

PERSONAL

Science and Mathematics Division	W: (253) 692-5607
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Tacoma WA, 98402	

EDUCATION

2012 – 2015	Postdoctoral Scientist, Center for Infectious Disease Research, Seattle WA.
2011 – 2012	Postdoctoral Senior Fellow, University of Washington, Seattle WA.
2006 – 2011	Ph. D. Infectious Disease and Immunity, University of California Berkeley, Berkeley CA.
2002 – 2006	B.A. Biology, Reed College, Portland OR.
Languages	Fluent in English and Spanish, basic Portuguese and French.
Technology	<ul style="list-style-type: none"> • <i>Operating Systems</i>: Windows (10, 7/8, Vista, XP), Mac OS. • <i>Software</i>: Word, Excel, Powerpoint, Adobe Photoshop, Canvas X, EndNote. • <i>Other</i>: ApE, Lasergene, SnapGene, Geneious, Vector NTI, MacVector, FlowJo, MStat, ImageJ, Pymol.

PROFESSIONAL EXPERIENCE

2019 - Present	Visiting Professor, Seattle Children's Research Institute (formerly Center for Infectious Disease Research), Seattle WA.
2018 – Present	Assistant Professor, Biomedical Sciences Division, University of Washington Tacoma, Tacoma WA.
2017 & 2018	Curriculum Coordinator: STEM Survival Skills, Math Science Upward Bound, University of Washington, Seattle WA.
2017 - 2018	Curriculum Co-Coordinator: Becoming a Student of Science, Biology Department, Western Washington University, Bellingham WA (HHMI funded).
2015 – 2016	Freelance Editor, Center of Excellence for Biochemistry, Genetic and Molecular Biology, Cactus Communications, Trevoze PA.
2011	Staff Research Associate I, Infectious Disease and Immunology Division, University of California Berkeley, Berkeley CA.
2002 – 2006	Biology Stockroom Student Manager, Biology Department, Reed College, Portland OR.
2003 – 2006	Biology Greenhouse Assistant, Biology Department, Reed College, Portland OR.
2006	Notetaker: Genetics and Gene Regulation, Biology Department, Reed College, Portland OR.
2005	Notetaker: Plant Physiology, Biology Department, Reed College, Portland OR.
2005	Notetaker: Cellular Biology, Biology Department, Reed College, Portland OR.

TEACHING EXPERIENCE

2018 - Present	<p>Assistant Professor (Cellular Biology): Courses include Cellular Biology & Biomedical Research Experience, University of Washington Tacoma, Tacoma WA.</p> <ul style="list-style-type: none"> • Lecture course gives undergraduate students (mostly majors) a solid foundation in cellular biology and includes a hands-on laboratory experience that focuses on fluorescence microscopy. Cellular Biology includes 20-22 students. • Research experience course requires undergraduate students to participate in bi-monthly lab meetings and gain valuable hands-on experience with important laboratory techniques, applicable computer programs and bioinformatic databases so they can implement their portion of an assigned research project. Biomedical Research Experience includes 6 students.
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- 2015 - 2018 **Biology Instructor:** Courses include a seminar within the HHMI Inclusive Excellence Grant Advancing Excellence and Equity in Science (AEES) program, Introduction to Cellular and Molecular Biology, Methods in Molecular Biology, Microbiology & Microbiology Lab, Western Washington University, Bellingham WA.
- The AEES Seminar provides a framework for incoming minority students and first-generation college students working within STEM fields. The seminar includes 20-30 students.
 - Lecture courses give undergraduate students (includes majors and non-majors) a solid foundation in cellular and molecular biology or principles in microbiology. Introduction to Cellular and Molecular Biology includes 72-96 students. Principles in Microbiology includes 30-40 students.
 - Laboratory courses give undergraduates hands-on experience with important laboratory techniques, applicable computer programs and bioinformatic databases and include an authentic research component. Introduction to Cellular and Molecular Biology includes 20-24 students (per section) and entire course requires supervising 2-4 graduate TAs. Methods in Molecular Biology includes 10-16 students (per section) and entire course requires supervising one undergraduate or one graduate TA. Microbiology Lab includes 20-24 students (per section) and entire course requires supervising one graduate TA.
- 2015, 2016 & 2018 **MSUB Science Elective Instructor:** Courses include Medical Microbiology & Immunology, University of Washington, Seattle WA. Designed and implemented coursework for the Math Science Upward Bound (MSUB) six-week summer academy for underrepresented high school students (16-18 per course, 10-12th grade).
- Medical Microbiology is a fast-paced science elective for the first-year students and is designed to solidify the mechanics of central dogma, cellular biology and introduce students to concepts in pathogenesis and Public Health.
 - Immunology is an advance science elective for second-year students and is designed to be a cell-based overview of the innate and adaptive systems that exposes students to the principles of vaccine design and the advancements in cancer treatments.
- 2013 – 2015 **BioQuest Academy Aid:** Malaria, Center for Infectious Disease Research, Seattle WA. Provided lectures on malarial pathogenesis and vaccine research/design. Lead tour groups throughout the facility and aided with the preparation to promote diversity and interest in STEM to high school and middle school age children.
- 2007 & 2010 **Graduate Student Instructor:** Principles of Infectious Diseases Part I, University of California Berkeley, Berkeley CA. Survey course was designed to give graduate students an in-depth examination of the etiology, epidemiology, pathogenesis, immunology and treatment of disease-causing microorganisms. Taught lectures, lead a graduate seminar, provided out-of-class aid and assisted with reader preparation. Course includes 35-45 students.
- 2005 & 2006 **Teaching Assistant:** Cellular Biology, Reed College, Portland OR. Assisted primarily with laboratory procedures. Course includes 35-45 students.
- 2005 **Teaching Assistant:** Developmental Biology, Reed College, Portland OR. Assisted with laboratory procedures, in addition to providing out-of-class aid. Course includes 35-45 students.

RESEARCH EXPERIENCE

- 2018 - Present **UW Tacoma Research Projects:** 1. Investigation of the molecular mechanisms underlying the unique cell morphogenesis of *Plasmodium* parasites during early liver-stage development. 2. Examination of the protein interactive network on the *Plasmodium* parasite plasma membrane during the mosquito-to liver-stage transition. 3. Examination of age-dependent maturation as it pertains to sporozoite infectivity in *Anopheles stephensi* mosquitoes. Dr. A. Groat Carmona (Principal Investigator), University of Washington Tacoma, Tacoma WA.
- 2016 - 2018 **WWU Research Project:** Investigation of the molecular mechanisms underlying the unique cell morphogenesis of *Plasmodium* parasites during early liver-stage development, Dr. A. Groat Carmona (Principal Investigator), Western Washington University, Bellingham WA.

- 2012 – 2015 **CIDR Postdoctoral Projects:** 1. Characterization of previously unknown *Plasmodium* proteins that are important for the asymptomatic liver stage using the *P. yoelii* mouse model. 2. Examination of age-dependent maturation as it pertains to sporozoite infectivity in *Anopheles stephensi* mosquitoes. 3. Determine what hepatocellular characteristics facilitate pre-erythrocytic infection by promoting intracellular parasite survival. Dr. S. Kappe (Principal Investigator), Center for Infectious Disease Research, Seattle WA.
- 2011 – 2012 **UW Postdoctoral Project:** Understanding the RNase-Sensitivity of HIV-1 Capsid Assembly Intermediates, Dr. J. Lingappa (Principal Investigator), University of Washington, Seattle WA.
- 2007 – 2011 **UC Berkeley Dissertation Project:** Investigating the Role of Conserved Coding-Region Regulatory RNA Elements in Modulating the Dengue Viral Life Cycle, Dr. E. Harris (Principal Investigator), University of California Berkeley, Berkeley CA.
- 2006 **Merck Student Research Internship:** Understanding Virulence: *in vitro* Analysis of H-NS, Ler and SlyA Mediated Regulation of the *LEE5* Regulatory Region in Enteropathogenic *Escherichia coli*, Dr. J. Mellies (Principal Investigator), Reed College, Portland OR.
- 2005 – 2006 **Reed College Senior Thesis:** Understanding Virulence: *in vitro* Analysis of H-NS and Ler Mediated Regulation of the *LEE5* Regulatory Region in Enteropathogenic *Escherichia coli*, Dr. J. Mellies (Principal Investigator), Reed College, Portland OR.
- 2005 **Merck Student Research Internship:** Molecular Mechanisms of *LEE5* Transcription in Enteropathogenic *Escherichia coli*: *in vitro* Analysis of H-NS and Ler Binding, Dr. J. Mellies (Principal Investigator), Reed College, Portland OR.
- 2004 **Howard Hughes Medical Institute Internship:** Translational Control of the Dengue Viral Genome: Role of 3' Untranslated Region and Conserved Sequence 1, Dr. T. Dreher (Principal Investigator), Oregon State University, Corvallis OR.
- 2003 – 2005 **Independent Research Projects:** Microbiology, Genetics, Animal Behavior and Behavioral Ecology, Developmental Biology & Cellular Biology, Reed College, Portland OR.
- 2002 **Field Assistant:** Seasonal Variation of *Cecropia-Azteca* Mutualisms in a Neotropical Dry Forest, Dr. V. Carmona Galindo (Principal Investigator), Organization for Tropical Studies at Palo Verde National Park, Guanacaste, Costa Rica.

PUBLICATIONS

Manuscript in Preparation or Submitted for Publication:

- K. Aguon, M. Seto, M. Anderson, A. Malhi, K. Barker and **A. M. Groat-Carmona** (*ms in prep*). Biochemical analysis of the *Plasmodium* BEM46-like protein and examining its role in parasite invasive-stage morphogenesis.
- A. M. Groat-Carmona**, A. Salim, D. Salim, H. Kain, W. Benz, S. Mikolajczak and S. H. Kappe (*ms in prep*). The role of age-dependent maturation in the generation of infectious *Plasmodium* sporozoites.
- A. M. Groat-Carmona**, V. D. Carmona-Galindo, K. Johnson and C. Urbinati (*ms in prep*). Ecological dynamics of *Mycobacterium* phage assemblages.
- A. M. Groat-Carmona** and J. Lingappa (*ms in prep*). Understanding the RNase-Sensitivity of HIV-1 Capsid Assembly Intermediates.

Publications:

- A. M. Groat-Carmona** and L. Dahlberg (2018). CRISPR/Cas Technology: In-and-Out of the Classroom. *The CRISPR Journal* 1(2):99-100.
- A. M. Groat-Carmona**, H. Kain, J. Brownell, A. N. Douglass, A. S. I. Aly and S. H. Kappe (2015). A *Plasmodium* α/β -hydrolase modulates the development of invasive stages. *Cellular Microbiology* 17(12):1848-1867.
- A. M. Groat-Carmona**, S. Orozco, P. Friebe, A. F. Payne, L. D. Kramer, and E. Harris (2012). A Novel Coding-Region RNA Element Modulates Infectious Dengue Virus Particle Production in both Mammalian and Mosquito Cells and Regulates Viral Replication in *Aedes aegypti* Mosquitoes. *Virology* 432(2):511-526.
- J. L. Mellies, A. M. S. Barron and **A. M. Carmona** (2007). Enteropathogenic and Enterohemorrhagic *Escherichia coli* Virulence Gene Regulation. *Infection and Immunity* 75(9):4199-4210.

PROFESSIONAL DEVELOPMENT & AWARDS

2018	High Impact Practices (HIPs): Undergraduate Research Community of Practice (Dr. E. Cline), University of Washington Tacoma, Tacoma WA.
2017 – 2018	Community Engagement Fellow (Dr. T. Tennesen), Western Washington University, Bellingham WA.
2017	Campus Equity and Inclusion Forum (Lifelong Learning Certificate), Western Washington University, Bellingham WA.
2011 & 2008	Infectious Disease and Immunity Departmental Award for Best Graduate Student Instructor, University of California Berkeley, Berkeley CA.
2006	Outstanding Student Poster Presentation, American Society for Microbiology NW Branch Meeting Award, University of Washington, Seattle WA.

FUNDING

2017	WWU Office of Research and Sponsored Programs Mini Grant (MF1597), Western Washington University, Bellingham WA. <i>Awarded (\$1,000).</i>
2016	NIH Academic Research Enhancement Award (AREA) Program R15 (1R15AI133347), Western Washington University, Bellingham WA. <i>Primary Submission (2016): Not Awarded. Revision (2017): Not Awarded.</i>
2016	WWU Office of Research and Sponsored Programs Pilot Project Grant, Western Washington University, Bellingham WA. <i>Not Awarded.</i>
2016	WWU Office of Research and Sponsored Programs Mini Grant (MF1521), Western Washington University, Bellingham WA. <i>Awarded (\$1,000).</i>
2014	NIH/NIGMS Supplement to Promotion of Diversity in Health-Related Research Program (R01GM101183), Center for Infectious Disease Research, Seattle WA. <i>Awarded (\$50,000).</i>
2010	NIH Research Project Grant (R01AI052324), University of California Berkeley, Berkeley CA. <i>Not Awarded.</i>
2006, 2004 & 2003	Howard Hughes Medical Institute Research Grant, Reed College, Portland OR. <i>Awarded (\$3,500).</i>
2004	National Science Foundation Research Grant, Oregon State University, Corvallis OR. <i>Awarded (\$3,500).</i>

STUDENTS MENTORED IN RESEARCH

2019 – Present	Amira Salim, Undergraduate Researcher, Dr. A. Groat Carmona (Principal Investigator), University of Washington Tacoma, Tacoma WA.
2019 – Present	Daliah Salim, Undergraduate Researcher, Dr. A. Groat Carmona (Principal Investigator), University of Washington Tacoma, Tacoma WA.
2018 – Present	John McPherson, Undergraduate Researcher, Dr. A. Groat Carmona (Principal Investigator), University of Washington Tacoma, Tacoma WA.
2017 – 2019	Akashdeep Malhi, Undergraduate Researcher, Dr. A. Groat Carmona (Principal Investigator) and Dr. P. Clint Spiegel (Co-Principal Investigator), Western Washington University, Bellingham WA.
2017 – 2018	Caitlin BeeBe, Fairhaven Undergraduate Concentration Committee, Dr. John Bower (Chair), Western Washington University, Bellingham WA.
2017 – 2018	Zoe Zilz, Graduate Researcher, Dr. Ben Miner (Principal Investigator), Western Washington University, Bellingham WA.
2017 – 2018	Katherine Barker, Undergraduate Researcher, Dr. A. Groat Carmona (Principal Investigator), Western Washington University, Bellingham WA.
2016 – 2017	Michael Anderson, Undergraduate Researcher, Dr. A. Groat Carmona (Principal Investigator), Western Washington University, Bellingham WA.
2015 - 2017	Kendall Johnson, Undergraduate Researcher, Dr. V. Carmona Galindo (Principal Investigator), Loyola Marymount University, Los Angeles CA.

2014 – 2015	Heather Kain, Research Technician II, Dr. S. Kappe (Principal Investigator), Center for Infectious Disease Research, Seattle WA.
2014 – 2015	Dorender Dankwa, Research Fellow, Dr. S. Kappe (Principal Investigator), Center for Infectious Disease Research, Seattle WA.
2014 – 2015	Nadia Arang, Research Technician I, Dr. S. Kappe (Principal Investigator), Center for Infectious Disease Research, Seattle WA.
2014 – 2015	Andrew Rapanna, Undergraduate Researcher, Dr. S. Kappe (Principal Investigator), Center for Infectious Disease Research, Seattle WA.
2014	Emily Walter, Undergraduate Researcher, Dr. S. Kappe (Principal Investigator), Center for Infectious Disease Research, Seattle WA.
2010 – 2011	Dipti Banerjee, Undergraduate Researcher, Dr. E. Harris (Principal Investigator), University of California Berkeley, Berkeley CA.
2009 – 2011	Susana Orozco, Staff Research Associate II, Dr. E. Harris (Principal Investigator), University of California Berkeley, Berkeley CA.
2007 – 2010	Ritela Gonzalez, Staff Research Associate I, Dr. E. Harris (Principal Investigator), University of California Berkeley, Berkeley CA.

STUDENT PRESENTATIONS & POSTERS

2018	Western Washington University Scholars' Week: Katherine Barker (Primary) & Akashdeep Malhi . Expression of wild-type and mutant constructs for the <i>Plasmodium</i> BEM46-like protein (PBLP), Western Washington University, Bellingham WA.
2017	Western Washington University Scholars' Week: Michael Anderson (Primary) & Akashdeep Malhi . Structural analysis of the catalytic domain for the <i>Plasmodium</i> BEM46-like protein, Western Washington University, Bellingham WA.
2017	Loyola Marymount University Undergraduate Research Symposium: Kendall Johnson (Primary). Ecological dynamics of <i>Mycobacterium</i> phage assemblages, Loyola Marymount University, Los Angeles CA.

SPEAKING INVITATIONS

2018	HOSA – Future Health Professionals (Grover Cleveland High School Chapter): Oral Presentation , The Importance of Global Health: Developing New Strategies for Combating Malaria, Grover Cleveland High School, Seattle WA.
2018	University of Detroit Mercy Biology Department Seminar: Oral Presentation , Ecological Dynamics of <i>Mycobacterium</i> Phage Assemblages, University of Detroit Mercy, Detroit MI.
2018	University of Puget Sound Biology Department Seminar: Oral Presentation , Biochemical Analysis of a <i>Plasmodium</i> α/β -Hydrolase that Modulates Parasite Invasive-Stage Morphogenesis, University of Puget Sound, Tacoma WA.
2017	Mix It Up (Movers and Shakers in STEM): Panelist , Science that is Changing the World, Western Washington University, Bellingham WA.
2017	University of El Salvador Center for Global Health Research Seminar: Oral Presentation , Ecological Dynamics of <i>Mycobacterium</i> Phage Assemblages, University of El Salvador, San Salvador, El Salvador.
2017	3 rd Annual OSU Microbiology Student Association Symposium: Oral Presentation , Biochemical Analysis of a <i>Plasmodium</i> α/β -Hydrolase that Modulates Parasite Invasive-Stage Morphogenesis, Oregon State University, Corvallis WA.
2016	Loyola Marymount University Biology Department Seminar: Oral Presentation , Ecological Dynamics of <i>Mycobacterium</i> Phage Assemblages, Loyola Marymount University, Los Angeles CA.
2016	10 th Annual American Society for Microbiology NW Branch Meeting: Oral Presentation , Biochemical Analysis of a <i>Plasmodium</i> α/β -Hydrolase that Modulates Parasite Invasive-Stage Morphogenesis, University of Washington & Seattle Pacific University, Seattle WA.

- 2016 Minorities & Women in Science: **Panelist**, Focus on the Discouragements and Obstacles Facing Underrepresented Classes in Scientific Careers, Loyola Marymount University, Los Angeles CA.
- 2016 EmpowerHer Summit: **Mentor**, Breaking Down Imposter Syndrome and Building Professional Connections Among Women, sponsored by Washington State Opportunity Scholarship (WSOS), Seattle WA.
- 2014 Seattle Youth Empowerment Day: **Oral Presentation**, Understanding Our Role in Promoting Global Health: HIV Transmission, sponsored by Young Nonprofit Leaders Organization, Seattle WA.
- 2013 BioQuest Summer Academy: **Oral Presentation**, Malaria Pathogenesis and Transmission, Center for Infectious Disease Research, Seattle WA.
- 2010 Loyola Marymount University Biology Department Seminar: **Oral Presentation**, A New Coding Region Regulatory RNA Element that Modulates the Dengue Viral Life Cycle, Loyola Marymount University, Los Angeles CA.
- 2009 Loyola Marymount University Biology Department Seminar: **Oral Presentation**, Coding Region Regulatory RNA Elements: Deciphering the Dengue Virus Life Cycle, Loyola Marymount University, Los Angeles CA.
- 2006 Reed College Board of Trustees: **Oral Presentation**, Understanding Virulence: *in vitro* Analysis of H-NS and Ler Mediated Regulation of the LEE Pathogenicity Island in Enteropathogenic *Escherichia coli*, Reed College, Portland OR.

PRESENTATIONS & POSTERS

- 2018 SIAS Brown Bag Series: **Oral Presentation**, Malaria Parasite Invasive-Stage Morphogenesis, University of Washington Tacoma, Tacoma WA.
- 2018 7th Annual Society for the Advancement of Biology Education Research Meeting: **Author Poster**, Seminars for Students from Under-Represented Populations Support Strong Science Identity and Motivation, University of Minnesota - Twin Cities, Minneapolis MN.
- 2018 Northwest Worm Meeting: **Oral Presentation (Author)**, Collaborative CRISPR: A Model for Including Undergraduate Students in the Scientific Process, Western Washington University, Bellingham WA.
- 2018 14th Annual Teaching & Learning Symposium: **Author Poster**, Students in Authentic Research Modules Demonstrate Deeper Thinking on Exams, University of Washington, Seattle WA.
- 2017 Math Science Upward Bound Summer Academy Seminar Series: **Oral Presentation**, The Importance of Global Health: Developing New Strategies to Combat Malaria, University of Washington, Seattle WA.
- 2015 27th Seattle Parasitology Conference: **Oral Presentation**, The Role of Age-Dependent Maturation in the Generation of Infectious *Plasmodium* Sporozoites, Center for Infectious Disease Research, Seattle WA.
- 2014 25th Molecular Parasitology Meeting: **Poster Presentation**, Identification of a Novel BEM46-like Protein in *Plasmodium yoelii* that Modulates Parasite-Specific Maturation of Infectious Forms, Marine Biological Laboratory, Woods Hole MA.
- 2012 6th Annual Viral Pathogenesis Program Retreat: **Poster Presentation**, Why Are HIV-1 Capsid Assembly Intermediates RNase-Sensitive?, University of Washington, Seattle WA.
- 2011 12th Annual Microbiology Student Symposium: **Oral Presentation**, Investigation of a Novel Coding-Region Regulatory RNA Element that Modulates the Dengue Viral Life Cycle, University of California Berkeley, Berkeley CA.
- 2011 14th Annual Bay Area Microbial Pathogenesis Symposium: **Poster Presentation**, Investigation of a Novel Coding-Region Regulatory RNA Element that Modulates the Dengue Viral Life Cycle, University of California San Francisco, San Francisco CA.
- 2010 29th Annual American Society of Virology Meeting: **Poster Presentation**, A Novel Coding Region RNA Element that Modulates the Dengue Viral Life Cycle, Montana State University, Bozeman MT.
- 2010 9th International Symposia on Positive-Strand RNA Viruses: **Author Poster**, A Novel Coding Region RNA Element that Modulates the Dengue Viral Life Cycle, Atlanta GA.

- 2008 27th Annual American Society of Virology Meeting: **Poster Presentation**, The Role of Coding Region RNA Secondary Structures in the Dengue Viral Life Cycle, Cornell University, Ithica NY.
- 2008 9th Annual Microbiology Student Symposium: **Author Poster**, Humoral Response to *Mycobacterium tuberculosis* Lipids as Biomarker for Monitoring Treatment Response, University of California Berkeley, Berkeley CA.
- 2007 8th International Symposia on Positive-Strand RNA Viruses: **Author Poster**, Coding Region RNA Regulatory Elements in the Dengue Virus Genome, Washington DC.
- 2006 Reed College Students Talking About Research: **Oral Presentation**, Understanding Virulence: *in vitro* Analysis of H-NS and Ler Mediated Regulation of the LEE Pathogenicity Island in Enteropathogenic *Escherichia coli*, Reed College, Portland OR.
- 2006 1st Annual American Society for Microbiology NW Branch Meeting: **Poster Presentation**, Understanding Virulence: *in vitro* Analysis of Ler and H-NS Mediated Regulation of the *LEE5* Operon in Enteropathogenic *Escherichia coli*, University of Washington, Seattle WA.
- 2005 Merck Student Summer Research Poster Session: **Poster Presentation**, Molecular Mechanisms of *LEE5* Transcription in Enteropathogenic *Escherichia coli*: *in vitro* Analysis of H-NS and Ler Binding, Reed College, Portland OR.
- 2004 Howard Hughes Medical Institute Symposium: **Oral Presentation**, Translational Control of Dengue Viral Genome: Role of 3' Untranslated Region and Conserved Sequence 1, Oregon State University, Corvallis OR.