**Kimberly Wodzanowski**

Brown Lab 140

kwodz@udel.edu Newark, DE 19716

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**EDUCATION**

**University of Delaware,** Newark, DE

Doctor of Philosophy in Chemistry and Biochemistry, Expected May 2023

Concentration: Biochemistry

Dissertation Advisors: Dr. Catherine Leimkuhler Grimes and Dr. April M. Kloxin

Dissertation Title: Engineering Biomaterials to Study Host-Bacterial Peptidoglycan Immune Interactions

**Saint Joseph’s University**, Philadelphia, PA

Bachelor of Science, May 2017

Double Major: Chemical Biology and Environmental Science

Member of Honors Program

GPA: 3.64/4.0, *Cum Laude*

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**RESEARCH EXPERIENCE**

**University of Delaware**: Advisors- Dr. Catherine Leimkuhler Grimes (Department of Chemistry and Biochemistry) and Dr. April M. Kloxin (Department of Chemical and Biomolecular Engineering), Newark, DE

*Graduate Research Assistant*, January 2018-Present

* Developing a three-dimensional bacteria-macrophage co-culture system to use as an invasion assay to isolate peptidoglycan fragments. We aim to study these fragments to determine how bacteria activate the immune system and how our bodies respond to bacteria in natural and diseased states like Cronin’s disease.

**University of Delaware**: Newark, DE

*NIH Chemistry-Biology Interface Trainee,* August 2017-Decemeber 2017

* Rotation Advisor 1: Dr. Tom Hanson, College of Earth, Ocean, and Environment

Project Title: Are sulfur globule associated proteins are requited for S(0) metabolism in the phototrophic bacterium *Chlorobaculum tepidum*?

* Rotation Advisor 2: Dr. Sharon Rozovsky, Department of Chemistry and Biochemistry

Project Title: Determination of nucleotide-dependent interaction of selenoprotein S with p97 in the ERAD pathway

**Saint Joseph’s University**: Advisor- Dr. Jose Cerda (Department of Chemistry), Philadelphia, PA

*Summer Scholar,* May 2015-August 2015

*Undergraduate Research Assistant*, August 2015-May 2017

* Utilized fluoride as a probe of the heme pocket in various heme proteins, including myoglobin, hemoglobin, and horse radish peroxidase, to demonstrate conformational changes in the heme pocket upon fluoride binding through titrations with sodium fluoride at various temperature

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**RELATED EXPERIENCE**

**Philadelphia Zoo**: Philadelphia, PA

*Environmental Education and Animal Behavior Intern,* May 2016-Aug. 2016

* Completed various animal behavior research projects:
  + Developed and executed an individual animal behavior research project as well as presented data in presentation to zoo guests
  + Completed a daily tortoise behavior study involving recording actions and interactions between various Aldabra and Galapagos tortoises
  + Completed visibility studies recording various animals’ locations in their exhibits based on time and temperature/weather
* Participated in daily talks and interpretation of animal feeding and training demonstrations
* Staffed “Exploration Stations” throughout the zoo with interactive activities and biofacts relating to specific animals and their conservation
* Answered questions and engaged with guests about various animals and their conservation

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**TEACHING EXPERIENCE**

**University of Delaware**, Newark, DE

*Introductory Biochemistry Teaching Assistant (CHEM 342),* Feb 2020- present

* Leads group of students in problem-based learning course discussion on various scientific literature
* Co-leads of tutor meetings with professor for other undergraduate tutors in the course
* Tutor students in general chemistry, biochemistry, and organic chemistry for 1 hour each week in the chemistry resource center

**University of Delaware**, Newark, DE

*Chemistry Tutor,* Sept 2017- present

* Tutored various chemistry courses (general chemistry, organic chemistry, biochemistry) for undergraduate students

**Huntington Learning Center**, Langhorne, PA

*SAT/ACT and Subject Tutor,* May 2017- Aug. 2017

* Executed individual lesson plans for students of varying academic abilities
* Assessed, recorded, and reported on the development and progress of students
* Taught one-on-one two hour SAT/ACT preparatory sessions for math for SAT and math/science for ACT
* Tutored one-on-one one to two hour sessions in algebra 1, algebra 2, geometry, pre-calculus, calculus, biology, physics and chemistry for middle and high school students

**Saint Joseph’s University**, Philadelphia, PA

*Exploring the Earth Teaching Assistant (ENV 106L),* Aug. 2016- May 2017

* Assisted professor in enforcing the safety rules and answering questions during the lab
* Completed various demonstrations of the lab activities for the class
* Helped set up and clean up supplies and experiments before and after each lab
* Taught pre-lab lecture on genetically modified organisms

**Saint Joseph’s University**, Philadelphia, PA

*Supplemental Instructor for General Chemistry (CHM 120 and CHM 125)*, Aug. 2014- May 2017

*Supplemental Instructor Mentor for General Chemistry and Physics*, Aug. 2015- May 2017

* Attended the general chemistry lecture class three days a week to serve as a model student after receiving a high A in the course.
* Taught two one-hour review sessions a week and exam review sessions
  + Some concepts taught include various chemical reactions, bonding of ionic and covalent compounds, electron configurations, thermodynamics, rate laws, and acid/base equilibrium
* Promoted to mentor in 2015- Observed, supervised, and mentored the chemistry and physics supplemental instructors as well as continuing to teach own sessions

**Saint Joseph’s University**, Philadelphia, PA

*General Chemistry Teaching Assistant (CHM 120L, CHM 125L, CHM HN1),* Aug. 2014-Dec. 2015

* Prepared all samples, including unknowns, for the experiments
* Collected required materials from the stockrooms to set up labs
* Assisted the professor in enforcing the safety rules and answering questions during the lab
* Graded pre-lab and post lab assignments

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**FELLOWSHIPS**

**Chemistry-Biology Interface Predoctoral Training Fellowship,** University of Delaware and National Institutes of

Health: 2017-2018

**Richard F. Heck Fellowship,** University of Delaware: 2017

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**SCHOLARSHIPS**

**Father George Ruggieri Memorial Scholarship**, Saint Joseph’s University: 2013-2017

**Presidential Scholarship,** Saint Joseph’s University: 2013-2017

**Kiwanis Scholarship**, Girl Scouts of Eastern Pennsylvania: 2013

**Girl Scouts of Eastern Pennsylvania Graduating Senior Scholarship**: 2013

**Student Council Senior Gift Award,** Pennsbury High School: 2013

**American Association of University Women Scholarship**: 2013

**Best Buy Scholarship**: 2013

**Waste Management Scholarship:** 2013

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**SELECT HONORS AND AWARDS**

1. ASBMB Graduate/Postdoctoral Travel Award, American Society for Biochemistry and Molecular Biology: 2020
2. Dr. Dennis J. Foreman ’68 Student Leadership Award, Saint Joseph’s University: 2017
3. Dean’s List, Saint Joseph’s University: Fall 2013-Fall 2014, Spring 2016, Spring 2017
4. Dean’s Research Travel Award, Saint Joseph’s University: 2016
5. Sigma Xi Research Honor Society, Saint Joseph’s University: 2016
6. Alpha Sigma Nu Jesuit Honor Society, Saint Joseph’s University: 2016
7. Sigma Zeta National Science and Mathematics Honor Society, Saint Joseph’s University: 2015
8. Alpha Delta Epsilon National Pre-Health Honor Society, Saint Joseph’s University: 2015
9. Environmental Steward Award, Lower Makefield Township: 2013
10. YWCA Bucks County Teen Volunteer Award: 2013
11. Nominated for Washington Youth Summit on the Environment: 2012
12. Union League of Philadelphia Good Citizenship Award: 2012
13. Rachel Carson Book Award, Chatham University: 2012
14. Keynote Speaker at Troop USA Investiture, Girl Scouts of Eastern Pennsylvania: 2011
15. Young Champion Award, Family Service Association: 2011
16. Philadelphia Phillies Extraordinary Scholar Award: 2011

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**PUBLICATIONS**

1. Lazor, K.M.\*; DeMeester, K.E.\*; Zagani, R.; **Wodzanowski, K.A.**; Reinecker, H.C.; Grimes, C.L.; “Peptidoglycan fragments differentially activate *Nod2* dependent immunostimulatory profiles.” *Manuscript in preparation.*
2. **Wodzanowski, K.A.;** Kloxin, A.M..; Grimes, C.L. “Multiscale invasion assay for probing macrophage response to bacteria.” *Manuscript in preparation.*
3. **Wodzanowski, K.A.\*;** Cassel S.E.\*; Grimes, C.L.; Kloxin, A.M. “Tools for probing host-bacteria interactions in the gut microenvironment: from molecular to cellular levels.” *In review in Bioorganic & Medicinal Chemistry Letters.*
4. DeMeester, K.E.\*; Liang, H.\*; Zhou, J.\*; **Wodzanowski, K.A.\*;**Prather, B.L.; Santiago, C.C.; Grimes, C.L. (2019). Metabolic incorporation of *N*-acetyl muramic acid probes into bacterial peptidoglycan. *Current Protocols in Chemical Biology*, e74. doi: 10.1002/cpch.74   **\*=co-first authorship**

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**ORAL PRESENTATIONS (PRESENTERS UNDERLINED)**

1. **Wodzanowski, KA**; DeMeester, KE; Pradhan, L; Grimes, CL; Kloxin, AM; “Engineering Biomaterials for the Identification of Bacterial Cell Wall Fragments Involved in Initiating an Immune Response,” 12th Annual NIH and FDA-wide Glyosciences Research Day- Session: Glcyo Chemsitry & Analytics, National Institutes of Health, Bethesda, MD, July 2019. ***Selected from abstracts for short elevator talk.***
2. **Wodzanowski, KA**; DeMeester, KE; Pradhan, L; Grimes, CL; Kloxin, AM; “Developing a Model for Better Visualizing Macrophage-Bacteria Interactions,” Chemistry-Biology Interface Seminar Series, University of Delaware, Newark, DE, Feb. 2018.
3. **Wodzanowski, KA;** Lockwood, M;Nagle, T; Cerda, JF; “Thermodynamics of fluoride binding in heme proteins,” Chemistry Seminar Series, Saint Joseph’s University, Philadelphia, PA, Apr. 2017.
4. **Wodzanowski, KA;** “Weather and temperature effects on Humboldt penguin affinity for swimming,” Philadelphia Zoo Intern Research Presentations, Philadelphia Zoo, Philadelphia, PA, Aug. 2016.
5. **Wodzanowski, KA;** Leonard, J; Nagle, T; Moll, C; Cerda, JF; “The use of fluoride binding measurements in heme proteins to understand the molecular basis of the oxygen binding properties of hemoglobin,” Summer Scholars Math and Natural Science Seminar, Saint Joseph’s University, Philadelphia, PA, July 2015.

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**POSTER PRESENTATIONS**

1. Chemistry Biology Interface Symposium, University of Delaware, Newark, DE, Aug. 2019.
2. 12th Annual NIH and FDA-wide Glycosciences Research Day, National Institutes of Health, Bethesda, MD, July 2019.
3. Chemical Biology Discussion Group Year-End Symposium, The New York Academy of Sciences, New York, NY, May 2019.
4. 12th Annual Frontiers in Chemistry and Biology Interface Symposium, National Institutes of Health, Bethesda, MD, May 2019.
5. 7th Annual Microbial Systems Symposium, University of Delaware, Newark, DE, Feb. 2019.
6. Chemistry Biology Interface Symposium, University of Delaware, Newark, DE, Aug. 2018.
7. 11th Annual Frontiers in Chemistry and Biology Interface Symposium, University of Pennsylvania, Philadelphia, PA, Apr. 2018.
8. 17th Annual Philadelphia Young Chemist’s Committee Poster Session, University of the Sciences, Philadelphia, PA, Mar. 2017.
9. 252nd National American Chemical Society Symposium, Philadelphia Convention Center, Philadelphia, PA, Aug. 2016.
10. 27th Annual Celebration of Student Achievement, Saint Joseph’s University, Philadelphia, PA, Apr. 2016.
11. Sigma Xi Research Symposium, Saint Joseph’s University, Philadelphia, PA, Apr. 2016.
12. 16th Annual Philadelphia Young Chemist’s Committee Poster Session, University of the Sciences, Philadelphia, PA, Feb. 2016.

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**SERVICE EXPERIENCE**

**Chapter Excellence Board**, Phi Sigma Pi National Honor Fraternity

*Operations Advisor*, June 2018- Present

* Mentor and coach seven Collegiate Chapters through strategic development to meet and exceed organization goals to improve operations
* Complete term-long project in ensuring national compliance and standardizing chapter bylaws with nationals (Fall) as well as create a comprehensive policy and design a chapter education plan for risk management policies (Spring)

**Collegiate Challenge**, Saint Joseph’s University

*Trip Leader*, Oct. 2016-June 2017; *Volunteer*, May 2016

* Participated in week-long summer service immersion program affiliated with Habitat for Humanity to build houses for those in need across the country
* Traveled to Goose Creek, SC in May 2016
* Planned and led trip with co-leader to Jackson, Wyoming in May/June 2017

**Romero Residential Learning Community**, Saint Joseph’s University

*Participant,* Aug. 2014-May 2015

* Lived in a community devoted to social justice and service by completing various service projects and workshops each month
* Planned and led the Homelessness Awareness Month in baking pies and writing Christmas cards for a local hospice

**Appalachian Experience**, Saint Joseph’s University

*Volunteer*, March 2014 and March 2015

* Participated in week-long service immersion program over spring break committed to serving with and for others while learning about the culture and concerns of the people in the Appalachian region
* Traveled to Deer Lodge, TN in March 2014 and Lantz Farm, WV in March 2015

**Field of Green Recycling Program**, Pennsbury High School

*Founder and Volunteer*, Sept. 2010-Sept. 2013

* Developed and implemented a recycling program at Falcon Field, Pennsbury High School’s football stadium, where there were no previous recycling initiatives
* Recruited team of high school volunteers to serve as Green team and collect recyclables from the stadium
* Successfully diverted over 1700 pounds of recyclables from the waste stream in the program’s first three years

**Lifetime Girl Scout**, Girl Scouts of Eastern Pennsylvania

*Volunteer*, Sept. 2002- Present

* Led and participated in various service projects over the years contributing to hundreds of hours of service to the local community
* Earned Gold, Silver, and Bronze Awards for various service projects led, most notability with 116 service hours contributed for Gold Award project
* Awarded “15 Years of Service Pin” in Spring 2017

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**American Chemical Society (ACS)**: *Member,* June 2016-Present

**American Society for Biochemistry and Molecular Biology (ASBMB)**: *Member*, Nov. 2019-present

**Materials Research Society (MRS)**: *Member*, Jan. 2020-present

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**Graduate Student Government,** University of Delaware: Chemistry and Biochemistry Department Representative,

Aug. 2019-Present

**Women in Chemistry Club**, University of Delaware: *Social Media Chair*, Jan. 2018-Present; *Member,* Sept. 2017-

Present

**Alpha Sigma Nu Jesuit Honor Society**, Saint Joseph’s University: *Vice President*, Aug. 2016-Present; *Member*, Feb.

2016-present

**Sigma Zeta National Science and Mathematics Honor Society**, Saint Joseph’s University: *Charter Member*, Nov.

2015-present

**Phi Sigma Pi National Honor Fraternity**, Saint Joseph’s University Zeta Iota Chapter: *National Delegate*, Summer

2016; *Social Chair*, Jan 2016-Dec 2016; *Alumni Chair*, Aug 2015-Dec 2015; *Collegiate Member*, Sept. 2014-

May 2017; *Alumni Member in Delaware Valley Alumni Chapter*, May 2017-present

**Spring Concert Executive Board**, Saint Joseph’s University: *Head Co-Chair*, Aug 2015-May 2016; *Production*

*Chair*, Jan. 2014- May 2015

**Biology Club**, Saint Joseph’s University: *Secretary*, Aug. 2014-May 2016; *Member*, Aug. 2013-May 2017

**Molloy Chemical Society**, Saint Joseph’s University: *Member*, Aug. 2013-May 2017

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**ADDITIONAL EXPERIENCE**

**ESF Camps**, Lawrenceville, NJ

*Major Camp: Counselor*, May 2014-Aug 2014

* Counselor for children ages 8-14 in Major Camp, a specialized camp designed to focus on a different “major” each week for children to master and excel
* Assisted with the following programs: Super Cool Science, CSI Forensics, Animal Advocacy, Art Studio, and Invention By Design.
* Earned a Bravo Zulu award for outstanding excellence and going above and beyond the duties of my job