# CURRICULUM VITAE 2025

# *Anna María Groat Carmona*

## PERSONAL


Science and Mathematics Division
School of Interdisciplinary Arts and Sciences
University of Washington, Tacoma
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## EDUCATION

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|---|---|
| 2023 - 2024 | **Fulbright U.S. Scholar,** Departamento de Ingeniería de Procesos y Ciencias Ambientales, *Universidad Centroamericana José Simeón Cañas*, Antiguo Cuscatlán, La Libertad, El Salvador. |
| 2012 – 2015 | **Postdoctoral Scientist,** *Center for Infectious Disease Research,* Seattle WA. |
| 2011 – 2012 | **Postdoctoral Senior Fellow,** Department of Global Health, *University of Washington,* Seattle WA. |
| 2006 – 2011 | **Ph. D. Infectious Diseases and Immunology**, *University of California Berkeley,* Berkeley CA.<br>○ *Dissertation Title:* Investigating the role of conserved coding-region regulatory RNA elements in modulating the dengue life cycle.<br>○ *Advisor:* Dr. E. Harris |
| 2002 – 2006 | **B. A. Biology**, *Reed College,* Portland OR.<br>○ *Thesis Title:* Understanding virulence: *in vitro* analysis of H-NS and Ler mediated regulation of the *LEE5* regulatory region in enteropathogenic *Escherichia coli.*<br>○ *Advisor:* Dr. J. Mellies |
| Languages | Fluent in English and Spanish, Basic Portuguese and French. |
| Technology | • *Operating Systems:* Windows 11 and Mac OS.<br>• *Software:* Microsoft Office Suite, Adobe Premiere Elements, Adobe Photoshop, Canvas X, and EndNote.<br>• *Bioinformatics Platforms:* NCBI, Clustal Omega, RNAalifold, RNA/DNAfold (mFold), and AlphaFold.<br>• *Other Applications:* ChatGPT, BioRender, PowToon, ApE, SnapGene, Pymol, ImageJ, FlowJo, and MStat. |

## PROFESSIONAL EXPERIENCE

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| 2023 - 2024 | **Visiting Professor (Fulbright Scholar)**, Departamento de Ingeniería de Procesos y Ciencias Ambientales, *Universidad Centroamericana José Simeón Cañas*, Antiguo Cuscatlán, La Libertad, El Salvador. |
| 2018 - Present | **Assistant Professor (Cellular Biology)**, Sciences and Mathematics Division (Biomedical Sciences), *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. [Funded through HHMI] |
| 2015 - 2018 | **Lecturer (Biology)**, Biology Department, *Western Washington University*, Bellingham WA. |
| 2015 - 2016 | **Freelance Editor**, Center of Excellence for Biochemistry, Genetic and Molecular Biology, *Cactus Communications*, Trevose PA. |
| 2011 | **Staff Research Associate I**, Infectious Diseases and Immunology Division, *University of California Berkeley*, Berkeley CA. |
| 2005 & 2006 | **Notetaker (Cellular Biology, Genetics and Gene Regulation, Plant Physiology)**, Biology Department, *Reed College*, Portland OR. |
| 2003 - 2006 | **Biology Greenhouse Assistant**, Biology Department, *Reed College*, Portland OR. |
| 2002 - 2006 | **Biology Stockroom Student Manager**, Biology Department, *Reed College*, Portland OR. |

## TEACHING EXPERIENCE

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|---|---|
| 2023 - 2024 | **Visiting Professor (Fulbright Scholar)**, Departamento de Ingeniería de Procesos y Ciencias Ambientales, *Universidad Centroamericana José Simeón Cañas*, Antiguo Cuscatlán, La Libertad, El Salvador. Faculty workshops centered on the use of molecular biology techniques within undergraduate lab courses as well as how these techniques can be used to expand upon existing faculty research efforts. |
| 2018 - Present | **Assistant Professor (Cellular Biology)**, Sciences and Mathematics Division (Biomedical Sciences), *University of Washington Tacoma*, Tacoma WA. Courses taught include Introductory Biology II (TBIOL130, Lab), Cellular Biology (TBIOL303, Lab), Immunology (TBIOL414), Foundations in Biomedical Sciences (TBIOMD310), Biomedical Sciences Senior Seminar (TBIOMD410), and Biomedical Research Experiences (TBIOMD495, Lab; TBIOMD499, Lab). Role requires training and supervising undergraduate TAs. |
| 2015 – 2019, 2022 | **Science Elective Instructor**, Math Science Upward Bound (MSUB), *University of Washington*, Seattle WA. Designed and implemented coursework for the MSUB 6-week summer academy for underrepresented minority students ($10^{th}$-$12^{th}$ grade). Courses taught included Medical Microbiology (Lab), and Immunology (Lab). Role included mentoring an adjunct faculty member. |
| 2015 - 2018 | **Biology Instructor**, Biology Department, *Western Washington University*, Bellingham WA. Courses taught included a seminar within the HHMI Inclusive Excellence Grant Advancing Excellence and Equity in Science (AEES) program (SEM101), Introduction to Cellular and Molecular Biology (BIO205, Lab), Methods in Molecular Biology (BIO324, Lab), Microbiology (BIO345), and Microbiology Lab (BIO346). Role required training and supervising undergraduate and graduate TAs. |
| 2013 – 2015 | **BioQuest Academy Aid**, *Center for Infectious Disease Research*, Seattle WA. Provided lectures on malaria pathogenesis and vaccine research/design. Lead tour groups throughout the facility and aided preparations to promote diversity and interest in STEM fields to high school and middle school students. |
| 2007 & 2010 | **Graduate Student Instructor**, Infectious Diseases and Immunology Division, *University of California Berkeley*, Berkeley CA. Courses taught included Principles of Infectious Diseases Part I (PH260A). Responsibilities included teaching lectures, leading a graduate seminar, providing out-of-class aid and assisting with reader preparation. |
| 2005 & 2006 | **Teaching Assistant**, Biology Department, *Reed College*, Portland OR. Courses taught included Cellular Biology (BIO372, Lab), and Developmental Biology (BIO351, Lab). Responsibilities included assisting with laboratory procedures and providing out-of-class aid. |

## RESEARCH EXPERIENCE

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| 2023 - 2024 | **Fulbright Scholar Research Project:** Establishing a mosquito surveillance program to monitor the prevalence of vector-borne disease in northern El Salvador. **Dr. A. Groat Carmona** (Principal Investigator), Departamento de Ingeniería de Procesos y Ciencias Ambientales, *Universidad Centroamericana José Simeón Cañas*, Antiguo Cuscatlán, La Libertad, El Salvador. |
| 2018 - Present | **UW Tacoma Research Projects:** 1. Characterization of the functional role of the catalytic domain of the *Plasmodium* BEM46-like protein (PBLP) in parasite invasive-stage membrane morphogenesis. 2. Establishing a cell-free *in vitro* culturing system to study late liver-stage development of *Plasmodium yoelii* parasites. 3. Investigating the role of conserved coding-region regulatory RNA elements in modulating the dengue viral life cycle. 4. Establishing a mosquito surveillance program to monitor the incidence of vector-borne diseases throughout El Salvador. **Dr. A. Groat Carmona** (Principal Investigator), Sciences and Mathematics Division (Biomedical Sciences), *University of Washington Tacoma*, Tacoma WA. |
| 2016 - 2018 | **WWU Research Projects:** 1. Investigation of the molecular mechanisms underlying the unique membrane morphogenesis of *Plasmodium* parasites during early liver-stage development. 2. Ecological dynamics of *Mycobacterium* phage assemblages. **Dr. A. Groat Carmona** (Principal Investigator), Biology Department, *Western Washington University*, Bellingham WA. |
| 2012 – 2015 | **CIDR Postdoctoral Projects:** 1. Characterization of previously unknown *Plasmodium* proteins important for asymptomatic liver-stage development using the *Plasmodium yoelii* mouse model. 2. Examination of age-dependent maturation as it pertains to sporozoite infectivity in *Anopheles stephensi* mosquitoes. 3. Determination of the hepatocellular characteristics that 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), Department of Global Health, *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), Infectious Diseases and Immunology Division, *University of California Berkeley*, Berkeley CA.

2006 **Merck 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), Biology Department, *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), Biology Department, *Reed College*, Portland OR.

2005 **Merck 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), Biology Department, *Reed College*, Portland OR.

2004 **National Science Foundation Internship:** Translational control of the dengue viral genome: role of 3' untranslated region and conserved sequence 1. Dr. T. Dreher (Principal Investigator), Department of Microbiology, *Oregon State University*, Corvallis OR.

2003 – 2005 **Independent Research Projects:** Courses included Microbiology, Genetics, Animal Behavior and Behavioral Ecology, Developmental Biology, and Cellular Biology. Biology Department, *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.

**PEER REVIEWED PUBLICATIONS**

* undergraduate student; [Groat Carmona role in work]

**A. M. Groat Carmona,** M. A. Velado Cano, A. M. Gonzalez Pérez, and V. D. Carmona Galindo (2025). Sex-ratio distortion of *Aedes aegypti* (L.) in El Salvador: biocontrol implications for seasonally dry urban neotropical environments. *Diversity* **17:**257. https://doi.org/10.3390/d17040257 [PI, lead in research design and writing, co-lead on data analysis]

V. D. Carmona Galindo, M. A. Velado Cano, and **A. M. Groat Carmona** (2025). The ecology of climate change: using virtual reality to share, experience, and cultivate local and global perspectives. *Education Sciences* **15**(3):290. https://doi.org/10.3390/educsci15030290 [PI, lead in research design, co-designer on course, co-lead on writing]

M. T. Nguyen*, N. K. Samra*, and **A. M. Groat Carmona** (2021). Circumventing HIV-1 immune evasion strategies: utilizing broadly neutralizing antibodies to bolster current drug treatments and develop novel vaccines. *BIOS* **92**(4):139-146. https://doi.org/10.1893/BIOS-D-20-00023 [PI, mentor for research design and writing, key role in editing]

L. Dahlberg and **A. M. Groat Carmona** (2018). CRISPR/Cas technology: in-and-out of the classroom. *The CRISPR Journal* **1**(2):107-114. https://doi.org/10.1089/crispr.2018.0007 [co-PI, co-designer on course, co-lead on data collection, analysis and writing]

**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. https://doi.org/10.1111/cmi.12477 [lead on research design, data collection, data analysis and writing]

**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. https://doi.org/10.1016/j.virol.2012.06.028 [lead on research design, data collection, data analysis and writing]

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. https://doi.org/10.1128/iai.01927-06 [role in literature review, writing and editing]

*Manuscript in Preparation or in Review:*

**A. M. Groat Carmona,** A. M. Gonzalez Pérez, I. Grace*, and V. D. Carmona Galindo (*ms in prep*). Detection of dengue virus serogroup (DENV1-4) in field-caught *Aedes aegypti* (L.) mosquitoes from El Salvador using a semi-nested reverse

transcriptase (RT)-PCR protocol. *Diseases*. [PI, lead in research design and writing, mentor for data collection and analysis]

J. Milovich*, G. Bryam*, R. Warren*, and **A. M. Groat Carmona** (*ms in prep*). Current Allergen Immunotherapies. *BIOS.* [PI, mentor for research design and writing, key role in editing]

**A. M. Groat Carmona**, K. Johnson*, and V. D. Carmona Galindo *(ms in prep).* Ecological dynamics of *Mycobacterium* phage assemblages. *Viruses*. [co-PI, co-mentor for data collection, co-lead on data analysis and writing]

**A. M. Groat Carmona**, J. Yang*, J. M. McPherson*, 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. *Cellular Microbiology.* [mentor for data collection, lead on research design, data analysis and writing]

**A. M. Groat Carmona**, K. Janis*, T. Srimuang*, J. Sheppard*, A. Arvizo*, B. Menefee*, R. Kim*, Z. Strome*, K. Aguon*, M. Seto*, A. Malhi*, K. Barker*, M. Anderson*, P. Spiegel, and H. Baughman *(ms in prep).* Biochemical analysis of the *Plasmodium* BEM46-like protein (PBLP) and its role in parasite invasive-stage membrane morphogenesis. *Cellular Microbiology.* [PI, mentor for data collection, lead on research design and writing, co-lead on data analysis]

**A. M. Groat Carmona** and J. Lingappa (*ms in prep*). Understanding the RNase-sensitivity of HIV-1 capsid assembly intermediates. *Journal of Virology.* [lead on research design, data collection, data analysis and writing]

## POPULAR PRESS RECOGNITION

University of LaVerne News (April 2025). "ULV professor and sister co-author international study on mosquito control in El Salvador's changing climate" by Natalie Goss, https://laverne.edu/news/2025/04/19/ulv-professor-and-sister-co-author-international-study-on-mosquito-control-in-el-salvadors-changing-climate/

UW Tacoma News (October 2022). "The misfit scientist" by Eric Wilson-Edge, https://www.tacoma.uw.edu/news/misfit-scientist

Cancer Cytopathology (February 2021). "History repeated: applying lessons from the 1918 flu pandemic" by Bryn Nelson, https://acsjournals.onlinelibrary.wiley.com/doi/10.1002/cncy.22408

## SPEAKING INVITATIONS

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| 2024 | University of La Verne Tropical Ecology Guest Lecture (**Virtual Presentation**): Disease surveillance: investigating the incidence of dengue in El Salvador, *University of La Verne*, La Verne CA. |
| 2023 | Math Science Upward Bound Summer Academy Seminar Series (**Virtual Presentation**): Disease surveillance: investigating the incidence of dengue in El Salvador, *University of Washington*, Seattle WA. |
| 2021 | Math Science Upward Bound Summer Academy Seminar Series (**Virtual Presentation**): The power of (gene) expression: characterizing infection-related proteins during the mosquito-stage of the malaria life cycle, *University of Washington*, Seattle WA. |
| 2021 | University of Washington Tacoma Environmental Science Division Seminar (**Virtual Presentation**): The role of age-dependent maturation in the generation of infectious *Plasmodium* sporozoites, *University of Washington Tacoma*, Tacoma WA. |
| 2020 | Math Science Upward Bound Summer Academy Seminar Series (**Virtual Presentation**): A tale of two plagues: the 1918 flu pandemic and the COVID-19 pandemic of 2020, *University of Washington*, Seattle WA. |
| 2019 | 3rd Annual John A. McLean, Jr. Lecture Series: Discerning the biochemical function of the catalytic domain for the *Plasmodium* BEM46-like protein (PBLP), *University of Detroit Mercy*, Detroit MI. |
| 2018 | HOSA – Future Health Professionals (Grover Cleveland High School Chapter): 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 (**Virtual Presentation**): Ecological dynamics of *Mycobacterium* phage assemblages, *University of Detroit Mercy*, Detroit MI. |
| 2018 | University of Puget Sound Biology Department Seminar: Biochemical analysis of a *Plasmodium* α/β-hydrolase that modulates parasite invasive-stage morphogenesis, *University of Puget Sound*, Tacoma WA. |
| 2017 | Math Science Upward Bound Summer Academy Seminar Series: The importance of global health: developing new strategies to combat malaria, *University of Washington*, Seattle WA. |
| 2017 | University of El Salvador Center for Global Health Research Seminar (**Virtual Presentation**): Ecological dynamics of *Mycobacterium* phage assemblages, *Universidad de El Salvador*, San Salvador, El Salvador. |

2017 3rd Annual OSU Microbiology Student Association Symposium: Biochemical analysis of a *Plasmodium* α/β-hydrolase that modulates parasite invasive-stage morphogenesis, *Oregon State University*, Corvallis WA.

2016 Loyola Marymount University Biology Department Seminar (**Virtual Presentation**): Ecological dynamics of *Mycobacterium* phage assemblages, *Loyola Marymount University*, Los Angeles CA.

2016 10th Annual American Society for Microbiology NW Branch Meeting: Biochemical analysis of a *Plasmodium* α/β-hydrolase that modulates parasite invasive-stage morphogenesis, *University of Washington and Seattle Pacific University*, Seattle WA.

2014 Seattle Youth Empowerment Day (sponsored by Young Nonprofit Leaders Organization): Understanding our role in promoting global health: HIV transmission, *Center for Infectious Disease Research*, Seattle WA.

2013 BioQuest Summer Academy: Malaria pathogenesis and transmission, *Center for Infectious Disease Research*, Seattle WA.

2010 Loyola Marymount University Biology Department Seminar: 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: Coding region regulatory RNA elements: deciphering the dengue virus life cycle, *Loyola Marymount University*, Los Angeles CA.

2006 Reed College Board of Trustees: 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 AND POSTERS**

2025 UW Tri-Campus Informational Session: **Panelist (Virtual Presentation)**, Fulbright Scholar Program, *University of Washington,* Seattle WA.

2025 Congreso Internacional de Dengue en Guatemala: **Oral Presentation (Author)**, Sex-ratio distortion of *Aedes aegypti* (L.) in El Salvador: biocontrol implications for seasonally dry urban neotropical environments, *Universidad de San Carlos de Guatemala*, Guatemala City, Guatemala.

2020 Grit City Think and Drink Series: **Virtual Presentation**, A tale of two plagues: the 1918 flu pandemic and the COVID-19 pandemic of 2020, *University of Washington Tacoma*, Tacoma WA.

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: **Poster Presentation (Author)**, 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 and Learning Symposium: **Poster Presentation (Author)**, Students in authentic research modules demonstrate deeper thinking on exams, *University of Washington*, Seattle WA.

2017 Mix It Up (Movers and Shakers in STEM): **Panelist,** Science that is changing the world, *Western Washington University*, Bellingham WA.

2016 Minorities and 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 (sponsored by Washington State Opportunity Scholarship, WSOS): **Mentor,** Breaking down imposter syndrome and building professional connections among women, *Center for Infectious Disease Research,* 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: **Poster Presentation (Author)**, 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: **Poster Presentation (Author)**, 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: **Poster Presentation (Author)**, 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.

## FUNDING

*Awarded:*

2025 UWT School of Interdisciplinary Arts and Sciences Mini Grant ($1,800), Sex-ratio distortion of *Aedes aegypti* (L.) in El Salvador: biocontrol implications for seasonally dry urban neotropical environments, **Dr. A. Groat Carmona** (Principal Investigator), *University of Washington Tacoma*, Tacoma WA.

2023 UWT Founders Endowment Award ($4,000), Discerning the catalytic function of the α/β-hydrolase domain of the *Plasmodium* BEM46-like protein (PBLP), **Dr. A. Groat Carmona** (Principal Investigator), *University of Washington Tacoma*, Tacoma WA.

2021 Fulbright U.S. Scholar Program (12440-ES; $30,850), Establishing a mosquito surveillance program to monitor the prevalence of vector-borne disease in northern El Salvador, **Dr. A. Groat Carmona** (Principal Investigator), *University of Washington Tacoma*, Tacoma WA.

2017 WWU Office of Research and Sponsored Programs Mini Grant (MF1597; $1,000), Discerning the catalytic function of the α/β-hydrolase domain of the *Plasmodium* BEM46-like protein (PBLP), **Dr. A. Groat Carmona** (Principal Investigator), *Western Washington University*, Bellingham WA.

2016 WWU Office of Research and Sponsored Programs Mini Grant (MF1521; $1,000), Characterization of a novel universal *Plasmodium* regulator that modulates parasite invasive-stage morphogenesis, **Dr. A. Groat Carmona** (Principal Investigator), *Western Washington University*, Bellingham WA.

2013 NIH/NIGMS Supplement to Promotion of Diversity in Health-Related Research Program (R01GM101183; $61,868), Pertubations of host cell signaling by a complex hepatotropic pathogen, Dr. S. Kappe (Principal Investigator), *Center for Infectious Disease Research*, Seattle WA.

2005 Merck & Company Inc. Research Grant ($1,592), Molecular mechanism 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 Research Grant ($200), Mating preferences of wild type female zebrafish *(Danio rerio)* for wild type and genetically modified (GM) male zebrafish, Dr. S. Yezerinac (Principal Investigator), *Reed College*, Portland OR.

2004 National Science Foundation Research Grant ($3,500), Role in translational gene expression of the 3′ untranslated region of West Nile virus RNA, Dr. T. Dreher (Principal Investigator), *Oregon State University*, Corvallis OR.

2004 Howard Hughes Medical Institute Research Grant ($427), Identification of virulence gene regulators in enteropathogenic *E. coli*, Dr. J. Mellies (Principal Investigator), *Reed College*, Portland OR.

*In Preparation:*

2025 UWT Royalty Research Fund Award ($40,000), Discerning the catalytic function of the α/β-hydrolase domain of the *Plasmodium* BEM46-like protein (PBLP), **Dr. A. Groat Carmona** (Principal Investigator), *University of Washington Tacoma*, Tacoma WA.

2025 NSF International Research Experiences for Students (5 years; $750,000), Urban ecological dynamics of vector-pathogen interactions in seasonally dry tropical environments of El Salvador, **Dr. A. Groat Carmona** (Principal Investigator) - *University of Washington Tacoma* (Tacoma WA), Dr. V. Carmona Galindo (Co-Principal Investigator) - *University of La Verne* (Los Angeles CA).

*Not Awarded:*

2022 UWT Royalty Research Fund Award (A172997; $39,893), An infectious coming of age story: the role of age-dependent maturation in the generation of infectious *Plasmodium* sporozoites, **Dr. A. Groat Carmona** (Principal Investigator), *University of Washington Tacoma*, Tacoma WA.

2016 NIH Academic Research Enhancement Award (AREA) R15 (1R15AI133347; $300,000), Biochemical analysis of a novel universal *Plasmodium* regulator to ascertain the multi-protein complexes that modulate membrane morphogenesis, **Dr. A. Groat Carmona** (Principal Investigator), *Western Washington University*, Bellingham WA. [Primary Submission (2016), Revision (2017)]

2016 WWU Office of Research and Sponsored Programs Pilot Project Grant ($4,000), Biochemical analysis of a novel universal *Plasmodium* regulator that modulates parasite invasive-stage morphogenesis, **Dr. A. Groat Carmona** (Principal Investigator), *Western Washington University*, Bellingham WA.

2009 NIH Research Project Grant R01 (R01AI052324; $1,250,000), Cis and trans factors in dengue virus replication, Dr. E. Harris (Principal Investigator), *University of California Berkeley*, Berkeley CA.

## STUDENTS MENTORED IN RESEARCH

2018 - Present **Dr. A. Groat Carmona** (Principal Investigator), Sciences and Mathematics Division (Biomedical Sciences), *University of Washington Tacoma*, Tacoma WA.

- *Undergraduate Researchers (TBIOMD495, TBIOMD499 and Volunteers):* Hailey Sato, India Grace, Heily Chaires, Jules Milovich, Syd Falen, Leon Fulginiti, Tae Kim, Daniel Rezk, Krysta Janis, Cory Dickson, Melody Du, Anastasia Latu, Themsiri Srimuang, Ayat Alkadban, Joey Coalman, Jillian Sheppard, Jamie Dahan, Cindy Aprikian, William Brown, Sabrina Bacher, Anjanette Arvizo, Kaiya Stewart, Kiara Wiggins, Vanessa Begazo, Rachel Ramirez, Colleen Selness, David Slattery, Gurleen Toor, Caritina Sanchez, Rachel Kim, John McPherson, Britt Menefee, Jeralee Yang, Darrell Lockhart, Zachary Strome, Amira Salim, Daliah Salim, Saddie Burkentine, Koryn Aguon, Misaki Seto, Armann Gill, Amy Morris and Tracy Mwangi.
- *Undergraduate Thesis Faculty Advisor (Global Honors, TGH494):* Mia Escobar (Mathematics) - HIV prevalence among key populations in the Asia Pacific region: a statistical analysis.
- *Undergraduate Internship Faculty Advisor (TBIOMD494 and TBIOMD496):* Karri Russell, Yvette Tadeo and Megan Bockman.

2016 - 2018 **Dr. A. Groat Carmona** (Principal Investigator), Biology Department, *Western Washington University*, Bellingham WA.

- *Undergraduate Researchers (Volunteers)*: Michael Anderson, Katherine Barker and Akashdeep Malhi.
- *Graduate Researcher (Dr. B. Miner, Principal Investigator):* Zoe Zilz.

- *Fairhaven Undergraduate Concentration Committee Member (Dr. J. Bower, Chair):* Caitlin BeeBe.

2015 - 2017 Dr. V. Carmona Galindo (Principal Investigator), Biology Department, *Loyola Marymount University*, Los Angeles CA.

- *Mentees*: Kendall Johnson (Undergraduate Researcher).

2014 – 2015 Dr. S. Kappe (Principal Investigator), *Center for Infectious Disease Research*, Seattle WA.

- *Mentees:* Nadia Arang (Research Technician I), Dorender Dankwa (Research Fellow), Heather Kain (Research Technician II), Andrew Rapanna (Undergraduate Researcher) and Emily Walter (Undergraduate Researcher).

2007 – 2011 Dr. E. Harris (Principal Investigator), Infectious Diseases and Immunology Division, *University of California Berkeley*, Berkeley CA

- *Mentees:* Dipti Banerjee (Undergraduate Researcher), Ritela Gonzalez (Staff Research Associate I) and Susana Orozco (Staff Research Associate II).

**STUDENT POSTER PRESENTATIONS**

2025 SAM Undergraduate Research Symposium, *University of Washington Tacoma*, Tacoma WA.

- **Syd Falen** – Mutagenic analysis of putative RNA sequence elements in the dengue virus genome.
- **Leon Fulginiti and Daniel Rezk** – Generation of mutant DENV2 infectious clones.

2024 SAM Undergraduate Research Symposium, *University of Washington Tacoma*, Tacoma WA.

- **Melody Du and Anastasia Latu** – Development of a cell-free culturing system for liver-stage malaria parasites.
- **India Grace and Cory Dickson** – Do-it-yourself PCR: serotyping dengue viruses in *Aedes* mosquitoes within El Salvador.
- **Krysta Janis and Themsiri Srimuang** – Mutagenesis and isolation of the *Plasmodium* BEM46-like protein (PBLP).
- **Yvette Tadeo** – Empowering seniors through community engagement.

2023 Natural Science Division Bi-Annual Research Conference, *University of La Verne*, La Verne CA.

- **Luis Cardona Marroquin and Francisco Duarte Garcia** - M. Velado Cano (Principal Investigator), Variabilidad abiótica y el potencial de las bromelias como microhábitat de zancudos [Abiotic variability and the potential of bromeliads as microhábitats for mosquitoes].

2023 SAM Undergraduate Research Symposium, *University of Washington Tacoma*, Tacoma WA.

- **Ayat Alkadban and Jamie Dahan** - The red flags of *Plasmodium yoelii*: expressing *Plasmodium* BEM46-like protein (PBLP)-BirA to characterize parasite surface proteins.
- **Cindy Aprikian and William Brown** - Characterization of conserved regulatory RNA elements in the coding-region of the dengue viral genome.
- **Jillian Sheppard** - Investigating the -ase: understanding the catalytic function of *Plasmodium* BEM46-like protein (PBLP). *2nd Place Award for Best Biomedical Sciences Poster.*

2022 SAM Undergraduate Research Symposium, *University of Washington Tacoma*, Tacoma WA.

- **Anjanette Arvizo** – Analyzing the biochemistry of the *Plasmodium* BEM46-like protein (PBLP).
- **Sabrina Bacher** – Using perfringolysin O (PFO) to create a cell-free *in vitro* system to study mouse malaria (*Plasmodium yoelii*). *1st Place Award for Best Biomedical Sciences Poster.*

2021 Summer SAM Undergraduate Research Symposium, *University of Washington Tacoma*, Tacoma WA.

- **Rachel Ramirez** – Identification and mutagenesis of conserved RNA elements in the dengue virus genome.

2021 SAM Undergraduate Research Symposium, *University of Washington Tacoma*, Tacoma WA.

- **Vanessa Begazo and Gurleen Toor** – Conserved RNA sequence and structural elements in dengue virus genome.
- **Megan Bockman** – Surveillance of sanitation practices and their effect on surgical site infections.
- **Britt Menefee and Rachel Kim** – Discerning the biochemical function for the catalytic domain of the *Plasmodium* BEM46-like protein (PBLP).
- **Caritina Sanchez** – Creating a transgenic parasite to express *Plasmodium* BEM46-like protein (PBLP) with a BirA* tag. *1st Place Award for Best Biomedical Sciences Poster.*
- **Colleen Selness and David Slattery** – Devitalizing dengue virus: identification and mutagenesis of conserved genomic RNA sequence and structural elements.

- **Kaiya Stewart and Kiara Wiggins** – Disruption of conserved RNA sequences and structures to examine Dengue virus replication.

2020 Fall SAM Undergraduate Research Symposium, *University of Washington Tacoma*, Tacoma WA.

- **John McPherson** – Tracking the maturation of *Plasmodium yoelii* sporozoites for infectivity and longevity.

2020 SAM Undergraduate Research Symposium, *University of Washington Tacoma*, Tacoma WA.

- **Ngan Huynh and Eevee Uzumaki** – Dr. J. Heller (Principal Investigator), Tracking the subcellular localization of an uncharacterized *Plasmodium* protein: manipulating cloning and tagging techniques.
- **Rachel Kiforishin** – Dr. J. Heller (Principal Investigator), PCR of *Plasmodium yoelii* gene PY02678 to understand its function.
- **Darrell Lockhart** – Do you want to build a parasite? Using the *Plasmodium* BEM46-like protein (PBLP) to characterize the parasite plasma membrane.
- **Zachary Strome** – Mutagenesis of the *Plasmodium* BEM46-like protein (PBLP) for isolation and biochemical analysis.
- **Raveena Vaid** – Dr. J. Heller (Principal Investigator), Demystifying the role of an uncharacterized *Plasmodium* protein through gene knockout.

2019 Winter Student Showcase, *University of Washington Tacoma*, Tacoma WA.

- **Saddie Burkentine** (Primary) **and Darrell Lockhart** - Development of a transgenic *Plasmodium yoelii* parasite: characterizing the protein interactive network on the parasite plasma membrane.

2019 33rd Annual Symposium of The Protein Society, Seattle WA.

- **Koryn Aguon and Misaki Seto** - Discerning the biochemical function for the catalytic domain of the *Plasmodium* BEM46-like protein (PBLP).

2019 SAM Undergraduate Research Symposium, *University of Washington Tacoma*, Tacoma WA.

- **Koryn Aguon and Misaki Seto** - Discerning the biochemical function for the catalytic domain of the *Plasmodium* BEM46-like protein (PBLP).
- **Armann Gill and Tracy Mwangi** - The effects of cytochalasin B on the localization of the *Plasmodium* BEM46-like protein (PBLP) to determine the role of translocated proteins during malarial infection.
- **Amy Morris** - Generating a cell free system using perfringolysin O (PFO) to study *Plasmodium yoelii* late liver-stages.
- **Amira Salim and Daliah Salim** - The role of age-dependent maturation in *Plasmodium spp.* (malaria) sporozoite infectivity.

2018 Scholars' Week, *Western Washington University*, Bellingham WA.

- **Katherine Barker** (Primary) **and Akashdeep Malhi** - Expression of wild-type and mutant constructs for the *Plasmodium* BEM46-like protein (PBLP).

2017 Scholars' Week, *Western Washington University*, Bellingham WA.

- **Michael Anderson** (Primary) **and Akashdeep Malhi** - Structural analysis of the catalytic domain for the *Plasmodium* BEM46-like protein.

2017 Undergraduate Research Symposium, *Loyola Marymount University*, Los Angeles CA.

- **Kendall Johnson** – Dr. V. Carmona Galindo (Principal Investigator), Ecological dynamics of *Mycobacterium* phage assemblages.

## PROFESSIONAL DEVELOPMENT AND AWARDS

*Professional Development:*

2025 - Present Vector–Pathogen Interactions in a Changing World: Implications for Biodiversity and Conservation (**Dr. A. Groat Carmona**, Co-Guest-Editor), Special Issue in Journal *Conservation* (MDPI).

2019 Exploratory Workshop: The Community Engagement Fellows Coalition (**Dr. A. Groat Carmona**, Workshop Coordinator and Session Lead), *University of Washington Tacoma*, Tacoma WA.

2019 Signaling Across the Membrane: G-protein Coupled Receptors (**Dr. A. Groat Carmona**, Session Chair), 33rd Annual Symposium of The Protein Society, Seattle WA.

*Workshops and Trainings:*

2025 Undocu Ally Training - Part 2 (Dr. T. Velasquez), *University of Washington Tacoma*, Tacoma WA.

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| 2024 – Present | UW Tacoma Undergraduate Research Faculty Fellow (Dr. H. Dillon), *University of Washington Tacoma*, Tacoma WA. |
| 2024 | Undocu Ally Training – Part 1 (Dr. T. Velasquez), *University of Washington Tacoma*, Tacoma WA. |
| 2024 | Hazing Prevention Training, *University of Washington Tacoma*, Tacoma WA. |
| 2024 | Cultivating Community at UW: Anti-Racism and DEI&B in the Workplace, *University of Washington Tacoma*, Tacoma WA. |
| 2022 | Social Justice Research and Scholarship Initiative (SJRSI), *University of Washington Tacoma*, Tacoma WA. |
| 2022 | RAINN Sexual Misconduct Prevention and Response Training, *University of Washington Tacoma*, Tacoma WA. |
| 2021 | How to be an Ally Training (Center for Equity and Inclusion, and The Rainbow Center), *University of Washington Tacoma*, Tacoma WA. |
| 2021 | Gender Identity Training (Center for Equity and Inclusion, and The Rainbow Center), *University of Washington Tacoma*, Tacoma WA. |
| 2021 | LGBTQ Core Competency Training (Center for Equity and Inclusion, and The Rainbow Center), *University of Washington Tacoma*, Tacoma WA. |
| 2021 | Husky Prevention and Response (Title IX), *University of Washington*, Seattle WA. |
| 2021 | Planning for Faculty Hiring: A Webinar on Search Committees, Assessment Rubrics and Job Ads, *University of Washington Tacoma*, Tacoma WA. |
| 2020 | Strengthening Educational Excellence through Diversity (SEED) Fellow (Dr. J. Aguirre), *University of Washington Tacoma*, Tacoma WA. |
| 2020 | iTech Fellow (Dr. D. Janzen), *University of Washington Tacoma*, Tacoma WA. |
| 2020 | How to Use Zoom to Work with Your Pedagogy – Pro Tips Edition, *University of Washington Tacoma*, Tacoma WA. |
| 2020 | Planning and Designing an Online Class 101, *University of Washington Bothell*, Bothell WA. |
| 2020 | Double Check – Lets Make Sure Your Course is Ready for Spring, *University of Washington Tacoma*, Tacoma WA. |
| 2019 | Best Practices in Faculty Searches Workshop, *University of Washington Tacoma*, Tacoma WA. |
| 2019 | Project Biodiversify Workshop (Dr. J. Davis), *University of Washington Tacoma*, Tacoma WA. |
| 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. Tennessen), *Western Washington University*, Bellingham WA. |
| 2017 | Campus Equity and Inclusion Forum (Lifelong Learning Certificate), *Western Washington University*, Bellingham WA. |

*Awards:*

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| 2024 | Lab Safety Award, *University of Washington*, Seattle WA. |
| 2024 | Latino Center for Health Award (Recognition of Research Contribution and Advancing Science), *University of Washington Tacoma*, Tacoma WA. |
| 2021 | Lab Safety Award, *University of Washington*, Seattle WA. |
| 2019 | Pack Leader in Safety Award, *University of Washington*, Seattle WA. |
| 2011 | Award for Best Graduate Student Instructor, Infectious Diseases and Immunology Division, *University of California Berkeley*, Berkeley CA. |
| 2008 | Award for Best Graduate Student Instructor, Infectious Diseases and Immunology Division, *University of California Berkeley*, Berkeley CA. |
| 2006 | Award for Outstanding Student Poster Presentation, American Society for Microbiology NW Branch Meeting, *University of Washington*, Seattle WA. |

## SERVICE, MEMBERSHIP AND COMMITTEES

*Division:*

2024 - Present Joint (ES/BioMed) 310/410 Workgroup, Sciences and Mathematics Division, *University of Washington Tacoma*, Tacoma WA.

2024 - Present Lab (Best) Practices Workgroup, Sciences and Mathematics Division, *University of Washington Tacoma*, Tacoma WA.

2022 - 2024 Introductory Biology Workgroup, Sciences and Mathematics Division (Biomedical Sciences), *University of Washington Tacoma*, Tacoma WA.

2021 - 2022 Tenure Track Search Committee (Epidemiology), Sciences and Mathematics Division (Biomedical Sciences), *University of Washington Tacoma*, Tacoma WA.

2020 - Present ACCESS in STEM Faculty Mentor, Sciences and Mathematics Division, *University of Washington Tacoma*, Tacoma WA.

2019 - 2023 Diversity Workgroup, Sciences and Mathematics Division, *University of Washington Tacoma*, Tacoma WA.

2019 - 2020 Tenure Track Search Committee (Ecotoxicology), Sciences and Mathematics Division (Biomedical Sciences), *University of Washington Tacoma*, Tacoma WA.

2019 - 2020 Faculty Mentor (MCAT Review Workshop), Sciences and Mathematics Division (Biomedical Sciences), *University of Washington Tacoma*, Tacoma WA.

2018 – Present Faculty Advisor, Sciences and Mathematics Division (Biomedical Sciences), *University of Washington Tacoma*, Tacoma WA.

2018 – 2021 Outreach and Recruitment Workgroup, Sciences and Mathematics Division, *University of Washington Tacoma*, Tacoma WA.

*School:*

2023 - 2024 Faculty Council Representative (Dean's Diversity Advisory Council [DAC]), School of Interdisciplinary Arts and Sciences, *University of Washington Tacoma*, Tacoma WA.

2023 - 2024 Co-Chair of Dean's Diversity Advisory Council (DAC), School of Interdisciplinary Arts and Sciences, *University of Washington Tacoma*, Tacoma WA.

2022 - 2023 Curriculum-to-Career Innovations Institute (C2CII), Association of American Colleges and Universities (AAC&U), School of Interdisciplinary Arts and Sciences, *University of Washington Tacoma*, Tacoma WA.

2020 - Present Dean's Diversity Advisory Council (DAC), School of Interdisciplinary Arts and Sciences, *University of Washington Tacoma*, Tacoma WA.

2019 - Present UW Graduate Faculty, School of Interdisciplinary Arts and Sciences, *University of Washington Tacoma*, Tacoma WA.

*Community:*

2024 Licentiate Thesis Reader, Departamento de Ingeniería de Procesos y Ciencias Ambientales, *Universidad Centroamericana José Simeón Cañas*, Antiguo Cuscatlán, La Libertad, El Salvador.

- Sistematización de casos de contaminación ambiental en el Sitio Ramsar humedal embalse Cerrón Grande [Characterization of environmental contamination in the Cerrón Grande reservoir wetland (Ramsar Site)].

2023 Licentiate Thesis Reader, Departamento de Ingeniería de Procesos y Ciencias Ambientales, *Universidad Centroamericana José Simeón Cañas*, Antiguo Cuscatlán, La Libertad, El Salvador.

- Estudio preliminar de las enfermedades asociadas a los cultivos de cítricos en fincas productoras del Departamento de La Libertad y La Paz [Preliminary study of the diseases associated with citrus crops on farms located within the departments of La Libertad and La Paz].

2022 Teaching Faculty Mentor (Immunology Co-Instructor – Dr. S. Reeder), Math Science Upward Bound (MSUB), *University of Washington*, Seattle WA.

2022 Scientific Oversight Committee (Postdoctoral Scientist - Dr. S. Reeder), Center for Global Infectious Disease Research, *Seattle Children's Research Institute*, Seattle WA.