Eva Rose M. Balog

University of New England
11 Hills Beach Road
Biddeford, ME 04005

Phone: (207) 602-2608 (office)
Email: ebalog@une.edu
Web: https://sites.une.edu/baloglab/

I. Earned Degrees

Ph.D.	Molecular, Cell, and Developmental Biology University of California, Santa Cruz (2012) Dissertation: Cks Proteins in Cell Cycle Regulation
B.S.	Biology, California Institute of Technology (2006)

II. Employment

2026-present	Professor of Chemistry, College of Arts and Sciences, University of New England
2020-2026	Associate Professor of Chemistry, College of Arts and Sciences, University of New England
2020-2023	Assistant Academic Director, School of Mathematical and Physical Sciences, College of Arts and Sciences, University of New England
2014-2020	Assistant Professor of Chemistry, College of Arts and Sciences, University of New England
2012-2014	Postdoctoral Fellow, Center for Integrated Nanotechnologies, Los Alamos National Laboratory

III. Visiting Appointments

2024-2026	Visiting Associate Professor, Roux Institute, Northeastern University
2023-present	Affiliate Faculty, Graduate School of Biomedical Sciences and Engineering, University of Maine

IV. Honors and Awards

2024	Nominee, Debra J. Summers Award for Teaching Excellence
2013-2014	NeXXt Mentoring Fellow, New York Academy of Sciences/U.S. State Dept.
2011-2012	Representative, Executive User Committee, Stanford Synchrotron Radiation Lightsource
2010	Tony Fink Memorial Student Award, UC Santa Cruz
2007-2008	NIH Training Grant Recipient, UC Santa Cruz
2006	Doris Everhart Service Award, Caltech
2006	Lucy Guernsey Service Award, Caltech
2006	Election to Caltech Gnome Club (Honor Society)
2002-2006	Jorgensen Scholar (full tuition), Caltech
2005	Los Angeles Philanthropic Society Scholarship
2003-2005	Summer Undergraduate Research Fellowships, Caltech
2004	Honorable Mention, Mary A. Earl McKinney Prize in Literature

V. TEACHING

CHE 110/110L/111/111L General Chemistry I/II. This is a two-semester introduction to the principles of chemistry. It is required for many majors, including medical biology, marine science, animal behavior, and environmental science. The CHE 150/151 series is an in-depth introduction to general chemistry that is required for chemistry and biochemistry majors. Course includes a three-hour laboratory each week.

CHE 310/310L Fundamentals of Biochemistry. This is a one-semester survey course typically taken by juniors and seniors in majors such as medical biology, marine science, and neuroscience. Course covers the structural, functional, and informational aspects of biologically important molecules, such as amino acids, proteins, enzymes, lipids, and carbohydrates. The course is complemented with a three-hour laboratory each week.

CHE 350/350L Biochemistry I: Proteins. This is the first semester of a two-semester biochemistry series, typically taken by Biochemistry and Chemistry majors in the junior or senior year. Topics include protein structure and folding, ligand binding, enzyme mechanisms, kinetics, and regulatory strategies, signal transduction, and the use of scientific databases and software tools. Course includes a four-hour laboratory each week. CHE 550/550L is a graduate-level version offered concurrently as needed.

CHE 351 Biochemistry II: Bioenergetics and Metabolism. This is the second semester of a two-semester biochemistry series, typically taken by Biochemistry majors in the junior or senior year. Topics include cellular energetics, signaling pathways, glycolysis, glycogen metabolism, citric acid cycle, pentose phosphate pathway, gluconeogenesis, lipid synthesis/oxidation, urea cycle, integrative metabolism, and photosynthesis.

CHE 375 Advanced Laboratory: An advanced, project-based, integrated laboratory course incorporating the concepts and techniques of analytical chemistry, biochemistry, inorganic chemistry, organic chemistry, and physical chemistry.

CHE 410/411 Research I/II. Directed research in chemistry or biochemistry carried out in collaboration with a faculty mentor.

STEM 100 STEM Seminar I. This is the first part of a year-long experience where a wide range of science, technology, engineering and mathematics topics and principles are discussed and illustrated with hands-on examples and activities.

Summary of Courses Taught

Term	Course	Enrollment	Instructor Evaluation
Fa2014	CHE 310L Fundamentals of Biochemistry Lab	19	n/a*
	CHE 350 Biochemistry I: Proteins	3	4.7/5.0
	CHE 350L Biochemistry I: Proteins Lab	3	4.7/5.0
Sp2015	CHE 111/151 General Chemistry II	87	4.1/5.0
	CHE 310L Fundamentals of Biochemistry Lab	18	4.3/5.0
	CHE 410 Research I	2	4.5/5.0
Fa2015	CHE 110 General Chemistry I	48	3.9/5.0
	CHE 350/550 Biochemistry I: Proteins	10	3.1/5.0
	CHE 350L/550L Biochemistry I: Proteins Lab	10	3.5/5.0
	CHE 410 Research I	1	5.0/5.0
	STEM 100 STEM Seminar I	9	n/a*
Sp2016	CHE 111/151 General Chemistry II	96	4.4/5.0
	CHE 310L Fundamentals of Biochemistry Lab	19	4.7/5.0
Fa2016	CHE 310L Fundamentals of Biochemistry Lab	29	4.4/5.0
	CHE 350 Biochemistry I: Proteins	10	4.2/5.0
	CHE 350L Biochemistry I: Proteins Lab	10	4.4/5.0
Sp2017	(Maternity leave)		
Fa2017	CHE 310L Fundamentals of Biochemistry Lab	31	4.0/5.0

	CHE 350 Biochemistry I: Proteins	15	4.5/5.0
	CHE 350L Biochemistry I: Proteins Lab	15	4.6/5.0
	CHE 410 Research I	2	5.0/5.0
Sp2018	CHE 310 Fundamentals of Biochemistry	38	3.6/5.0
	CHE 310L Fundamentals of Biochemistry Lab	36	4.0/5.0
	CHE 411 Research II	2	4.5/5.0
Fa2018	(Junior faculty leave)		
	CHE 410 Research I	1	5.0/5.0
Sp2019	CHE 111 General Chemistry II	61	3.3/5.0
	CHE 310 Fundamentals of Biochemistry	73	4.0/5.0
Fa2019	(Maternity leave)		
Sp2020	CHE 111 General Chemistry II	17	4.1/5.0
	CHE 111L General Chemistry II Lab	29	4.2/5.0
	CHE 310 Fundamentals of Biochemistry	29	4.6/5.0
	CHE 411 Research II	1	5.0/5.0
Fa2020	CHE 111L General Chemistry II Lab	20	4.2/5.0
	CHE 350 Biochemistry I: Proteins	4	4.7/5.0
	CHE 350L Biochemistry I: Proteins Lab	4	4.7/5.0
Sp2021	CHE 111 General Chemistry II	38	4.3/5.0
	CHE 151 University General Chemistry II	11	4.5/5.0
	CHE 410 Research I	2	5.0/5.0
Fa2021	CHE 110L General Chemistry I Lab	20	4.5/5.0
	CHE 350 Biochemistry I: Proteins	6	4.6/5.0
	CHE 350L Biochemistry I: Proteins Lab	6	4.6/5.0
	CHE 410 Research I	2	5.0/5.0
Sp2022	CHE 111 General Chemistry II	30	4.2/5.0
	CHE 310 Fundamentals of Biochemistry	30	3.8/5.0
	CHE 411 Research II	2	5.0/5.0
Fa2022	CHE 350/550 Biochemistry I: Proteins	7	4.7/5.0
	CHE 350L/550L Biochemistry I: Proteins Lab	7	4.7/5.0
Sp2023	CHE 351 Biochemistry II: Bioenergetics/Metabolism	7	4.6/5.0
Fa2023	CHE 350 Biochemistry I: Proteins	5	3.3/5.0
	CHE 350L Biochemistry I: Proteins Lab	5	4.0/5.0
	CHE 110L General Chemistry I Lab	20	4.2/5.0
Sp2024	CHE 375 Advanced Laboratory	7	4.7/5.0
Fa2024 –	(Sabbatical leave)		
Su2026	CHE 410 Research I	3	n/a*
Fa2026	CHE 350L Biochemistry I: Proteins Lab	7	pending

*no student course evaluations available

VI. Research and Scholarship

A. Grants and Contracts

1. Extramural

Pending:

04/01/27 - 03/31/2032 (Co-PI) PI: Dr. Ben Harrison
"R01: RNA-Protein Interactions in Nociception"
National Institutes of Health/NINDS
Total Award Amount: $3,127,551
Submitted 07/02/2026

04/01/2027 - 03/31/2032 (Senior/Key Personnel) PI: Dr. Matt Havrda
"T35: Research Training for Medical Students to Support Healthy Aging in Rural Communities."
National Institutes of Health/NIA
Total Award Amount: $307,045
Submitted 05/25/2026

Awarded:

09/01/2026 - 05/31/2031 (PI)
"R35: Probing Cell Signaling Complexity in Wound Healing with Engineered Protein Materials"
National Institutes of Health/NIGMS
Total Award Amount: $1,925,500

01/15/2026 - 01/14/2027 (PI)
"Marine Glycoprotein Research"
Marin Brands, Inc.
Total Award Amount: $95,224

09/01/2025 – 08/31/2028 (Senior/Key Personnel) PI: Dr. Alessia Battigelli (UMaine)
“MRI: Acquisition of a MALDI-TOF Mass Spectrometer for the Characterization of Macromolecules”
National Science Foundation
Total Award Amount: $625,000

07/01/2025 – 06/30/2028 (Co-PI) PI: Dr. Sean Edington (UNH)
“MRI: Acquisition of an Automated Isothermal Titration Calorimeter”
National Science Foundation
Total Award Amount: $254,059

12/01/2023-11/30/2028 (RPL) PI: Dr. Derek Molliver
UNE Center for Cell Signaling Research (COBRE Phase I)
“Project 1: Immunomodulatory elastin-like materials to promote wound healing”
National Institutes of Health/NIGMS
Total Award Amount: $1,282,195

07/01/2023 – 07/31/2024 (PI)
“High-Throughput Screening of ELP Phase Behavior in Chemical Space”
National Crystallization Center Meritorious User Program
Provides low-cost access to National Institutes of Health R24 National Resource

03/01/2022-02/28/2026 (Co-PI) PI: Dr. Jeffrey Halpern (UNH)
"RII Track-2 FEC: Advancing Manufacturing and Biotechnology through an On-Demand Sensor Platform: Investments in the Development of Engineering Principles and the Future Workforce"
National Science Foundation
Total Award Amount: $5,997,238

05/04/2020-05/03/2021 (Co-PI) PI: Dr. Sherine Elsawa (UNH)
"Investigating the Efficacy of Mutated Neutralizing SARS-CoV Antibodies Against SARS-CoV-2"
UNH Collaborative Research Excellence (CoRE) COVID-19 Pilot Research Partnership
Total Award Amount: $30,000

01/06/2020-06/30/2021 (PI)
"Genetically Engineered Polymer for Control and Interrogation of Angiogenesis Signaling" (continuation)
Center for Integrated Nanotechnologies (Los Alamos National Laboratory) User Proposal
Provides no-fee access to U.S. Department of Energy Office of Science User Facility

08/01/2019-07/31/2020 (PI)
"Neuromorphic Applications of Carotenoproteins"
Center for Nanophase Materials Sciences (Oak Ridge National Laboratory) Research Proposal
Provides no-fee access to U.S. Department of Energy Office of Science User Facility

07/01/2019-06/30/2020 (Co-PI) PI: Dr. Jeffrey Halpern (UNH)
"Conversion of Elastin Like Polymer Surfaces into a Working Sensor Platform"
UNH Collaborative Research Excellence (CoRE) Pilot Research Partnership
Total Award Amount: $30,000

07/01/2018-12/31/2019 (PI)
"Genetically Engineered Polymer for Control and Interrogation of Angiogenesis Signaling"
Center for Integrated Nanotechnologies (Los Alamos National Laboratory) User Proposal
Provides no-fee access to U.S. Department of Energy Office of Science User Facility

08/15/2016-07/31/2019 (Co-PI) PI: Dr. Markus Frederich
"MRI: Acquisition of a FlowCam to Enhance Marine Science Research and Education at the University of New England"
National Science Foundation
Total Award Amount: $118,475

08/01/2016-07/31/2018 (Co-PI) PI: Dr. Jeffrey Halpern (UNH)
"EAGER: Collaborative Proposal: Use of Elastin-like Polymer as an Electrochemical Biosensor"
National Science Foundation
Total Award Amount: $38,271

07/01/2015-08/31/2018 (PI)
"MRI: Acquisition of an Environmental Scanning Probe Microscope for Multidisciplinary Research, Teaching, and Outreach"
National Science Foundation
Total Award Amount: $374,580

07/1/2015-12/31/2016 (PI)
"Biopolymer Scaffolds for Control and Interrogation of Angiogenesis Signaling"
Center for Integrated Nanotechnologies (Los Alamos National Laboratory) User Proposal
Provides no-fee access to U.S. Department of Energy Office of Science User Facility

Unfunded/Not Invited:

12/01/2025 - 11/30/2030 (PI)
"R35: Probing Cell Signaling Complexity in Wound Healing with Engineered Protein Materials"
National Institutes of Health/NIGMS
Total Award Amount: $1,775,000

08/01/2025 – 07/31/2029 (Senior/Key Personnel) PI: Dr. Scott Wood
"RII FEC: MAJIC Vessels – Development of a Vascularized Microphysiological Articular Joint In a Chip"
National Science Foundation
Total Award Amount: $6,000,000

Submitted 04/23/2024 (PI)
"Ideas Lab: USPRD Preliminary Proposal: The Dreamer's Companion in Protein Biochemistry"
National Science Foundation
Preliminary proposal, scored 3.6/5

02/01/2024-01/31/2026 (Co-PI) PI: Dr. Carrie Byron
"Extraction of heavy metals from seaweed"
Maine Sea Grant
Total Award Amount: $192,806

06/01/2021-05/31/2023 (Senior/Key Personnel) PI: Dr. Rudi Seitz (UNH)
"Single Chain Templated Polymers for Chemical Sensing"
National Science Foundation
Total Award Amount: $241,558

09/01/2023-08/31/2025 (Co-PI) PI: Dr. Carrie Byron
"Heavy metal assessment and extraction from farmed seaweed"
National Oceanic and Atmospheric Administration
Total Award Amount: $299,996

09/01/2020-08/31/2025 (Co-PI) PI: Dr. Jeffrey Halpern (UNH)
"FMRG: Real-Time Continuous Biosensors for Closed-Loop Biomanufacturing Control"
National Science Foundation
Total Award Amount: $411,421

05/01/2019-04/20/2020 (Co-PI) PI: Dr. Benjamin Harrison
"Augmentation of Nerve Growth Factor Signaling with Peptide Aptamers."
NIH COBRE Pilot Project, MDI Biological Laboratories
Total Award Amount: $78,898

07/01/2016-6/30/2019 (Co-PI) PI: Dr. Jeffrey Halpern (UNH)
"Collaborative Proposal: Elastin-like Polymer Enhanced Electrochemical Detection of Carotenoids"
National Science Foundation
Total Award Amount: $115,066

2. INTRAMURAL

Awarded:

07/01/2025
"Atomic Force Microscope Replacement Laser Diode Assembly"
University of New England Office of Research & Scholarship Research Infrastructure Fund
Total Award Amount: $1,487.12

11/18/2024
"Support Contract for Isothermal Titration Calorimeter"
University of New England Office of Research & Scholarship Research Infrastructure Fund
Total Award Amount: $37,050

08/19/2024
"Atomic Force Microscope Replacement Heater/Cooler Stage"
University of New England Office of Research & Scholarship Research Infrastructure Fund
Total Award Amount: $7,200

06/30/2023
"Atomic Force Microscope Repair/Computer Replacement"
University of New England Office of Research & Scholarship Research Infrastructure Fund
Total Award Amount: $7,005

12/20/2022
"Dynamic Light Scattering instrument: Malvern Zetasizer Ultra Red Label"
University of New England Office of Research & Scholarship Research Infrastructure Fund
Total Award Amount: $90,000

06/1/2018-08/31/2019 (Co-PI) PI: Dr. Benjamin Harrison (UNE)
"Discovery and Development of Peptide Aptamers Targeting the Alzheimer's Disease-Associated Protein, CD2AP"
University of New England Office of Research and Scholarship Mini-grant Program
Total Award Amount: $15,000

06/01/2016-08/31/2017 (Co-PI) PI: Dr. Kerry Tucker (UNE)
"The Antenna of the Cell: An Investigation of the Physical Properties of the Primary Cilium Using Atomic Force Microscopy"
University of New England Office of Research and Scholarship Mini-grant Program
Total Award Amount: $8,750

07/01/2015-08/31/2020
Atomic Force Microscopy User Facility Research & Data Coordinator
University of New England Office of Research & Scholarship and College of Arts and Sciences
1-month summer contract over 5 years

06/01/2015-08/31/2016 (PI)
"Fusion of Stimuli Responsive Elastin-like Polymers with a Lobster Carapace Carotenoprotein"
University of New England Office of Research and Scholarship Mini-grant Program
Total Award Amount: $3,500

B. SUBMITTED MANUSCRIPTS

[22] Bramlitt-Harris, S.; Albeshir, Z.; Sajedi, F.; Fernald, C.; Jovic Dold, K.; Curley, C. E.; Spiese, S.; Soetan, E.; Falebita, O.; **Balog, E. R. M.**; Halpern, J. M. "In Situ Surface Impedance Evaluation (ISSIE) of Elastin-Like Polymers: A Novel Interpretation of Non-Redox Mediated Electrochemical Impedance Spectroscopy (EIS)." *Analytical Chemistry* 2026, in revision.

C. REFEREED PUBLICATIONS

ORCID 0000-0001-6792-6914
(Citations from Google Scholar, accessed 11/6/26)
Total Publications: 21, h-index: 10, i10-index: 11, Total Citations: 795
Undergraduate student co-authors underlined.

[21] Phipps, M. L.; Lillo, A.; Morales, D. P.; Hernandez-Romero, M.; De Haro, L. P.; Close, D.; Paiva, W.; Funsten, E.; Bradbury, A. R. M.; Martinez, J. S.; **Balog, E. R. M.** An Elastin-like Polymer Targeting Vascular Endothelial Growth Factor Receptor-1 Reduces Survival in Serum-Starved Endothelial Cells. Biochem. Eng. J. 2025, 225, 109930.

[20] Curley, C. E.; Jovic Dold, K.; Torres, J. A.; Richard, A. C.; Sanders, E.; Halpern, J. M.; Pantazes, R. J.; **Balog, E. R. M.** Functional Design and Biophysical Characterization of Analyte-Responsive Polymers. Biomacromolecules. 2025, 26 (8), 4826-4837.

[19] Feeney, S.*; Morales, M.*; Arnold, G.; Paiva, W.; **Balog, E. R. M.**; Halpern, J. M. Reproducibly Modified Elastin-like Polymer Gold Electrode Surfaces. ACS Meas. Sci. Au. 2025, 5 (4), 520-528. *equal contribution

[18] Austin, K.*; Torres, J. A.*; Waters, J. D. V.*; **Balog, E. R. M.**; Halpern, J. M.; Pantazes, R. J. An Orthogonal Workflow of Electrochemical, Computational, and Thermodynamic Methods Reveals Limitations of Using a Literature-Reported Insulin Binding Peptide in Biosensors. ACS Omega. 2024, 9(37), 39219-39231. *equal contribution

[17] Swanson, P. C.; Arnold, G. P.; Curley, C. E.; Wakita, S. C.; Waters, J. D. V.; **Balog, E. R. M.** Understanding the Phase Behavior of a Multistimuli-Responsive Elastin-like Polymer: Insights from Dynamic Light Scattering Analysis. J. Phys. Chem. B. 2024, 128(23), 5756-5765.

[16] LaFreniere, J.; Roberge, E.; Ren, T.; Seitz, W. R.; **Balog, E. R. M**.$^{+}$; Halpern, J. M.$^{+}$ ($^{+}$Co-Corresponding) Insights on the Lower Critical Solution Temperature Behavior of pNIPAM in an Applied Electric Field. ECS Trans. 2020, 97(7): 709.

[15] Ren, T.; Roberge, E. J.; Csoros, J. R.; Seitz, R. W.; **Balog, E. R. M.**$^{+}$; Halpern, J. M.$^{+}$ ($^{+}$Co-Corresponding) The Application of Applied Voltage in Dynamic Light Scattering Particle Size Analysis. J. Vis. Exp. 2020, 155: e60257.

[14] Morales, M. A.; Paiva, W.; Marvin, L.; **Balog, E. R. M.**; Halpern, J. M. Electrochemical Characterization of the Stimuli-Response of Surface-Immobilized Elastin-like Polymers. Soft Matter. 2019, 15(47): 9640-9646.

[13] Marvin, L.; Paiva, W.; Gill, N.; Morales, M. A.; Halpern, J. M.; Vesenka, J.; **Balog, E. R. M.** Flow Imaging Microscopy as a Novel Tool for High-Throughput Evaluation of Elastin-like Polymer Coacervates. PLOS ONE. 2019, 14 (5): e0216406.

[12] Ghosh, K.; Elbert, K. C.; **Balog, E. R. M.**; Martinez, J. S.; Rocha, R. C. A Metallo-Biopolymer Conjugate of Elastin-like Polypeptide: Photoluminescence Enhancement in the Coacervate Microenvironment. J. Biol. Inorg. Chem. 2018, 23 (7): 1153-1157.

[11] Lillo, A. M.; Lopez, C. L.; Rajale, T.; Yen, H.-J.; Magurudeniya, H. D.; Phipps, M. L.; **Balog, E. R. M.**; Sanchez, T. C.; Iyer, S.; Wang, H.-L.; Michalczyk, R.; Rocha, R. C.; Martinez, J. S. Conjugation of Amphiphilic Proteins to Hydrophobic Ligands in Organic Solvent. Bioconjug. Chem. 2018, 29 (8), 2654-2664.

[10] Fazelinia, H.; **Balog, E. R. M.**; Desireddy, A.; Chakraborty, S.; Sheehan, C. J.; Strauss, C. E. M.; Martinez, J. S. Genetically Engineered Elastomeric Polymer Network through Protein Zipper Assembly. ChemistrySelect. 2017, 2 (18), 5008-5012.

[9] **Balog, E. R. M.**; Ghosh, K.; Park, Y.-I.; Hartung, V.; Sista, P.; Rocha, R. C.; Wang, H.-L.; Martinez, J. S. Stimuli-Responsive Genetically Engineered Polymer Hydrogel Demonstrates Emergent Optical Responses. ACS Biomater. Sci. Eng. 2016, 2 (7), 1135–1142.

[8] Ghosh, K.; **Balog, E. R. M.**; Kahn, J. L.; Shepherd, D. P.; Martinez, J. S.; Rocha, R. C. Multicolor Luminescence from Conjugates of Genetically Encoded Elastin-like Polymers and Terpyridine-Lanthanides. Macromol. Chem. Phys. 2015, 216 (18), 1856–1861.

[7] Ghosh, K.; **Balog, E. R. M.**; Sista, P.; Williams, D. J.; Kelly, D.; Martinez, J. S.; Rocha, R. C. Temperature-Dependent Morphology of Hybrid Nanoflowers from Elastin-like Polypeptides. APL Mater. 2014, 2 (2), 21101. (Selected as a Featured Article.)

[6] McGrath, D. A.*; **Balog, E. R. M.***; Kõivomägi, M.; Lucena, R.; Mai, M. V.; Hirschi, A.; Kellogg, D. R.; Loog, M.; Rubin, S. M. Cks Confers Specificity to Phosphorylation-Dependent CDK Signaling Pathways. Nat. Struct. Mol. Biol. 2013, 20 (12), 1407–1414. *equal contribution ('Science Signaling' Breakthrough of the Year 2013.)

[5] Kõivomägi, M.; Ord, M.; Iofik, A.; Valk, E.; Venta, R.; Faustova, I.; Kivi, R.; **Balog, E. R. M.**; Rubin, S. M.; Loog, M. Multisite Phosphorylation Networks as Signal Processors for Cdk1. Nat. Struct. Mol. Biol. 2013, 20 (12), 1415–1424. ('Science Signaling' Breakthrough of the Year 2013.)

[4] Kõivomägi, M.; Valk, E.; Venta, R.; Iofik, A.; Lepiku, M.; **Balog, E. R. M.**; Rubin, S. M.; Morgan, D. O.; Loog, M. Cascades of Multisite Phosphorylation Control Sic1 Destruction at the Onset of S Phase. Nature 2011, 480 (7375), 128–131.

[3] **Balog, E. R. M.**; Saetern, O. C.; Finch, W.; Hoeft, C. O.; Thai, V.; Harvey, S. L.; Kellogg, D. R.; Rubin, S. M. The Structure of a Monomeric Mutant Cks Protein Reveals Multiple Functions for a Conserved Hinge-Region Proline. J. Mol. Biol. 2011, 411 (3), 520–528.

[2] **Balog, E. R. M.**; Burke, J. R.; Hura, G. L.; Rubin, S. M. Crystal Structure of the Unliganded Retinoblastoma Protein Pocket Domain. Proteins 2011, 79 (6), 2010–2014.

[1] Stuecker, T.; Newcombe, D.; La Duc, M. T.; **Murdock, E.**; Sumner, R.; Venkateswaran, K. Implications of the VBNC State of B. Cepacia and S. Maltophilia on Bioreduction and Microbial Monitoring of ISS Potable Waters. SAE Tech. Pap. 2005.

D. PATENTS/APPLICATIONS

[4] **Balog, E. R. M.**; Fitzsimons, L.; Martinez, J. S.; Phipps, M. L.; De Haro, L. P. Pain Inhibiting Polymer Compound. U.S. Provisional Patent Application No. 63/825,857, filed June 18, 2025.

[3] Halpern, J. M.; **Balog, E. R. M.** 2-Dimensional Surfaces Capable of Monitoring Stimuli-Responsive Behavior and Methods of Use Thereof. U.S. Patent Application No. 18/919,131, filed October 17, 2024; continuation of U.S. Patent Application No. 16/668,858, now U.S. Patent No. 12,153,044 B2.

[2] Halpern, J. M.; **Balog, E. R. M.** 2-Dimensional Surfaces Capable of Monitoring Stimuli-Responsive Behavior and Methods of Use Thereof. U.S. Patent No. 12,153,044 B2, issued November 26, 2024.

[1] Martinez, J. S.; Close, D. W.; Lillo, A. M.; **Balog, E. R. M.**; Kiss, C.; Rocha, R. C.; Bradbury, A. R. M.; Ghosh, K.; Sista, P.; Wang, H.-L.; Strauss, C. E. Genetically Engineered Polymer Libraries and Methods of Using Them. U.S. Patent Application No. 15/115,212, Publication No. US2017/0029812 A1, published February 2, 2017.

E. OTHER PUBLICATIONS/PRODUCTS

Book Chapter: **Balog, E. R. M.** (2023) "Spectroscopic investigation of biomolecular dynamics using light scattering methods." In Advanced Spectroscopic Methods to Study Biomolecular Structure and Dynamics, edited by Prakash Saudagar and Timir Tripathi. 211-226, Academic Press (Elsevier).

Protocol: **Balog, E. R. M.** (2018). Periplasmic Bacterial Expression and Purification of Elastin-like Polymers. protocols.io dx.doi.org/10.17504/protocols.io.vfce3iw

Protocol: **Balog, E. R. M.**, Marvin, L. (2018). Flow Imaging Microscopy of Elastin-like Polymers. protocols.io dx.doi.org/10.17504/protocols.io.vg9e3z6

F. INVITED SEMINARS AND PRESENTATIONS

[8] "Engineering Proteins for Biosensors and Cell-Instructive Biomaterials," College of Medicine Seminar Series, University of New England. (Fall, 2024)

[7] "Particle Size Characterization and Analysis," Henry Stewart Talks - Biomedical & Life Sciences Collection. (Spring, 2024)

[6] "Novel Protein Biomaterials for Manipulating VEGFR1 Signaling and Studying Cell Phenotypes," Maine Research Symposium on Biomedical Science and Engineering, University of Maine. (Spring, 2024)

[5] "Smart Polymers, Smart Sensors: Exploring the Promise of Elastin-like Polypeptides," American Institute of Chemical Engineers (AIChE) Annual Meeting, Orlando, FL. (Fall, 2023)

[4] "Engineering Proteins for Advanced Functional Biomaterials" Maine Biological and Medical Sciences Symposium, Salisbury Cove, ME. (Spring, 2023)

[3] "Visualizing Stimuli-Responsive Protein Materials in Solution and on Surfaces," Department of Chemistry, University of New Hampshire. (Spring, 2019)

[2] "Smart, Tunable Protein Based-Materials," College of Arts and Sciences Brown Bag Series, University of New England. (Spring, 2019)

[1] "Designing Smarter Protein-Based Materials for the Study and Control of Cell Signaling," Center for Excellence in the Neurosciences Seminar Series, University of New England. (Spring, 2015)

G. CONFERENCE PRESENTATIONS

Presenters in **bold**, undergraduate student co-authors underlined.

[63] Spiese, S.; **Balog, E. R. M.** (2026) "Sparse Matrix Screening as a Tool for Mapping the Solution Environment Dependence of IDP Phase Behavior." 40th Annual Meeting of the Protein Society, Boston, MA. Poster presentation.

[62] **Roell, H.**; Curley, C.; Balog, E. R. M.; Halpern, J. M. (2026) "Interpreting EIS Responses of Surface-Bound ELPs Under Salt Stimuli Corroborated with AFM Imaging." Gordon Research Conference on Bioanalytical Sensors, Newport, RI. Poster presentation.

[61] **Roell, H.**; Curley, C.; Balog, E. R. M.; Halpern, J. M. (2026) "Combining Electrical Impedance Spectroscopy and Atomic Force Microscopy to Evaluate Stimuli-Responsive Elastin-like Polymer Surfaces." 249th Electrochemical Society Meeting, Seattle, WA. Oral presentation.

[60] **Bramlitt-Harris, S.**; Fernald, C.; Balog, E. R. M.; Halpern, J. M. (2026) "In-Situ Surface Impedance Evaluation (ISSIE): A Full-Spectrum Approach to Non-Redox Mediated EIS Data Analysis." Pittcon, San Antonio, TX. Oral presentation.

[59] **Spiese, S.**; Balog, E. R. M. (2026) "Investigation of Phase Separation Behavior of Elastin-like Polymers Using High-Throughput Screening and Statistical Methods." Biophysical Society Annual Meeting, San Francisco, CA. Poster presentation.

[58] **Falebita, Banke**; **Soetan, Eniola**; Balog, E. R. M. (2026) "Characterization of Engineered Protein Components for Use in a Novel Biosensing Platform." Biophysical Society Annual Meeting, San Francisco, CA. Poster presentation.

[57] **Valley, Ty**; Sajedi, Ferdows; Halpern, J.; Balog, E. R.; Curley, C. (2025) "Control Studies of Antibody Binding to Carbon Modified Surfaces with EIS." American Institute of Chemical Engineers Annual Meeting, Boston, MA. Poster presentation.

[56] **Wakita, S. C.**; Fitzsimons, L. A.; Balog, E. R. M. (2025) "Methods of Investigating a Vascular Endothelial Growth Factor Receptor-Targeting Protein Polymer for Applications in Wound Healing and Pain." Maine Institute of Medicine Biomedical Science and Engineering Research Symposium, Portland, Maine. Poster presentation.

[55] **Balog, E. R. M.** (2025) "Elastin-Like Polymer-Based Biosensors and Therapeutics." Gordon Research Conference on Elastin, Elastic Fibers, and Microfibrils, Manchester, NH. Oral presentation selected from submitted poster abstracts.

[54] **Vesenka, J.**; Gilhooly, M.; Balog, E.; Marsh, T. C. (2025) "Persistence Lengths of Extended Tet1.5 and G10 G-Wire DNA." G4thering Conference, Minneapolis, MN. Invited talk (JV).

[53] **Bramlitt-Harris, S.**; Balog, E. R.; Halpern, J. M. (2025) "Investigating Controls for New Point-of-Need Sensors Using Electrochemical Impedance Spectroscopy." Pittcon, Boston, MA. Oral presentation.

[52] **Fernald, C.**; Bramlitt-Harris, S.; Balog, E. R.; Halpern, J. M. (2025) "Characterization of Elastin Like Polymer Stimuli-Response in Concentrated Salt Solution via Non-Redox Mediated Electrochemical Impedance Spectroscopy." Pittcon, Boston, MA. Poster presentation.

[51] **Fitzsimons, L. A.**; Wakita, S.; King, T.; Balog, E. R. M. (2025) "Innovative Application of Vascular Endothelial Growth Factor 1 (VEGFR1) Elastin-like Polymer (ELP) as a Therapeutic Biomaterial for Macro- and Micro-vascular Models of Wound Healing In Vivo." MaineHealth Costas T. Lambrew Research Retreat, Portland, ME. Poster presentation.

[50] **Balog, E. R. M.** (2025) "Smart Protein Materials for Modulating VEGFR1 Signaling in Wound Healing," TechConnect World Innovation Conference and Expo, Austin, TX. Oral presentation.

[49] **Halpern, J. M.**; Bramlitt-Harris, S.; Jovic Dold, K.; Albeshir, Z.; Roell, H.; Feeney, S.; Balog, E. R. M. (2025) "Using Electrochemical Impedance Spectroscopy to Interpret Elastin-like Polymer Surfaces Towards Demonstration of Sensors." 247th Electrochemical Society Meeting, Montréal, QC. Invited talk (JMH).

[48] Curley, C.; **Balog, E. R. M.** (2025) "Analyte-Responsive Polymers for Protein Biosensors: Relating Ligand Binding and Phase Separation Behaviors of Elastin-like Polymer Fusion Proteins." Biophysical Society Annual Meeting, Los Angeles, CA. Oral presentation.

[47] **Bramlitt-Harris, S.**; Albeshir, Z.; Fernald, C.; Balog, E. R. M.; Halpern, J. M. (2024) "Characterization of the Dynamic Stimuli-Response of Surface-Immobilized Elastin-Like Polymer V40." Pittcon, San Diego, CA. Poster presentation.

[46] **Halpern, J. M.**; Feeney, S.; Higgins, G.; Sims, M.; Albeshir, Z.; Arnold, G.; Waters, J.; Balog, E. R. M. (2023) "Increasing the Reproducibility and Stability of Temperature-Responsive Elastin-like Polymer Surfaces." 244th Electrochemical Society Meeting, Gothenburg, Sweden. Invited talk (JMH).

[45] **Royce, H.**; **Curley, C.**; Balog, E. R. M. (2023) "Students Elevated and Celebrated: Research In and Around the Curriculum." 2nd Academic-Industry BIO-SENS Symposium. Biddeford, ME. Panel presentations.

[44] Botelho, F.; D'Amaddio, H.; Wheeler, B.; Swanson, P.; Pierini, N.; Oldenhuis, N.; Balog, E. R. M.; **Vesenka, J.** (2023) "AFM Imaging of DNA Molecules and Elastin-like Polymers." 2nd Academic-Industry BIO-SENS Symposium. Biddeford, ME. Panel presentation.

[43] **Wakita, S.**; Balog, E. R. M. (2023) "Toward Robust Bacterial Production of IL-6 for Biosensor Development." 2nd Academic-Industry BIO-SENS Symposium. Biddeford, ME. Poster presentation.

[42] **Swanson, P.**; Waters, J.; Balog, E. R. M. (2023) "Stimuli-Responsive Biopolymer for Detection of Proinflammatory Cytokines." 2nd Academic-Industry BIO-SENS Symposium. Biddeford, ME. Poster presentation.

[41] **Royce, H.; Curley, C.**; Balog, E. R. M. (2023) "Characterization of the Insulin-Binding and Stimuli-Responsive Behavior of Candidate Insulin-Responsive Protein Polymers." 2nd Academic-Industry BIO-SENS Symposium. Biddeford, ME. Poster presentation.

[40] **Balog, E. R. M.** (2023) "On-Demand Protein Biosensors for Biomanufacturing: Engineering Principles for Analyte-Responsive Polymers." Gordon Research Conference on Advanced Cell and Tissue Engineering, Newry, ME. Oral presentation selected from submitted poster abstracts.

[39] **Royce, H.; Curley, C.**; Balog, E. R. M. (2023) "Characterization of the Insulin-Binding and Stimuli-Responsive Behavior of Candidate Insulin-Responsive Protein Polymers." 37th Annual Meeting of the Protein Society, Boston, MA. Poster presentation.

[38] **Wakita, S.**; Balog, E. R. M. (2023) "Toward Robust Bacterial Production of IL-6 for Biosensor Development." 37th Annual Meeting of the Protein Society, Boston, MA. Poster presentation.

[37] **Swanson, P.**; Balog, E. R. M. (2023) "Novel Interleukin-6 Analyte-Responsive Biopolymers." 37th Annual Meeting of the Protein Society, Boston, MA. Poster presentation.

[36] Swanson, P.; Arnold, G.; **Balog, E. R. M.** (2023) "Smart Polymers, Smart Sensors: Exploring the Promise of Elastin-Like Polypeptides." 37th Annual Meeting of the Protein Society, Boston, MA. Poster presentation.

[35] **Feeney, S.**; Panahi, Z.; Balog, E. R. M.; Halpern, J. M. (2022) "Investigation of Surface-Bound ELP as a Thermoresponsive Polymer Film." American Institute of Chemical Engineers (AIChE) Annual Meeting, Phoenix, AZ.

[34] **Swanson, P.**; Richard, Clay; Balog, E. R. M. (2022) "Toward the Creation of a Novel Interleukin-6 Responsive Biopolymer for Sensing Applications." 27th NSF EPSCoR National Conference. Portland, ME. Poster presentation.

[33] **Waters, J.**; Balog, E. R. M. (2022) "A Novel Insulin-Sensing Genetically Engineered Polymer." 27th NSF EPSCoR National Conference. Portland, ME. Poster presentation.

[32] **Swanson, P.**; Richard, Clay; Balog, E. R. M. (2022) "Toward the Creation of a Novel Interleukin-6 Responsive Biopolymer for Sensing Applications." First Annual Maine Research Symposium on Biomedical Science and Engineering. Portland, ME. Poster presentation.

[31] **Waters, J.**; Balog, E. R. M. (2022) "A Novel Insulin-Sensing Genetically Engineered Polymer." First Annual Maine Research Symposium on Biomedical Science and Engineering. Portland, ME. Poster presentation.

[30] **Waters, J.**; Balog, E. R. M. (2022) "The Biology of Biosensing: the Importance of Colocalization and Scaffolding to Protein Binding Function." Academic-Industry BIO-SENS Symposium. Auburn, AL. Panel presentation.

[29] **Swanson, P.**; Balog, E. R. M. (2022) "Protein Pipeline: Natural Setting to Industrial Application." Academic-Industry BIO-SENS Symposium. Auburn, AL. Panel presentation.

[28] **Fernald, C.**; Feeney, S.; Balog, E. R. M.; Halpern, J. M. (2022) "Characterizing the Stimulus Response of I40 and V40 ELPs." Academic-Industry BIO-SENS Symposium. Auburn, AL. Poster presentation.

[27] **Arnold, G.**; Balog, E. R. M. (2022) "Biophysical Characterization of an Ionizable Stimuli Responsive Polymer by Dynamic Light Scattering." Academic-Industry BIO-SENS Symposium. Auburn, AL. Poster presentation.

[26] **Feeney, S.**; Balog, E. R. M.; Halpern, J. M. (2022) "Investigation of Temperature-Triggered Collapse of Surface-Bound ELP." Electrochemical Society Meeting. Vancouver, BC. Poster presentation.

[25] **Feeney, S.**; Austin, K.; Balog, E. R. M.; Halpern, J. M. (2021) "Investigation of Electrochemical Redox Tags for Elastin-like Polymer Sensing." American Institute of Chemical Engineers (AIChE) Annual Meeting, Boston, MA. Poster presentation.

[24] **Austin, K.**; Feeney, S.; Balog, E. R. M.; Halpern, J. M. (2021) "Different Redox Mediators Applied to Elastin-like Polymer Surfaces." Electrochemical Society Meeting. Virtual poster (COVID).

[23] **Alsilawi, Z**.; Arnold, G.; St. Pierre, H.; Balog, E. R. M. (2021) "Biomolecular Visualization of the SARS-CoV-2 Spike Protein through Digital and Physical Media in an Upper Level Undergraduate Biochemistry Laboratory Course." PDB50 Symposium (ASBMB). Virtual poster (COVID).

[22] **Feeney, S.**; Morales, M. A.; Balog, E. R. M.; Halpern, J. M. (2020) "Monitoring Inconsistent ELP Surface Modification by Thiol Desorption." American Institute of Chemical Engineers (AIChE) Annual Meeting. Virtual poster (COVID).

[21] **LaFreniere, J.**; Ren, T.; Roberge, E.; Balog, E. R. M.; Seitz, W. R.; Halpern, J. M. (2020) "Protocols to Observe Changes in the Lower Critical Solution Temperature Induced by an Applied Potential." 237th Electrochemical Society Meeting, Montréal, QC. Poster presentation. Meeting cancelled due to COVID-19.

[20] **Feeney, S.**; Morales, M. A.; Balog, E. R. M.; Halpern, J. M. (2020) "Characterizing the Source of Inconsistent Modification of ELP by Cyclic Voltammetry." 237th Electrochemical Society Meeting, Montréal, QC. Poster presentation. Meeting cancelled due to COVID-19.

[19] **Halpern, J. M.**; Roberge, E.; Ren, T.; LaFreniere, J.; Balog, E. R. M.; Seitz, W. R. (2020) "Shifts in pNIPAM Lower Critical Solution Temperature in an Applied Electric Field." 237th Electrochemical Society Meeting, Montréal, QC. Oral presentation. Meeting cancelled due to COVID-19.

[18] **Nadar, P.**; Gasperoni, C.; Morales, M. A.; Balog, E. R. M.; Halpern, J. M. (2020) "Electrochemically Tagging Elastin-like Polymers-Modified Au Surfaces." 237th Electrochemical Society Meeting, Montréal, QC. Poster presentation. Meeting cancelled due to COVID-19.

[17] **LaFreniere, J**.; Roberge, E.; Ren, T.; Balog, E. R. M.; Halpern, J. M. (2019) "Observed pNIPAM Particle Size Change Under an Applied Voltage." American Institute of Chemical Engineers (AIChE) Annual Meeting, Orlando, FL. Poster presentation.

[16] **Morales, M. A.**; Balog, E. R. M.; Halpern, J. M. (2019) "Electrochemical Characterization of the Stimuli-Response of Surface-Immobilized Elastin-like Polymers." Biomedical Engineering Society Annual Meeting, Philadelphia, PA. Poster presentation.

[15] Marvin, L.; Paiva, W.; Morales, M. A.; Halpern, J. M.; Vesenka, J.; **Balog, E. R. M.** (2019) "Flow Imaging Microscopy of a Self-Assembling Protein Polymer Material," The Biophysical Society (BPS) Annual Meeting. Baltimore, MD. Poster presentation.

[14] Marvin, L.; Vesenka, J.; Paiva, W.; **Balog, E. R. M.** (2018) "Flow Imaging Technology for Evaluation of Polymer Microparticles—Analyzing Millions of Elastin-Like Polymer Coacervates One at a Time," The Materials Research Society (MRS) Annual Meeting. Boston, MA. Poster presentation.

[13] **McCormac E. M**.; Grlickova-Duzevik, E.; Michael, M.; Balog, E. R. M.; Harrison, B. J. (2018) "Development of a high-throughput aptamer screen to target the Nerve Growth Factor (NGF) pathway," Society for Neuroscience Annual Meeting. San Diego, CA. Poster presentation.

[12] **Morales, M.**; Balog, E. R. M.; Halpern, J. M. (2018) "Stimulus-Response Characterization of an Elastin-like Polymer Modified Surface for Biosensor Applications," The American Institute of Chemical Engineers (AIChE) Annual Meeting. Pittsburgh, PA. Oral presentation.

[11] **Mack, A. F.**; Morales, M.; Balog, E. R. M.; Halpern, J. M. (2018). "Troubleshooting the Electrochemical Analysis of Elastin-like Polymers," The American Society for Biochemistry and Molecular Biology (ASBMB) Annual Meeting. San Diego, CA. Poster presentation.

[10] **Elliott, R.**; Balog, E. R. M. (2018) "Engineering a VEGF Fusion Protein for Use with an Artificial Extracellular Matrix with Programmable Binding Affinities," The American Society for Biochemistry and Molecular Biology (ASBMB) Annual Meeting. San Diego, CA. Poster presentation.

[9] **Chen, Y.**; Desireddy, A.; Chakraborty, S.; Balog, E. R. M.; Rocha, R. C.; Martinez, J. S. (2018) "Synthesis of Stimuli-Responsive Gold Nanoclusters via Genetically Engineered Polymers," 255th American Chemical Society (ACS) Annual Meeting. New Orleans, LA. Oral presentation.

[8] **Morales, M. A**.; Balog, E. R. M.; Halpern, J. M. (2017) "Stimulus Response Characterization of Surface-Immobilized Elastin-like Polymers using Electrochemical Impedance Spectroscopy," International Conference on Epigenetics and Bioengineering. Miami, FL. Poster presentation.

[7] Glover, C.; Juneau, R.; **Balog, E. R. M.** (2015) "Reversible, Stimuli-Responsive Color Change in Protein Materials," Materials Research Society (MRS) Fall Meeting. Boston, MA. Oral presentation.

[6] **Sista, P.**; Ghosh, K.; Balog, E. R. M.; Martinez, J. S.; Rocha, R. C. (2014) "Ligand-Functionalized Semiconducting Polymers – Towards Integrated Metallopolymer Assemblies." 248th American Chemical Society (ACS) Annual Meeting, San Francisco, CA. Poster presentation.

[5] **Ghosh, K.**; Balog, E. R. M.; Sista, P.; Martinez, J. S.; Rocha, R. C. (2014) "Functional Hybrid Materials by Assembling Metallo-biopolymers." 248th American Chemical Society (ACS) Annual Meeting, San Francisco, CA. Poster presentation.

[4] **Balog, E. R. M.**; Martinez, J.S. (2013) "Elastin-like Polymers for Stimuli-Responsive Opto-Electronic Materials," Materials Research Society (MRS) Spring Meeting. San Francisco, CA. Oral presentation.

[3] **Balog, E. R. M.**; Rubin, S.M. (2011) "The Structure of a Monomeric Mutant Cks Protein Reveals Multiple Roles for a Conserved Hinge-Region Proline," *West Coast Protein Crystallography Workshop*. Monterey, CA. Oral presentation (honorable mention).

[2] **Murdock, E.R.**; Rubin, S.M. (2010) "Structural Investigation of the Role of Cks1 in Multisite Phosphorylation," *Structural Biology (Keystone Symposia)*, Breckenridge, CO. Poster presentation.

[1] **Murdock, E.R.**; Rubin, S.M. (2009) "Structural and Biochemical Investigation of the Role of Cks1 in Multi-site Phosphorylation," *Chemical Biology in the Bay Area*. San Francisco, CA. Poster presentation (1st prize).

H. Public Lectures and Events

Panelist, BioME Women in Bioscience event at Allagash Brewing, Portland, ME. (Summer, 2026)

"The Art and Craft of Protein Design." UNE Science Café at Novel, Portland, ME. (Spring, 2026)

Featured guest, Maine Science Podcast, Episode 95, produced by the Maine Discovery Museum. (Spring, 2026)

"Turning Proteins into Tomorrow's Tools." Maine Science Festival '5 Minute Genius' series, Bangor, ME. (Spring, 2024)

"Turning Proteins into Tomorrow's Tools." BioME LIVE Coffee Hour at Bissell Brothers Brewing, Portland, ME. (Spring, 2024)

"More than Muscle: What Can We Build Out of Protein?" Bradbury Science Museum Brown Bag Lecture, Los Alamos, NM. (Spring, 2014)

I. Research Mentorship and Supervision

1. Current

[28] Trevor Seymour, Public Health (Minor in Biochemistry) '27
Kahn Family Fellow
Project: Experimental Evaluation of Engineering Principles for Peptide Binders

[27] Lindsey Fitzsimons, Ph.D.
Postdoctoral Research Fellow
Project: Immunomodulatory ELPs for Wound Healing and Kidney Disease

[26] Sam Spiese, B.S. Chemistry '25
Research Laboratory Assistant
Project: Characterization of de novo Designed IL-6 Binders

2. Previous

[25] Savannah Wakita, B.S. Biochemistry '24
Graduate researcher, University of Maine Graduate School of Biomedical Sciences and Engineering
BIO-SENS Academic Research and Technology Scholar
Projects: Recombinant Production of IL-6; Immunomodulatory ELPs for Wound Healing and Pain

[24] Annika Anderson, University of California, Berkeley, Bioengineering '26
Project: Characterization of de novo Designed IL-6 Binders

[23] LeeLee Sanders, Ursinus College, Biochemistry & Molecular Biology, '27
BIO-SENS Academic Research and Technology Scholar
Projects: SH3 as a Model Analyte; Characterization of de novo Designed IL-6 Binders

[22] Oluwabanke Falebita, Texas A&M, Neuroscience '27
BIO-SENS Academic Research and Technology Scholar
Project: Kinetics of the ELP Salt Response

[21] Eniola Soetan, Dickinson State University, Kinesiology & Exercise Science '26
BIO-SENS Academic Research and Technology Scholar
Project: Kinetics of the ELP Salt Response
Current Position: M.D. student at University of North Dakota

[20] Carolyn Curley, Biochemistry (Minor in Applied Mathematics) '23
Served in full-time technician role after completing B.S.
Project: SH3 Analyte-Responsive Polymers
Current Position: Ph.D. student, Chemistry, Virginia Tech

[19] Peter Swanson, Chemistry (Minors in Biophysics and Applied Mathematics) '24
Kahn Family Fellow
Projects: Production of IL-6 Responsive Polymers, Dynamic Light Scattering of ELPs
Current Position: Ph.D. student, Physical Chemistry, University of Wisconsin

[18] Ben Wheeler, Chemistry (Minor in Biophysics) ’24
Project: Atomic Force Microscopy of ELP Surfaces
Current Position: M.S. in Product Design and Manufacture, Boston University

[17] Shannon McLaughlin, Biochemistry ’27
Kahn Family Fellow
Project: Progress Toward an Effective Pull-down Binding Assay of IL-6
Current Position: Completing B.S. at Bridgewater State

[16] Haley Royce, UNH, Bioengineering ’23
BIO-SENS Academic Research and Technology Scholar
Project: Characterization of Insulin-Responsive Polymers
Current Position: Ph.D. Student, Bioengineering, University of New Hampshire

[15] Jeffery Waters, Biological Sciences (Minors in Biochemistry and Nutrition) ’23
Served in full-time technician role after completing B.S.
Project: Design and Characterization of Insulin-Responsive Polymers
Current Position: Ph.D. Student, Biological Sciences, University of Delaware

[14] Galen Arnold, Medical Biology (Minor in Biochemistry) ’22
BIO-SENS Academic Research and Technology Scholar
Projects: A Green Fluorescent Protein-Sensing Biopolymer as a Prototype for a Novel Electrochemical Sensing Technology, Purification of SARS-CoV-2 Spike RBD, Solution Behavior of a Multiple Stimuli-Responsive Protein Polymer by Dynamic Light Scattering
Current Position: Internal Sales Specialist, BBI Solutions, Portland, ME

[13] Zahraa (Alsilawi) Albeshir, Biochemistry ’22
Project: Computational Modeling of Surface-Tethered Elastin-like Polymers
Current Position: Ph.D. Student, Chemistry, University of New Hampshire

[12] Hunter St. Pierre, Biochemistry ’22
Project: Purification of SARS-CoV-2 Spike RBD
Current Position: Assistant Director of Enrollment Issues and Waivers, University of Maine, Presque Isle.

[11] Laura Marvin, Biochemistry (Minor in Applied Mathematics) ’20
UNE SURE/Maine Space Grant Consortium Fellow
Projects: Flow Imaging Technology for Evaluation of Elastin-like Polymer Coacervates, The Nanoscale Morphology and Topography of Quills
Current Position: Ph.D. Student, Chemistry, University of Delaware

[10] Wynter Paiva, Biochemistry/Medical Biology ’19
UNE SURE/Maine Space Grant Consortium Fellow
Project: Expression and Purification of Crustacyanin-Elastin-Like Polymer (CR-ELP) Fusion Protein
Current Position: Postdoctoral fellow, Brown University

[9] Aleeza Barkas, Biochemistry ’18
UNE Summer Undergraduate Research Experience (SURE) Fellow
Project: Measuring Forces Between Src Homology 3 (SH3) and Designed Polymers Using Atomic Force Microscopy
Current Position: Product Support Scientist, Exact Sciences, Madison, WI

[8] Michael Carbone, Medical Biology (Minor in Chemistry) ’18
Project: Measuring Affinities Between Src Homology 3 (SH3) and Designed Polymers
Current Position: Resident, UMass Memorial Medical Center

[7] Robert Elliott, Biochemistry (Minor in Applied Mathematics) ’18
UNE SURE/Maine Space Grant Consortium Fellow
Project: Expression and Purification of $VEGF_{121}$ Fusion Proteins in E. coli
Current Position: FSQA Technician, Smith Brothers

[6] Mano Senthil, Medical Biology (Minor in Chemistry) ’18
Project: Circular Polymerase Extension Cloning of Crustacyanin-Elastin-like Polymer Fusion Constructs
Current Position: Resident, Albany Medical College

[5] Meredith Capuco, Biochemistry ’16
Project: Single-Molecule Biophysical Studies of Elastin-Like Polymer Stimuli-Responsive Behavior
Current Position: Biochemist, US Department of Agriculture

[4] Ryan Juneau, Biochemistry (Minor in Applied Mathematics) ’16, COM DO ’20
Project: Proteins with a Purpose: The Versatility of Elastin-Like Polymers
Current Position: Physician, Cape Fear Valley Medical Center, NC

[3] Megan (Perry) Prue, Biochemistry/Applied Mathematics ’16
UNE Summer Undergraduate Research Experience (SURE) Fellow
Project: Exploring the Computational Potential of Cyclin-Dependent Kinases
Current Position: Pediatrician, North Country Pediatrics

[2] Christopher Glover, Medical Biology (Minors in Chemistry and Applied Mathematics) ’15
Project: Fusion of Stimuli-Responsive Elastin-Like Polymers with a Lobster Carapace Carotenoprotein
Current Position: Anesthesiologist, Northwestern Memorial Hospital

[1] Bronwen Boe-Grooms, Biochemistry/Medical Biology ’15
Project: Engineering Elastin-Like Polymer Materials with Tunable Affinity Protein-Protein Interaction Domains
Current Position: Prosthetist/Orthotist, Hanger Clinic, Bangor, ME

3. RESEARCH AWARDS AND HONORS RECEIVED BY MENTEES

Savannah Wakita, NIH T32 Predoctoral Research Training Fellowship (2025)
Sam Spiese, Excellence in Research Award, School of Molecular & Physical Sciences (2025)
Carolyn Curley, NSF Graduate Research Fellowship Program Honorable Mention (2025)
Peter Swanson, Outstanding Researcher/Scholar in the Natural Sciences, UNE (2024), Excellence in Research Award, School of Mathematical & Physical Sciences (2024), Pei Wang Fellowship Graduate Award (2024)
Zahraa Albeshir, NSF Graduate Research Fellowship Program Honorable Mention (2024)
Laura Marvin, NSF Graduate Research Fellowship Program Award (2021), Outstanding Researcher/Scholar in the Natural Sciences, UNE (2020), Excellence in Research Award, School of Mathematical & Physical Sciences (2020)

VII. SERVICE

A. DEPARTMENT/SCHOOL/PROGRAM

Chair, Sub-college Reappointment, Promotion, and Tenure Committee (Fall, 2026)
Member, Sub-college Reappointment, Promotion, and Tenure Committee (Fall, 2026)
Member, Search Committee, Assistant Professor of Biochemistry (Summer, 2026)
Chair, Search Committee, Assistant Teaching Professor of Biochemistry (Fall, 2023-Spring, 2024)
Principal author, proposal to revise the undergraduate Biochemistry curriculum (Spring, 2024)
Assistant Academic Director, School of Mathematical and Physical Sciences (Fall, 2020-Spring, 2023)
Significant contributor, Chemistry and Physics programs strategic plan (Fall, 2020)
Significant contributor, self-study for Chemistry and Physics programs review (Fall, 2019-Spring, 2020)
Member, Visiting Assistant Lecturer of Chemistry Search Committee (Spring, 2018)
Lead, Biochemistry Minor Development Committee (Fall, 2015-Spring, 2017)
Significant contributor, Biochemistry program assessment (Fall, 2015-present)
Volunteer, UNE Open House (Fall, 2015)
Volunteer, Experience UNE Day (Spring, 2015)
Member, Assistant Lecturer of Chemistry Search Committee (Spring, 2015)
Wrote 24 hand-written recruiting letters to accepted DCP students (Spring, 2015)
Volunteer, Majors & Minors Fair (Fall, 2014)

B. COLLEGE AND UNIVERSITY

Reviewer, UNE Pain COBRE Pilot Projects Review Panel (Spring, 2026)
Member, Search Committee, WCHP open rank COBRE hire (Fall, 2025)
Reviewer, UNE Cell Signaling COBRE Pilot Projects Review Panel (Summer, 2025)
Member, CAS Financial Affairs Committee (Fall, 2023-Spring, 2024)
Member, Provost's Task Force on Summer Classes (Summer, 2023-Spring, 2024)
Member, Search Committee, Academic Director, School of Computational Science and Data Analytics (Fall, 2023-Spring, 2024)
Member, COM Assistant Professor of Biomedical Sciences Search Committee (Spring, 2022)
Member, CAS Curricular Efficiencies Working Group (Summer, 2020)
Member, CAS ad hoc Diversity Task Force (Spring, 2018-Spring, 2020)
Member, CAS Student Affairs Committee (Fall, 2017-Spring, 2019)
Reviewer, Office of Research & Scholarship Mini-Grant Program (Spring, 2016; Spring, 2018; Spring, 2019; Spring, 2023)
Oral Presentation Judge, CAS Research Symposium (Spring, 2016; Spring, 2018)
Member, CAS Critical Thinking Assessment Committee (Fall, 2015)
Member, SASC Science Academic Support Specialist Search Committee (Fall, 2015)
Panel Member, NSF Graduate Student Seminar on Getting Published (Spring, 2015)
Volunteer, Annual Thanksgiving Dinner (Fall, 2014)

C. PROFESSIONAL SERVICE AND OUTREACH

1. REVIEW

<u>Extramural Grants and Fellowships</u>:
National Institutes of Health ad hoc scientific review panelist, Skin and Connective Tissue Sciences study section (Summer, 2025; Summer, 2026; Fall, 2026)
National Science Foundation panel and ad hoc reviewer: CAREER, ERC, CREST, SBIR/STTR, REU, and TTP (Spring, 2022; Fall, 2022; Spring, 2024; Winter, 2024; Spring, 2025; Winter, 2026)
Maine Space Grant Consortium seed grant program (Fall, 2018)

Journals:
ACS Materials Letters, Biochemical Engineering Journal, Biomacromolecules, Journal of Materials Chemistry B, New Journal of Chemistry, PLoS ONE

Books:
Biochemistry: A Short Course 5e, J. Berg, J. Tymoczo, and L. Stryer. Chapter reviewer, 2022

External Thesis Committees:
Member, Ph.D. Thesis Committee, Wynter Paiva, UNH Chemistry (Fall, 2022-Summer, 2025)
Member, Ph.D. Thesis Committee, Madison Mueth, UMaine Biomedical Engineering (Fall, 2022-Summer, 2026)
Member, Ph.D. Thesis Committee, Marissa Morales, UNH Chemical Engineering (Summer, 2019-Spring, 2021)

2. CONFERENCES, WORKSHOPS, AND PANELS

"Professor on Parade," Jackson Laboratory Biomedical Data Science in Context program (Summer, 2025)
Panelist, UC Santa Cruz BIOL290: Career Planning for graduate students (Spring, 2025)
Session chair, Tissue Engineering and Disease Modeling II, TechConnect World 2025 Conference and Expo (Summer, 2025)
Session co-chair, Intrinsically Disordered Proteins II, Biophysical Society Annual Meeting (Spring, 2025)
Participant, National Science Foundation/Molecular and Cellular Biosciences Outreach Workshop, UNH (Summer, 2024)
Co-organizer, 2nd Academic-Industry BIO-SENS Symposium, Biddeford, ME (Summer, 2023)
Participant, BioMolViz Assessment Workshops (Fall, 2020; Summer, 2022)
Co-organizer, UNE/UNH NanoBioSensing Symposium (Summer, 2016-2018)
Panelist, Graduate School Workshop at Maine Medical Center Research Internship (Fall, 2015)

3. VOLUNTEERING

Volunteer, "Inspire a Middle Schooler Day," Biddeford Middle School (Fall, 2016)
Host, Maine Research Internships for Teachers and Students (MERITS) Intern (Summer, 2016)
Assisted Nontraditional Pre-Nursing Student in UNE Online Biochemistry (Spring, 2016)
Guest lecturer, iExplore STEM Program (Summer, 2015)