

MEGAN M. STUMPF

megan.stumpf@cuanschutz.edu

<https://meganstumpf.github.io>

<https://github.com/meganstumpf>

EDUCATION

University of Colorado – Anschutz Medical Campus, Aurora, CO: Ph.D. in Immunology (8/2021 –)

Defense Date: April 16th, 2026

GPA: 3.96

University of Washington (UW), Seattle, WA (1/2014 – 12/2017): B.S. in Microbiology

Virginia Commonwealth University (VCU), Richmond, VA (6/2012 – 5/2013)

RELEVANT PROFESSIONAL EXPERIENCE

Graduate Research Assistant, University of Colorado –

Anschutz Medical Campus, Morrison Lab (Aurora, CO, USA); Full Time (08/01/2021 –)

- Independently developed and validated a deep mutational scanning (DMS) chikungunya virus (CHIKV) library system to quantify single amino acid substitutions on viral fitness and antibody neutralization
 - Created *megaLogo*, an open-source software package for generating large-scale amino acid logoplots to visualize novel and traditional metrics of protein-level mutation effect sizes
 - Adapted traditional DMS analysis and variant-calling pipelines for low-cost, high-throughput sequencing methods using diverse programming languages and tools (R, RMarkdown, bash, shell scripting, Python, Git, Perl, Java, SLURM, Quarto, PyMOL, Jupyter, HTML/CSS)
 - Performed large-scale analyses using the University's Alpine high-performance computing (HPC) resource (advanced user and SSH key authentication pilot tester, since 2023) and department-hosted super nodes (since 2022)
- Investigated antibody specificity and marginal zone B cell activation in a scavenger receptor (MARCO) knockout mouse model, identifying mechanisms of decreased neutralization potency early after CHIKV infection (*first-author manuscript in preparation*)
- Conducted bulk RNA-seq analyses for lab members to characterize drug-induced viral mutation frequencies, gene set enrichment analyses (GSEA), and differential expression in sorted mouse cell populations (*manuscripts in preparation*)
- Skilled in immunology/microbiology, molecular biology, mouse husbandry, in vivo experimentation/tissue collection, next-generation sequencing library preparation, and protein production/purification under BSL2/ABSL2 and BSL3/ABSL3 conditions
- Mentored 9+ graduate students and postdoctoral fellows in both technical and professional aspects within the Morrison Lab and graduate program

Microbiologist II, Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases, Respiratory Virus Immunology Team, Division of Viral Diseases, Respiratory Virus Branch (Atlanta, GA, USA); Full Time (05/01/2020 – 7/17/2021)

- Evaluated novel methodologies for respiratory virus antibody detection
- Projects as a member of the COVID Laboratory Task Force included, but were not limited to:
 - Cerebrospinal fluid characterization in pediatric stroke cases positive by nasopharyngeal swab
 - Investigation of SARS-CoV-2 seroprevalence in long-term care facilities and dialysis centers
 - Exploring prior human CoV (hCoV) exposure in large-scale SARS-CoV-2 transmission studies with *in vitro* and epidemiological/biostatistics approaches (primarily using R)
 - Characterizing biorepository sera and national reference material

Microbiologist, Centers for Disease Control and Prevention, Center for Global Health, Survey Support Team (formerly Serology & Incidence Team), Division of Global HIV & Tuberculosis, International Laboratory Branch (Atlanta, GA, USA); Full Time (08/01/2018 – 05/01/2020)

- Worked on Population Health Impact Assessment (PHIA) surveys
- Viral Load & Early Infant Diagnosis (EID) Molecular Subject Matter Expert (SME) Lead for nine concurrent PHIA surveys
 - Facilitated trainings, management, managed biorepository set-up, quality control monitoring, and data review/approval for all viral load and EID tests performed during PHIA surveys

- SME for serologic tests, incidence assays, and additional molecular testing utilized in PHIA surveys
- Worked to develop controls for new Rapid Tests for Recent Infection (RTRIs) for global scale-up
- International SME (ISME) for Serology/Incidence subject areas for South Sudan and Angola

Research Technician I/Intern, Fred Hutchinson Cancer Research Center (FHCRC), Overbaugh Lab (Seattle, WA, USA) (10/01/2015 – 08/01/2018)

- Full time employment (40+ hours/week) following graduation
- Completed multiple projects with access to mentorship and guidance when needed. Projects worked on included, but not limited to:
 - Epitope mapping of HIV-specific antibodies that mediate Antibody-dependent Cellular Cytotoxicity (ADCC) activity
 - Understanding longitudinal development of HIV-specific binding in ADCC-mediating antibodies using next-generation sequencing methods (collaboration with Dr. Erick Matsen's lab at Fred Hutch)
 - Uncovering mutations required for acquisition of neutralization breadth in previously described infant broadly neutralizing antibody (bNAbs)
 - Investigating genital cytokine levels and HIV acquisition/shedding in women using injectable contraceptive using *in vitro* and epidemiological/biostatistics methods (primarily using R)

OPEN-SOURCE SOFTWARE & RESEARCH TOOLS

- **megaLogo** – Python-based command-line tool that builds on existing sequence logo tools (e.g. WebLogo) for large-scale, automated amino acid logoplot visualization; designed for high-throughput workflows.
GitHub: <https://github.com/meganstumpf/megalogo>
- **CHIKV Deep Mutational Scanning (DMS) Analysis Notebook** (Quarto/Jupyter)
GitHub: <https://meganstumpf.github.io/chikvdms-mAb-paper/>
- **ChoreBot** – Forked and implemented an open-source Google Apps Script tool to automate weekly lab task reminders using Google Sheets and Slack APIs with webhooks; fork of *gas-sheets2slack*
GitHub: <https://github.com/meganstumpf/gas-sheets2slack>
- **Personal Website/Portfolio** (Jekyll, HTML/CSS)
GitHub: <https://meganstumpf.github.io>

HONORS AND AWARDS

- Training in Immunology, T32 Program Awardee, Re-appointment (Fall 2025-2026)
- C. Werner and Katie Hirs Travel Award Recipient (Summer 2025)
- American Society for Virology Conference Student Travel Award Recipient (Spring 2025)
- Training in Immunology, T32 Program Awardee (Fall 2024-2025)
- Sigma Xi Scientific Research Honor Society Associate Membership Nomination (Summer 2024)
- Molecular Pathogenesis of Infectious Diseases (MPID) Scholar (2023-2024)
- 1st Place Graduate Student Poster Award, 2023 MPID Symposium (Fall 2023)
- C. Werner and Katie Hirs Travel Award Recipient (Fall 2023)
- American Society for Virology Conference Student Travel Award Recipient (Spring 2023)
- National Science Foundation Graduate Research Fellowship Program, Honorable Mention (Spring 2023)
- 2nd Place Graduate Student Poster Award, 2022 MPID Symposium (Fall 2022)
- Poster Award Recipient, 36th Annual Research Forum 2021 at CU-Anschutz Medical Campus (Fall 2021)
- Young Investigator Scholarship, Conference on Retroviruses and Opportunistic Infections (CROI) 2018, March 4th – 7th, 2018
- Interdisciplinary Award for Research Excellence (UW Dept. of Microbiology) (Summer 2017)
- Mary Gates Research Scholar (Summer 2017, Spring 2017)
- Dean's List (UW: Summer 2017, Summer 2016, Autumn 2014; VCU: 2012-13 Academic Year)
- University of Washington Global Opportunity (GO!) Scholar (Spring 2017)
- International Runner-Up in Epidemiology, Health Occupations Students of America (HOSA): Future Health Professionals (2016-2017)
- WA State Champion in Epidemiology, HOSA: Future Health Professionals (2016-2017)
- Elected President, HOSA: Future Health Professionals, UW Chapter (2016-2017)
- Washington NASA Space Grant Consortium Summer Undergraduate Research Program (SURP) Scholar (Summer 2016)

- WA State Champion in Epidemiology, HOSA: Future Health Professionals (2015-2016)
- Elected Vice President, HOSA: Future Health Professionals, UW Chapter (2015-2016)
- Atlantic 10 Commissioner's Honor Roll (VCU: 2012-2013)
- Athletic Director's Honor Roll (VCU: 2012-2013)
- Volleyball Athletic Scholarship Recipient (VCU: 2012-2013)
- Deans' Academic Scholarship Recipient (VCU: 2012-2013)

COMMITTEES

- 2024 Molecular Pathogenesis of Infectious Diseases Symposium Planning Committee (2023-2024)
- Event and Retreat Officer/Social Chair, Immunology Graduate Student Board (2023-2024)
- International Laboratory Branch Cross-Training Committee (2019-2020)

VOLUNTEERING

- Aurora Center for Active Adults (Winter 2025)
- Think Like a Scientist (TLaS) Volunteer (March 2023)

TEACHING EXPERIENCE

IMMU 6110 (Introduction to Bioinformatics) Teaching Assistant (TA) (Fall 2024)

PROFESSIONAL MEMBERSHIPS

Bits in Bio Denver Chapter: Member (2025-Current)

R-Ladies Aurora Chapter: Member (2025-Current)

Sigma Xi Scientific Research Honor Society: Associate Member (2024-Current)

Nucleate, Colorado Chapter: Co-Founder, Director of Operations/Regional Comm Lead (2022-2024)

Women in Bio: Full Member (2020-2021)

Emory Vaccine Dinner Club: Full Member (2020-2021)

GRADUATE SCHOOL GRADES

BMSC 7801 (Foundations in Biomedical Sciences): A

BMSC 7810 (Inflammation): A

BMSC 7810 (Microbiome in Health and Medicine): A

IMMU 6110 (Bioinformatics): A

IMMU 7603 (Clinical Immunology): A-

IMMU 7605 (Scientific Writing Workshop): A

IMMU 7606 (Science as a Profession): A

IMMU 7608 (Immunology of Infection): A

IMMU 7650 (Research in Immunology): A

IMMU 7662 (Immunology): A-

PEER-REVIEWED MANUSCRIPTS

(<https://orcid.org/0000-0001-8085-3094>)

1. **Stumpf, M.M.**, Brunetti, T., Davenport, B.J., McCarthy, M.K., Morrison, T.E. (2025). Deep mutationally scanned CHIKV E3/E2 virus library maps viral amino acid preferences and predicts viral escape mutants of neutralizing CHIKV antibodies. *J Virol.* <https://doi.org/10.1128/jvi.00081-25>.
2. Lester, S.N., **Stumpf, M.**, Freeman, B.D., et al. (2024). Examination of SARS-CoV-2 serological test results for multiple commercial and laboratory platforms with an in-house serum panel. *Access Microbiol.* <https://doi.org/10.1099/acmi.0.000463.v4>.
3. Tobolowsky, F.A., Waltenburg, M.A., Moritz, E.D., [et al, including **Stumpf, M.M.**] for the CDC Infection Prevention and Control Team. (2022). Longitudinal serologic and viral testing post-SARS-CoV-2 infection and post-receipt of mRNA COVID-19 vaccine in a nursing home cohort – Georgia, October 2020 – April 2021. *PLoS One.* <https://doi.org/10.1371/journal.pone.0275718>.
4. Castleman, M.J., **Stumpf, M.M.**, Therrien, N.R., et al. (2022). Autoantibodies elicited with SARS-CoV-2 infection are linked to alterations in double negative B cells. *Front Immunol.* <https://doi.org/10.3389/fimmu.2022.988125>.

5. **Stumpf, M.M.**, Freeman, B., Mills, L., et al. (2022). Examination of common coronavirus antibodies in SARS-CoV-2-infected and uninfected participants in a household transmission investigation. *Open Forum Infect Dis*. <https://doi.org/10.1093/ofid/ofac212>.
6. Castleman, M.J., **Stumpf, M.M.**, Therrien, N.R., et al. (2022). SARS-CoV-2 infection relaxes peripheral B cell tolerance. *J Exp Med*. <https://doi.org/10.1084/jem.20212553>.
7. Shah, M.M., Rasheed, M.A.U., Harcourt, J.L., [et al, including **Stumpf, M.M.**]. (2022). Twelve-month follow-up of early COVID-19 cases in the United States: Cellular and humoral immune longevity. *Open Forum Infect Dis*. <https://doi.org/10.1093/ofid/ofab664>.
8. Bardossy, A.C., Korhonen, L., Schwartzman, S., [et al, including **Stumpf, M.M.**]. (2021). Clinical course of SARS-CoV-2 infection in adults with ESKD receiving outpatient hemodialysis. *Kidney360*. <https://doi.org/10.34067/KID.0004372021>.
9. Brown, N.E., Lyons, A.K., Schuh, A.J., **Stumpf, M.M.**, et al. (2021). Descriptive evaluation of antibody responses to SARS-CoV-2 infection in plasma and gingival crevicular fluid in a nursing home cohort – Arkansas, June – August 2020. *Infection Control & Hospital Epidemiology*. <https://doi.org/10.1017/ice.2021.484>.
10. Camerini, D., Randall, A.Z., Trappl-Kimmons, K., [et al, including **Stumpf, M.M.**]. (2021). Mapping SARS-CoV-2 antibody epitopes in COVID-19 patients with a multi-coronavirus protein microarray. *Microbiology Spectrum*. <https://doi.org/10.1128/Spectrum.01416-21>.
11. Self, W.H., Tenforde, M.W., Rhoads, J.P., [et al, including **Stumpf, M.M.**]. (2021). Comparative effectiveness of Moderna, Pfizer-BioNTech, and Johnson & Johnson COVID-19 vaccines for prevention of COVID-19 hospitalizations among adults without immunocompromising conditions – United States, March – August 2021. *MMWR (Early Release)*. <http://dx.doi.org/10.15585/mmwr.mm7038e1>.
12. Gable, P., Huang, J.Y., Gilbert, S., [et al, including **Stumpf, M.M.**]. (2021). A comparison of less invasive SARS-CoV-2 diagnostic specimens in nursing home residents – Arkansas, June-August 2020. *Clin Infect Dis*. <https://doi.org/10.1093/cid/ciab310>.
13. Killerby, M.E., Rasheed, M.A.U., Tamin, A., [et al, including **Stumpf, M.M.**]. (2021). Shedding of culturable virus, seroconversion, and 6-month follow-up antibody responses in the first 14 confirmed cases of COVID-19 in the United States. *J Infect Dis*. <https://doi.org/10.1093/infdis/jiab125>.
14. Surie, D., Huang, J., Brown, A.C., [et al, including **Stumpf, M.M.**]. (2021). Infectious period of SARS-CoV-2 in 17 nursing home residents – Arkansas, June – August 2020. *Open Forum Infect Dis*. <https://doi.org/10.1093/ofid/ofab048>.
15. Doepker, L.E., Danon, S., Harkins, E., [et al, including **Stumpf, M.M.**]. (2021). Development of antibody-dependent cell cytotoxicity function in HIV-1 antibodies. *eLife*. <https://doi.org/10.7554/eLife.63444>.
16. Basavaraju, S.V., Patton, M.E., Grimm, K., [et al, including **Stumpf, M.M.**]. (2020). Serologic testing of U.S. blood donations to identify SARS-CoV-2-reactive antibodies: December 2019-January 2020. *Clin Infect Dis*. <https://doi.org/10.1093/cid/ciaa1785>. Nominated for the Charles C. Shephard Science Award.
17. Williams, K.L.* , **Stumpf, M.***, Naiman, N.E., Ding, S., et al. (2019). Identification of HIV gp41-specific antibodies that mediate killing of infected cells. *PLOS Pathog* 15(2): e1007572. <https://doi.org/10.1371/journal.ppat.1007572>. *Authors contributed equally.

ORAL PRESENTATIONS

1. **Stumpf, M.M.**, Lucas, C.J., Hawman, D.W., et al. *Scavenger receptor MARCO promotes broadly neutralizing antibody responses during acute chikungunya virus infection*. 2025 American Society for Virology Annual Meeting in Montreal, Québec, Canada. July 13th – 18th, 2025.
2. **Stumpf, M.M.**, Brunetti, T., Davenport, B.J., McCarthy, M.K., Morrison, T.E. (2024). *Mapping virus-antibody interactions using a deep mutationally scanned (DMS) Chikungunya virus (CHIKV) E3/E2 virus library*. 2024 Rocky Mountain Virology Conference in Fort Collins, CO. September 27th – 29th, 2024.
3. **Stumpf, M.M.**, Davenport, B.J., Brunetti, T., McCarthy, M.K., Morrison, T.E. (2023). *Generation of a deep-mutationally scanned (DMS) CHIKV E3/E2 virus library to map virus-antibody interactions*. 2023 American Society for Virology Annual Meeting in Athens, GA. June 24th – 28th, 2023.
4. **Stumpf, M.M.**, Killerby, M., Freeman, B., Mills, L., Chu, V., Kirking, H., Thornburg, N.J. (2020). *Presence of common coronaviruses antibodies in a SARS-CoV-2 household transmission study*. One of ten TED-style virtual oral presentations at the 2021 CDC Laboratory Science Symposium in Atlanta, GA. January 29th, 2021.

5. **Stumpf, M.M.**, Nokes, L., Overbaugh, J. (2017). *Studying the longitudinal development of HIV-specific antibodies that mediate antibody-dependent cellular cytotoxicity (ADCC)*. Undergraduate Research Symposium at UW in Seattle, WA. May 19th, 2017.
6. **Stumpf, M.M.**, Williams, K.L., Overbaugh, J. (2016). *Mapping the binding properties of HIV-specific antibodies that mediate antibody-dependent cellular viral inhibition (ADCVI) activity*. Undergraduate Research Symposium at UW in Seattle, WA. May 20th, 2016.

POSTER PRESENTATIONS (First-Author Only Shown)

1. **Stumpf, M.M.**, Lucas, C.J., Hawman, D.H., et al. *Scavenger receptor MARCO promotes broadly neutralizing antibody responses during chikungunya virus infection*. 24th Annual Colorado Immunology & Microbiology Conference in Steamboat Springs, CO. August 27th – August 29th, 2025.
2. **Stumpf, M.M.**, Brunetti, T., Davenport, B., et al. *Mapping virus-antibody interactions using a deep mutationally scanned (DMS) Chikungunya virus (CHIKV) E3/E2 virus library*. 23rd Annual Colorado Immunology & Microbiology Conference in Breckenridge, CO. August 28th – August 30th, 2024.
3. **Stumpf, M.M.**, Davenport, B., Brunetti, T., et al. *Generating a Deep-Mutationally Scanned (DMS) CHIKV E3/E2 virus library to map virus-antibody interactions and improve viral phylogenetic fit models*. 2023 Molecular Pathogenesis of Infectious Disease Symposium in Aurora, CO. October 2nd, 2023.
4. **Stumpf, M.M.**, Davenport, B., Brunetti, T., et al. *Generating a Deep-Mutationally Scanned (DMS) CHIKV E3/E2 virus library to map virus-antibody interactions and improve viral phylogenetic fit models*. 22nd Annual Colorado Immunology & Microbiology Conference in Steamboat Springs, CO. August 30th – September 1st, 2023.
5. **Stumpf, M.M.**, Davenport, B., Brunetti, T., et al. *Generating a Deep-Mutationally Scanned (DMS) CHIKV E3/E2 virus library to map virus-antibody interactions*. 37th Annual Research Forum 2022 at CU-Anschutz in Aurora, CO. December 13th, 2022.
6. **Stumpf, M.M.**, Davenport, B., Brunetti, T., et al. *Generating a Deep-Mutationally Scanned (DMS) CHIKV E3/E2 virus library to map virus-antibody interactions*. 2022 Molecular Pathogenesis of Infectious Disease Symposium in Aurora, CO. October 9th, 2022.
7. **Stumpf, M.M.**, Davenport, B., Brunetti, T., et al. *Generating a Deep-Mutationally Scanned (DMS) CHIKV E3/E2 virus library to map virus-antibody interactions*. 21st Annual Colorado Immunology & Microbiology Conference in Vail, CO. August 24th – 26th, 2022.
8. **Stumpf, M.M.**, Davenport, B., McCarthy, M., et al. *Generating a Deep-Mutationally Scanned (DMS) CHIKV E3/E2 virus library to map virus-antibody interactions*. 2022 Keystone Symposia Conference on Positive-Strand RNA Viruses in Keystone, CO. June 18th – 22nd, 2022.
9. **Stumpf, M.M.**, Castleman, M.J., Torres, R.M. (2021). *Breaking B cell anergy: Exploring redemption cocktails*. 36th Annual Research Forum 2021 at CU-Anschutz in Aurora, CO. December 8th, 2021.
10. **Stumpf, M.M.**, Williams, K.L., Naiman, N.E., et al. (2018) *GP41-specific antibodies mediate potent antibody-dependent cellular cytotoxicity*. CROI 2018 in Boston, MA.
11. **Stumpf, M.M.**, Williams, K.L., Overbaugh, J. (2016). *Mapping the binding properties of HIV-specific antibodies that mediate antibody-dependent cellular viral inhibition (ADCVI) activity*. Washington NASA Space Grant Consortium (SURP) Symposium in Seattle, WA. September 26th, 2016.