc member (2005 – 2006)

EXTRAMURAL – CONTINUED

5. ZRG1 IMM-L 29 L, NIH DBBD Minority and Disability Predoctoral Fellowship Study Section – Ad hoc member (2006 – 2007)
6. ZRG1 CB-D (30) M, NIH (NCRR) Shared Instrumentation Grants – Ad hoc member (2008, 2021)
7. National Science Foundation – Ad hoc reviewer of research grants (2004)
8. Israel Science Foundation – Ad hoc reviewer of research grants (2010; 2017)
9. Medical Research Council (U.K.) – Ad hoc reviewer of research grants (2014, 2020)
10. Worldwide Cancer Research – Ad hoc reviewer of research grants (2018)
11. NMRC-Sanofi Immunology Working Group – member (2011 – 2015)
12. French National Research Agency (Agence Nationale de la Recherche) – Ad hoc reviewer of program project grant (2016)
13. Israel Science Foundation – Ad hoc reviewer of investigator grant application (2017)
14. Worldwide Cancer Research – Ad hoc reviewer of investigator grant application (2018)
15. Ad hoc reviewer for journals including: Science, Immunity, Cell Reports, Nature Communications, Science Signaling, Proceedings of the National Academies of Sciences, Autophagy, Blood, Cancer Research, Journal of Immunology, Journal of Biological Chemistry, Journal of Leukocyte Biology, Biological Chemistry, FEBS Letters, Frontiers in Neurology, Frontiers in Pharmacology, Frontiers in Immunology, PLOSone, Cancer Cell International, International Journal of Biological Sciences, Amino Acids, Viruses, iScience, PLOS Neglected Tropical Diseases, PLOS Pathogens, PLOS One, International Journal of Molecular Sciences, Vaccines, Frontiers in Microbiology, Frontiers in Cell and Developmental Biology, Journal of Virology, Pathogens, International Journal of Biological Macromolecules, Immunogenetics, PLOS Neglected Tropical Diseases, Frontiers in Chemical Biology, International Journal of Antimicrobial Agents, Vaccines.

BIBLIOGRAPHY:

Total Citations = 6525; h-index = 36 (as of 11/2025)

ORIGINAL REPORTS

1. **Schaefer BC**, Woisetschlaeger M, Strominger JL, and Speck SH. Exclusive expression of Epstein-Barr virus nuclear antigen 1 in Burkitt lymphoma arises from a third promoter, distinct from the promoters used in latently infected lymphocytes. *Proc. Natl. Acad. Sci. USA* 1991; 88:6550-6554.
2. **Schaefer BC**, Strominger JL, and Speck SH. The Epstein-Barr virus BamHI F Promoter is an early lytic promoter: lack of correlation with EBNA1 gene transcription in group I Burkitt's lymphoma cell lines. *J. Virol.* 1995; 69:5039-5047.
3. **Schaefer BC**, Strominger JL, and Speck SH. Redefining the Epstein-Barr virus-encoded nuclear antigen EBNA1 gene promoter and transcription initiation site in group I Burkitt's lymphoma cell lines. *Proc. Natl. Acad. Sci. USA* 1995; 92:10560-10564.
4. **Schaefer BC**, Strominger JL, and Speck SH. A simple reverse transcriptase PCR assay to distinguish EBNA1 gene transcripts associated with type I and II latency from those arising during induction of the viral lytic cycle. *J. Virology* 1996; 70:8204-8208.
5. **Schaefer BC**, Strominger JL, and Speck SH. Host-cell-determined methylation of specific Epstein-Barr virus promoters regulates the choice between distinct viral latency programs. *Mol. Cell Biol.* 1997; 17:364-377.
6. **Schaefer BC**, Paulson E, Strominger JL, and Speck SH. Constitutive activation of Epstein-Barr virus nuclear antigen 1 gene transcription by IRF1 and IRF2 during restricted EBV latency. *Mol. Cell Biol.* 1997; 17:873-886.

ORIGINAL REPORTS – CONTINUED

7. Teague TK, Hildeman D, Kedl R, Mitchell T, Rees W, **Schaefer BC**, Bender J, Kappler J, and Marrack P. Activation changes the spectrum but not the diversity of genes expressed by T cells. *Proc. Natl. Acad. Sci. USA* 1999; 96:12691-12696.
8. **Schaefer BC**, Ware M, Marrack P, Fanger GR, Kappler JW, Johnson GL, and Monks CRF. Live cell fluorescence imaging of T cell MEK2: Redistribution and activation in response to antigen stimulation of the T cell receptor. *Immunity* 1999; 11:411-421.
9. Teague TK, **Schaefer BC**, Hildeman D, Bender J, Mitchell T, Kappler JW, and Marrack P. Activation-induced inhibition of Interleukin 6-mediated T cell survival and signal transducer and activator of transcription 1 signaling. *J. Exp. Med.* 2000; 191:915-26.
10. Kedl RM, Rees WA, Hildeman DA, **Schaefer B**, Mitchell T, Kappler J, and Marrack P. T cells compete for access to antigen-bearing antigen-presenting cells. *J. Exp. Med.* 2000; 192:1105-14.
11. Sun W, Kesavan K, **Schaefer BC**, Garrington TP, Ware M, Johnson NL, Gelfand EW, and Johnson GL. MEK kinase 2 associates with the adapter protein Lad/RIBP and regulates the MEK5-BMK1/ERK5 Pathway. *J. Biol. Chem.* 2001; 276:5093-5100.
12. Mitchell TC, Hildeman D, Kedl RM, Teague TK, **Schaefer BC**, White J, Zhu Y, Kappler J, and Marrack P. Immunological adjuvants promote activated T cell survival via induction of Bcl-3. *Nat. Immunol.* 2001; 2:397-402
13. **Schaefer BC**, Mitchell TC, Kappler JW, and Marrack P. A novel family of retroviral vectors for the rapid production of complex stable cell lines. *Anal. Biochemistry.* 2001; 297:86-93.
14. **Schaefer BC**, Schaefer ML, Kappler JW, Marrack P, and Kedl RM. Observation of antigen-dependent CD8+ T-cell/ dendritic cell interactions in vivo. *Cell. Immunol.* 2001; 214:110-22.
15. †Kedl RM, **Schaefer BC**, Kappler JW, and Marrack P. T cells down-modulate peptide-MHC complexes on APCs in vivo. *Nat. Immunol.* 2002; 3:27-32.
†Faculty of 1000 Must Read Article
16. Miranda LR, **Schaefer BC**, Kupfer A, Hu Z, and Franzusoff A. Cell surface expression of the HIV-1 envelope glycoproteins is directed from intracellular CTLA-4-containing regulated secretory granules. *Proc. Natl. Acad. Sci. USA.* 2002; 9:8031-6.
17. **Schaefer BC**, Kappler JW, Kupfer A, and Marrack P. Complex and dynamic redistribution of NF- κ B signaling intermediates in response to T cell receptor stimulation. *Proc. Natl. Acad. Sci. USA.* 2004; 101:1004-9.
18. †Zhu Y, Swanson BJ, Wang M, Hildeman DA, **Schaefer BC**, Liu X, Suzuki H, Mihara K, Kappler J, and Marrack P. Constitutive association of the proapoptotic protein Bim with Bcl-2-related proteins on mitochondria in T cells. *Proc Natl Acad Sci U S A.* 2004;101:7681-6.
†Faculty of 1000 Must Read Article
19. Witt CM, Raychaudhuri S, **Schaefer B**, Chakraborty AK, and Robey EA. Directed migration of positively selected thymocytes visualized in real time. *PLoS Biol* 2005; 3:e160.
20. Udagawa T, Puder M, Wood M, **Schaefer BC**, and D'Amato RJ. Analysis of tumor-associated stromal cells using SCID GFP transgenic mice: contribution of local and bone-marrow derived host cells. *FASEB J.* 2006; 20:95-102.

ORIGINAL REPORTS – CONTINUED

21. Rossman JS, Stoicheva NG, Langel FD, Patterson GH, Lippincott-Schwartz J, and **Schaefer BC**. POLKADOTS are foci of functional interactions between cytosolic intermediates in T cell receptor-induced activation of NF- κ B. *Mol. Biol. Cell* 2006; 17:2166-76.
22. Cameron JE, Yin Q, Fewell C, Lacey M, McBride J, Wang X, Lin Z, **Schaefer BC**, and Flemington EK. Epstein-Barr virus latent membrane protein 1 induces cellular MicroRNA miR-146a, a modulator of lymphocyte signaling pathways. *J. Virol.* 2008; 82:1946-58.
23. Kingeter LM and **Schaefer BC**. Loss of PKC θ , Bcl10, or Malt1 selectively impairs proliferation and NF- κ B activation in the CD4+ T cell subset. *J. Immunol.* 2008; 181:6244-54.
24. Langel FD, Jain NA, Rossman JS, Kingeter LM, Kashyap AK, and **Schaefer BC**. Multiple protein domains mediate interaction between Bcl10 and Malt1. *J. Biol. Chem.* 2008; 283: 32419-31.
25. Kingeter LM and **Schaefer BC**. Expanding the multicolor capabilities of basic confocal microscopes by employing red and near-infrared quantum dot conjugates. *BMC Biotech.* 2009; 9:49.
26. [†]Lamb EW, Walls CD, Pesce JT, Riner DK, Maynard SK, Crow ET, Wynn TA, **Schaefer BC**, and Davies SJ. Blood fluke exploitation of non-cognate CD4+ T cell help to facilitate parasite development. *PLoS Pathog.* 2010; 6:e1000892.
[†]*Faculty of 1000 Must Read Article*
27. Kingeter LM, Paul S, Maynard SK, Cartwright NG, and **Schaefer BC**. *Cutting Edge*: T cell receptor ligation triggers digital activation of NF- κ B. *J. Immunol.* 2010; 185:4520-4.
28. Cartwright N, Kashyap AK, and **Schaefer BC**. An active kinase domain is required for retention of PKC θ at the immunological synapse. *Mol Biol Cell.* 2011; 22:3491-7.
29. [†]Paul S, Kashyap AK, Jia W, He Y-W, **Schaefer BC**. Selective autophagy of the adaptor protein Bcl10 modulates T cell receptor activation of NF- κ B. *Immunity.* 2012; 36:947-58.
[†]*Faculty of 1000 Recommended Article*
30. Lagraoui M, Latoche JR, Cartwright NG, Sukumar G, Dalgard CL, **Schaefer BC**. Controlled cortical impact and craniotomy induce strikingly similar profiles of inflammatory gene expression, but with distinct kinetics. *Front Neurol.* 2012; 3:155.
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REVIEWS AND EDITORIALS

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7. Paul S and **Schaefer BC**. Selective autophagy regulates T cell activation. *Autophagy.* 2012; 8:1690-2.
8. Paul S and **Schaefer BC**. A new look at antigen receptor signaling to NF- κ B. *Trends Immunol.* 2013; 34:269-81.
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BOOKS: EDITED VOLUMES

1. Gene Cloning and Analysis: Current Innovations. **Schaefer BC**, ed. Horizon Scientific Press, Wymondham, Norfolk, UK. 1997.

BOOKS: CHAPTERS

1. **Schaefer BC**. RNA ligase-mediated RACE: An effective method for the cloning of full-length cDNA ends. In: *Gene Cloning and Analysis: Current Innovations*. Schaefer BC, ed. Horizon Scientific Press, Wymondham, Norfolk, UK. 1997, pp. 99-115.
2. Paul S and **Schaefer BC**. Visualizing TCR-Induced POLKADOTS Formation and NF- κ B Activation in the D10 T-Cell Clone and Mouse Primary Effector T Cells. In: *NF- κ B: Methods and Protocols*, Methods in Molecular Biology, Michael J. May (ed.), 2015; **1280**:219-38.
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4. †Mastraccio KE, *Huaman C, Laing ED, Broder CC, **Schaefer BC**. Longitudinal Tracing of Lyssavirus Infection in Mice via In Vivo Bioluminescence Imaging. In: *Bioluminescence*. Methods in Molecular Biology, Kim, SB. (ed.), 2022; **2524**:369-394.
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ABSTRACTS AND POSTERS (PAST 6 YEARS)

1. *Rios K, Traver M, Zhou M, Conrads TP, and **Schaefer BC**. Loss of mitochondrial protein CARD19 results in dysregulation of autophagy in bone marrow derived macrophages. USU Research Days Poster Session, May 15, 2019, Bethesda, MD.
**Winner, Best Poster Presentation*
2. *Rios K, Beauregard C, Zhou M, Conrads TP, and **Schaefer BC**. CARD19 is a link between MICOS deficiency and macrophage inflammatory responses. Oct. 24, 2019. Autumn Immunology Conference - 2019, Chicago, IL.
**oral presentation*
3. *Rios K, Beauregard C, Zhou M, Conrads TP, and **Schaefer BC**. CARD19 is a novel MICOS-interacting protein with a role in mitochondrial integrity. Dec. 8, 2019. American Society for Cell Biology (ASCB/EMBO 2019) Annual meeting, Washington, DC.
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4. *Rios K, Beauregard C, Zhou M, Conrads TP, and **Schaefer BC**. CARD19 interacts with MICOS complex proteins and protects against mitochondrial dysfunction in macrophages. †AAI Annual Meeting, Honolulu, HI.
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5. Campanello L, Traver MK, Shroff H, **Schaefer BC**, and Losert W. Bcl10 Filament Structure and Dynamics Regulate Effector T Cell Activation. October 13 - 16, 2020. Cold Spring Harbor Symposia: Gene Expression and Signaling in the Immune System
6. *Huaman C, Mastraccio KE, Coggins SA, Hussain I, Yan L, Ahmed AE, Ho T, Smith IL, Markotter W, Weir D, Laing ED, Broder CC, and **Schaefer BC**. Control of established, CNS-resident lyssavirus infection by an adaptive immune response stimulated by single-dose monoclonal antibody therapy. May 6 – 10 2022. AAI Annual Meeting, Oregon Convention Center, Portland, OR.
**oral presentation*
7. *Huaman C, Mastraccio KE, Coggins SA, Hussain I, Yan L, Ahmed AE, Ho T, Smith IL, Markotter W, Weir D, Laing ED, Broder CC, and **Schaefer BC**. Control of established, CNS-resident lyssavirus infection by an adaptive immune response stimulated by single-dose monoclonal antibody therapy. July 24 – 27, 2022. International Symposium on Infectious Diseases of Bats, Ft. Collins, CO.
**oral presentation*
8. *Hussain I, Traver MK, Campanello L, Huaman C, Paul S, Shroff H, Losert W, and **Schaefer BC**. A Transient Malt1 Aggresome Sustains T Cell Receptor Signaling to NF-κB. Nov. 18 – 22, 2022. 50th annual Autumn Immunology Conference, Marriott Downtown Magnificent Mile, Chicago, IL
**oral presentation*
9. Hussain I, Traver MK, Campanello L, Huaman C, Paul S, Shroff H, Losert W, and **Schaefer BC**. MALT1 localizes to an aggresome-like structure and sustains NF-κB activation, with limited turnover. Dec. 3 – 7, 2022. Cell Bio 2022 (ASCB/EMBO Annual meeting), Walter E. Washington Convention Center, Washington, D.C.
10. Huaman C, Mastraccio KE, Coggins SA, Hussain I, Yan L, Ahmed AE, Ho T, Smith IL, Markotter W, Weir D, Laing ED, Broder CC, and **Schaefer BC**. Control of established, CNS-resident lyssavirus infection by an adaptive immune response stimulated by single-dose monoclonal antibody therapy. July 5 – 8, 2023. World Immune Regulation Meeting (WIRM), Davos, SWITZERLAND.

ABSTRACTS AND POSTERS (PAST 6 YEARS) - CONTINUED

11. Xu K, Yan L, Xu Y, Broder CC, and **Schaefer B**. Structural Basis of Broad Protection against Phylogroup 1 Lyssavirus by Antibodies A6 and F11. Feb. 14-16, 2024. Viruses 2024 - A World of Viruses. Barcelona, SPAIN.
12. *Huaman C, Mastraccio KE, Coggins SA, Hussain I, Yan L, Ahmed AE, Ho T, Smith IL, Markotter W, Weir D, Laing ED, Broder CC, and **Schaefer BC**. Control of established, CNS-resident lyssavirus infection by an adaptive immune response stimulated by single-dose monoclonal antibody therapy. Annual Biomedical Research Conference for Minoritized Scientists (ABRCMS)365: Career & Research Summit, Jan. 23, 2024 (virtual; one of twelve abstracts selected for Scientific Lightning Talks).
**oral presentation*
13. *Huaman C, Mastraccio KE, Coggins SA, Hussain I, Yan L, Ahmed AE, Ho T, Smith IL, Markotter W, Weir D, Laing ED, Broder CC, and **Schaefer BC**. Monoclonal antibody-mediated control of lyssavirus infection in the CNS requires Fc effector function. May 3-7, 2024. IMMUNOLOGY 2024 (American Association of Immunologists Annual Meeting), Chicago, IL.
**oral presentation*
14. *Huaman C, Clouse C, Rader M, Yan L, Bai S, Gunn BM, Amaya M, Laing ED, Broder CC, and **Schaefer BC**. Noninvasive bioluminescence imaging of non-pathogenic henipavirus in mice. June 24-28, 2024, American Society for Virology's 43rd Annual Meeting, Columbus, Ohio.
**oral presentation*
15. Rader M, Huaman C, Clouse C, Strazzella A, Hong J, Yan L, Broder C, Xu K, **Schaefer BC**. Monoclonal antibody treatment for rabies disease: long term therapeutic impact on motor function recovery. July 14 - 17, 2025, 44th Annual Meeting of the American Society for Virology. Montreal, Quebec, CANADA.
16. *Huaman C, Clouse C, Rader M, Strazzella AM, King J, Santorella EM, Yan L, Bai S, Gunn BM, Amaya M, Broder CC, and **Schaefer BC**. Development of a BSL-2 pre-clinical murine model to investigate henipavirus replication and pathogenesis. July 14 - 17, 2025, 44th Annual Meeting of the American Society for Virology. Montreal, Quebec, CANADA.
**oral presentation*

INVITED LECTURES

1. **Clinical Breast Care Project at the Immunology Research Center, Bethesda, MD.** June 24, 2004. *Visualizing T cell receptor activation of the NF- κ B signaling pathway.*
2. **University of Maryland Biotechnology Institute (UMBI)/Center for Advanced Research in Biotechnology (CARB), Rockville, MD.** Aug 10, 2004. *Spatio-temporal and biochemical analyses of T cell receptor activation of the NF- κ B signaling pathway.*
3. **Biochemistry Department Seminar Series, Uniformed Services University, Bethesda, MD.** Nov 22, 2005. *Mechanisms of Bcl10-mediated signaling in TCR activation of NF- κ B.*
4. **Research Week, Uniformed Services University (Co-chair of minisymposium, "Cutting Edge Technologies in Cell and Molecular Medicine"). Bethesda, MD.** May 14, 2008. *Subcellular Dynamics of Lymphocyte Signaling Revealed by 2-photon Photoactivation.*

INVITED LECTURES – CONTINUED

5. **Tulane Medical School, New Orleans, LA.** May 22, 2008. *Differential T Cell Receptor Signaling to NF- κ B in the CD4+ and CD8+ T cell Subsets.*
6. **Beirne B. Carter Center for Immunology Research, University of Virginia, Charlottesville, VA.** Oct 12, 2009. *T cell receptor activation of NF- κ B: It's all about location, location, location*
7. **Gliositis Interest Group, Center for Neuroscience and Developmental Medicine (CNRM), Uniformed Services University, Bethesda, MD.** May 5, 2010. *The immune response to tissue injury/brain injury.*
8. **Department of Medicine Seminar Series, Uniformed Services University, Bethesda, MD.** April 13, 2012. *An NF- κ B-centric view of immunity: From T cell activation to regulation of inflammation in the brain.*
9. **Keystone Symposium, NF- κ B Signaling and Biology: From Bench to Bedside, Whistler, BC, CANADA.** March 22, 2012. *Selective autophagy of Bcl10 modulates T cell receptor activation of NF- κ B – new targets for intervention in lymphocyte cancers and lymphocyte functional responses.*
10. **American Association of Immunologists (AAI) Meeting, Boston, MA.** May 6, 2012. *Selective autophagy of Bcl10 modulates T cell receptor activation of NF- κ B.*
11. **University of Pennsylvania School of Veterinary Medicine, Mari-Lowe Center for Comparative Oncology Seminar Series, Philadelphia, PA.** October 18, 2012. *Selective self-eating and other degrading behavior in T cell receptor signaling to NF- κ B.*
12. **Massachusetts General Hospital Immunology Seminar Series, Charlestown, MA.** October 25, 2012. *Selective self-eating and other degrading behavior in T cell receptor signaling to NF- κ B.*
13. **Keystone Symposium (B4): The NF-kappaB system in health and disease.** February 27, 2014, Keystone, CO. *T cell receptor signals to NF- κ B are transmitted by a cytosolic p62-Bcl10-Malt1-IKK signalosome.*
14. **American Society for Cell Biology (ASCB) Annual Meeting, Philadelphia, PA.** December 7, 2014. *Regulation of T cell receptor signaling to NF- κ B by microtubule transport of signalosomes.*
15. **Keystone Symposium (D3): T Cells - Regulation and Effector Function. Snowbird, UT.** April 2, 2015. *Regulation of T cell receptor signaling to NF- κ B by microtubule transport of signalosomes to aggresomes.*
16. **National Institutes of Health, Laboratory of Clinical Infectious Diseases Seminar series, Bethesda, MD.** May 18, 2016. *POLKADOTS, self-eating, the cellular garbage can, and other surprising features of T cell receptor-to-NF- κ B signaling*
17. **EMBO Conference: Lymphocyte Antigen Receptor Signaling, Siena, ITALY.** September 4, 2016. *Microtubule-dependent transport and coalescence of nanoscale cytoplasmic signalosomes is required for sustained T cell receptor signaling to NF- κ B.*
18. **Lung Cancer Summit, Murtha Cancer Center, Walter Reed National Military Medical Center, Bethesda, MD.** November 4, 2016. *Defining a tumor associated myeloid cell gene expression signature in an animal model of early Kras⁺ lung adenocarcinoma.*

INVITED LECTURES – CONTINUED

19. **18th Annual West Point Microbiology Lecture, United States Military Academy, West Point, NY.** November 16, 2018. Rabies – Is it curable, and why should you care?
20. **Department of Biological Chemistry Tuesday Seminar Series, Johns Hopkins School of Medicine, Baltimore, MD.** January 12, 2021. Polymerization and autophagy – the give and take of TCR signaling to NF- κ B in effector T cells.
21. **ISNV 17th Annual Symposium on Neurovirology/2021 Conference on HIV in the Nervous System.** June 2, 2021 (virtual meeting). Plenary session presentation: mAb therapy for CNS-resident lyssavirus infection: Biological activity well beyond simple neutralization.
22. **University of Louisville Center for Predictive Medicine, Louisville, KY.** October 25, 2023. Monoclonal Antibody Therapy Controls CNS-Resident Lyssavirus Infection via a CD4 T Cell-dependent Mechanism.
23. **Viruses 2024 – A World of Viruses, Barcelona, SPAIN.** February 14, 2024. Control of CNS-resident lyssavirus infection by peripherally-administered human monoclonal antibodies F11 and A6.
24. **Kappler & Marrack Symposium: Celebrating a Legacy of Discovery, Mentorship and Leadership, National Jewish Health, Denver, CO. Nov 15, 2024.** An effective immunotherapy approach to treat rabies, even after robust viral replication in the CNS.
25. **Autumn 2024 Shoreland Multinational Collaborative Group (MNC) Meeting, Army & Navy Country Club, Arlington, VA. Nov 21, 2024.** Rabies Prophylaxis, Prevention, and (Yes) Treatment.
26. **20th International Symposium on NeuroVirology, Denver, CO, June 5, 2025.** A BSL-2 pre-clinical murine model to investigate henipavirus in vivo biology and candidate therapeutics.

MEDIA INTERVIEWS

1. **Outbreak News Interview with Robert Herriman:** Oct 19, 2023.
<https://outbreaknewstoday.substack.com/p/a-potential-cure-for-rabies-with>
<https://open.spotify.com/episode/0MJM1KO3hqzYVL24AcFMvo>