BIOGRAPHICAL SKETCH

**Provide the following information for the Senior/key personnel and other significant contributors.   
Follow this format for each person. DO NOT EXCEED FIVE PAGES.**

NAME: Elijah Bring Horvath

eRA COMMONS USER NAME (credential, e.g., agency login): elibringhorvath

POSITION TITLE: Graduate Research Assistant

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

| INSTITUTION AND LOCATION | DEGREE  (if applicable) | START DATE  MM/YYYY | END DATE MM/YYYY | FIELD OF STUDY |
| --- | --- | --- | --- | --- |
| Boise State University | BS | 08/2015 | 05/2019 | Cell and Molecular Biology |
| University of Utah | PHD | 08/2019 | TBD | Medicinal Chemistry |

### A. Personal Statement

My long-term research interests revolve around drug discovery and development. Currently, I am interested in understanding the mechanisms behind antibiotic resistance in bacteria and utilizing natural products to combat the growing rates of antibiotic resistance around the world. As an undergraduate at Boise State University, I first researched under a Masters student in the lab of Dr. Kevin Feris on a microbial ecology project, which gave me the opportunity to learn basic microbiology and lab etiquette. From there, I transitioned to a research position under Dr. Cheryl Jorcyk, again at Boise State studying metastasis in ovarian cancer, which gave me a broad understanding of cell biology and laboratory procedures. During my time with Dr. Jorcyk, I was awarded the HERC Research Fellowship as well as the NIH-funded INBRE Research Fellowship. Both of these awards allowed me to expand my laboratory training and experience, as well as present my research both in and out of state. Additionally, I was a part of the Ronald E. McNair Post-Baccalaureate Scholars Program, which provided me with opportunities to attend workshops designed to further my development as a young scientist. These workshops included graduate school preparation modules, training in public speaking and technical writing, ethics, and career options. For my graduate training at the University of Utah, I pursued joint mentorship under both Dr. Jaclyn Winter in Medicinal Chemistry and Dr. Matthew Mulvey in Pathology. My current project involves understanding the mechanisms and spread of antibiotic resistance in *E. coli* as well as exploring natural products with antibiotic activity against multi-drug resistant pathogens. As the first person in my family to not only attend graduate school, but to go to college I am excited to continue my academic journey. I feel that my joint mentorship along with my research project will give me a broad scientific understanding, lending to a firm foundation for my career goal of pursuing drug development in industry.

### B. Positions and Honors

### Positions and Employment

|  |  |
| --- | --- |
| 2011 - 2015  2017-2019  2018-2019 | Clinical Lab Assistant/Phlebotomist, St. Luke’s Magic Valley Regional Medical Center  Undergraduate Research Assistant, Boise State University  Learning Assistant, Boise State University |
| 2019 - | Graduate Research Assistant, University of Utah |

### Other Experience and Professional Memberships

|  |  |  |  |
| --- | --- | --- | --- |
| 2011 | Licensed as NREMT-B |  |  |
| 2020- | Member, American Society of Pharmacognosy | | |

### Honors

|  |  |
| --- | --- |
| **Undergraduate**  2016-2017  2017-2019 | Darin Fralick Biology Award  Ronald E. McNair Post-Baccalaureate Achievement Program Scholar |
| 2017-2018  2017-2019 | Harry Fritchman Scholarship  DJ Obee Biology Scholarship |
| 2018 | Higher Education Research Council (HERC) Fellow |
| 2018  **Graduate**  2021  2022 | IDeA Network of Biomedical Research Excellence (INBRE) Fellow  ARUP Graduate Student Research Fellowship  3i Graduate Research Fellowship |

### C. Contribution to Science

1. **Undergraduate Research:** My project under Dr. Cheryl Jorcyk involved investigating the role of the proinflammatory cytokines, such as interleukin-6 and oncostatin M (OSM) in ovarian cancer metastasis. This project involved exploring the molecular mechanisms and cell signaling involved with the metastatic potential of ovarian cancer, including specific cell surface receptors believed to interact with OSM. This research was of particular interest because the Jorcyk lab had previously identified OSM as promoting metastasis in breast cancer, making it an attractive therapeutic target. The Jorcyk lab is currently working on a collaborative project to produce a novel small molecule to inhibit OSM activity.

Browning L, Patel MR, **Horvath EB**, Tawara K, Jorcyk CL. IL-6 and ovarian cancer: inflammatory cytokines in promotion of metastasis. *Cancer Manag Res*. 2018;10:6685-6693. Published 2018 Dec 5. doi:10.2147/CMAR.S179189

1. **Graduate Research**: My ongoing predoctoral research focuses on mechanisms of antibiotic resistance in extraintestinal pathogenic *E. coli* (ExPEC) and identifying novel natural products with antibiotic activity against these pathogens. Because rates of clinical antibiotic resistance grow each year, I believe my research is highly relevant. Further identifying mechanisms of resistance in pathogenic *E. coli* may provide novel therapeutic targets. I additionally investigate novel natural products produced by unique Great Salt Lake microbes, which may result in the identification of new antibiotic drugs with activity against multi-drug resistant bacterial pathogens. My research involves both extensive computational and traditional web lab approaches.

### D. Additional Information: Research Support and/or Scholastic Performance

### Scholastic Performance

|  |  |  |
| --- | --- | --- |
| Year | Course Title | Grade |
|  | Boise State University |  |
| 2015 | Human Anatomy and Physiology I | A |
| 2015 | Human Anatomy and Physiology II | B |
| 2015 | Statistics | B |
| 2015 | Introduction to Microbiology | A |
| 2015 | Pathophysiology | A- |
| 2016 | General Chemistry I | A |
| 2016 | General Biology I | A- |
| 2016 | General Biology II | A- |
| 2016 | General Chemistry II | A |
| 2016 | General Physics I | A- |
| 2017 | Cell Biology | B |
| 2017 | Ecology | B |
| 2017 | General Physics II | B- |
| 2017 | Calculus I | B |
| 2017 | Genetics | A |
| 2017 | Molecular Biology of Cancer | A |
| 2017 | Organic Chemistry I | B |
| 2018 | Vaccinology | A- |
| 2018 | Advanced Topics in Molecular Biology | A |
| 2018 | Organic Chemistry II | B+ |
| 2018 | Organic Evolution | A |
| 2018 | Pharmacology | A+ |
| 2018 | Molecular Neurobiology | A+ |
| 2018 | Biochemistry I | A |
| 2019 | Biochemistry II | A |
| 2019 | Human Physiology | A |
|  | University of Utah |  |
| 2019 | Research Ethics | CR |
| 2019 | Cell Biology | B |
| 2019 | Genetics, Genomics, and Gene Expression | B |
| 2019 | Protein and Nucleic Acid Biochemistry | B |
| 2020 | Host-Pathogen Interactions | A |
| 2020 | Proposal Preparation | CR |
| 2020 | Critical Thinking | CR |
| 2020 | Cellular Signaling | B |
| 2020 | Chemical Biology of Proteins | B+ |

### The University of Utah grades seminar-style classes as either CR (credit) or NC (no credit). Students may not miss more than 2 sessions in order to receive credit in these courses.