

Sarah E. Heuer

Curriculum Vitae

28 Bridge Street, Apartment B, Bar Harbor, ME 04609

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sarah.heuer@jax.org

EDUCATION

- July 2017
To Present
- Tufts University**
The Jackson Laboratory
Ph.D. Genetics
Advisor: Catherine Kaczorowski, Ph.D.
- August 2011
To May 2015
- The University of Virginia, Charlottesville, VA**
B.Sc. Chemistry
Specialization in Biochemistry
Minor, Sociology

RESEARCH POSITIONS

- July 2017-
Present
- Ph.D. Student**
Tufts University, Sackler School of Graduate Biomedical Sciences, Boston, MA
The Jackson Laboratory, Bar Harbor, ME
Advisor: Catherine Kaczorowski, Ph.D.
Project: Evaluate involvement of microglia in resilience to Alzheimer's Disease
- May 2015-
June 2017
- Investigative Research Analyst**
AMPEL BioSolutions, LLC, Charlottesville, VA
Supervisors: Dr. Peter Lipsky, M.D. & Dr. Amrie Grammer, Ph.D.
- Apply knowledge of biological pathways to determine potential therapeutic targets for Systemic Lupus Erythematosus (SLE)
 - Devise methods to evaluate pathogenic pathways in SLE based on differentially expressed genes in patients compared to healthy controls
- March 2013-
May 2015
- Undergraduate Researcher**
University of Virginia School of Medicine, Charlottesville, VA
Department of Microbiology, Immunology, and Cancer Biology
Mentor: Dr. David Kashatus, Ph.D.
Research: Investigating the Regulation of RalBP1 through Chaperone-Mediated Autophagy
- Understanding the involvement of chaperone-mediated autophagy in the regulation of RalBP1 protein stability during glucose starvation

PUBLICATIONS AND ABSTRACTS

Amrie C. Grammer¹, M.M. Ryals¹, **S.E. Heuer**¹, R.D. Robl¹, S. Madamanchi¹, L.S. Davis², B. Lauwerys³, M.D. Catalina¹ and Peter E. Lipsky¹. ¹AMPEL BioSolutions and RILITE Foundation, University of Virginia Research Park, Charlottesville, VA. ²Department of Internal Medicine, ITSW Medical Center at Dallas, Dallas, TX. ³Universite Catholique de Louvain, Brussels, Belgium. “*Drug repositioning in SLE: crowd-sourcing, literature-mining and Big Data analysis.*” *Lupus*. 25 (2016): 1150-1170.

Publications In Progress:

Sarah M. Neuner, **Sarah E. Heuer**, Matthew J. Huentelman, Kristen M.S. O’Connell, and Catherine C. Kaczorowski. “*Harnessing Genetic Complexity to Enhance Alzheimer’s Disease Mouse Models: a Path Towards Experimental Precision Medicine.*” In submission.

Conference Abstracts

Sarah E. Heuer^{1,2}, Sarah M. Neuner^{1,3}, Matthew J. Huentelman⁴, Kristen M.S. O’Connell¹ and Catherine C. Kaczorowski¹. ¹The Jackson Laboratory, Bar Harbor, ME; ²Tufts University Sackler School of Biomedical Sciences, Boston, MA; ³University of Tennessee Health Sciences Center, Memphis, TN; ⁴Neurogenomics, The Translational Genomics Research Institute, Phoenix, AZ. “*Systems genetics reveals microglia involvement in resilience to Alzheimer’s disease.*” Society for Neuroscience annual meeting, November, 2018.

Sarah E. Heuer¹, Michelle Catalina¹, Robert Robl¹, Nicholas Geraci¹, Peter Lipsky¹ and Amrie Grammer¹. ¹AMPEL BioSolutions and RILITE Foundation, Charlottesville, VA. “*Common Patterns of Gene Expression in Tissues of Patients with Systemic Lupus Erythematosus Imply Similar Pathways of Molecular Pathogenesis.*” American Association of Immunologists Annual Meeting, May, 2017.

Amrie C. Grammer¹, **Sarah Heuer**¹, Michelle Catalina¹, Robert Robl¹, Sushma Madamanchi¹, Pankhuri Wanjari¹, Junghwan Min¹, Prathyusha Bachali¹, Matthias Kretzler², Celine Berither², Mayte Suarez-Farinas³, Laurie Davis⁴, Bernard Lauwerys⁵, Frédéric Houssiau⁶ and Peter Lipsky¹. ¹AMPEL BioSolutions and RILITE Foundation, University of Virginia Research Park, Charlottesville, VA. ²University of Michigan. ³Ichan School of Medicine, Mount Sinai. ⁴Department of Internal Medicine, ITSW Medical Center at Dallas, Dallas, TX. ⁵Universite Catholique de Louvain, Brussels, Belgium. ⁶Universite Catholique de Louvain. “*Meta-Analysis from Gene Expression Profiles of Lupus Affected Tissues Reveals Novel Immune Cell Contributions.*” American Association of Immunologists Annual Meeting, May 2016.

CONFERENCE PRESENTATIONS

Heuer, S., Catalina, M., Robl, R., Geraci, N., Lipsky, P.E., Grammer, A.C. (2017). *Common Patterns of Gene Expression in Tissues of Patients with Systemic Lupus Erythematosus Imply Similar Pathways of Molecular Pathogenesis.* American Association of Immunologists Annual Meeting, Washington, D.C.

Heuer,S., Catalina,M., Robl,R., Ryals,M., Madamanchi,S., Bachali,P., Min,J., Lipsky,P.E., Grammer,A.C., (2016). *Novel Targets of Intervention in Disease Pathogenesis is Revealed by Gene Expression Analysis of Tissue from Lupus Patients*. American Association of Immunologists Annual Meeting. Seattle, WA.

Heuer,S., Catalina,M., Robl,R., Ryals,M., Madamanchi,S., Bachali,P., Min,J., Lipsky,P.E., Grammer,A.C., (2016). *Novel Targets of Intervention in Disease Pathogenesis is Revealed by Gene Expression Analysis of Tissue from Lupus Patients*. University of Virginia School of Medicine Graduate Biosciences Symposium. University of Virginia, Charlottesville, VA.

HONORS and AWARDS

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| 2015 | Certification by The American Chemical Society |
| 2014 | University of Virginia College Council - Fall Scholars Semester Research Grant |
| 2011 | Advanced Placement Scholar with Distinction |

MEMBERSHIPS AND CERTIFICATIONS

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| 2018- | Society for Neuroscience Student Member |
| 2017 | American Association of Immunologists Student Member |
| 2015 | Certification by The American Chemical Society |

OTHER RELEVANT COURSES

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| August, 2017 | Human and Mammalian Genetics Short Course: The 58 th McKusick Short Course The Jackson Laboratory, Bar Harbor, ME |
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TECHNICAL and LABORATORY SKILLS

Tissue and Cell Culture [stable viral transfection, transient transfection, maintenance of immortalized cell lines]
Molecular Biology [PCR Cloning and Amplification, Site-Directed Mutagenesis, Nucleotide Extraction and Purification, Transformation]
Immunology [Flow Cytometry]
Microscopy [Leica SD5, single staining immunofluorescence, FIJI, vibratome sectioning]
Protein Purification [Column Chromatography]
Protein Quantification [SDS-PAGE, Western Blot, DNA and RNA gel, ELISA]
Specialized Equipment [UV Spectrophotometer, Nanodrop]
Computational [Mac and PC Platforms]
Programs [ICM Browser Pro, Image J, Microsoft Office, Prism, R]
Biological Network Analysis [STRING, Cytoscape]
Meta-Data Analysis [DAVID, Ingenuity Pathway Analysis, GO, KEGG Pathways, Gene Set Enrichment Analysis]

MENTORING EXPERIENCE

2018

Journal Club facilitator for The Jackson Laboratory Summer Student Program