

Patrick J. Fleming

860-593-0722 | patrickfleming.pjf@gmail.com | 19 Orchard Hill Dr., Enfield, CT 06082

Education

University of Maine Honors College – Dual Degree Double Major

May 2023

- B.S. Biochemistry
- B.S. Molecular and Cellular Biology, Microbiology
Department of Molecular and Biomedical Sciences - GPA 3.543

Research Experience

Research Assistant I

June 2023 – Present

Cellomics Lab, PI: Dr. Paul Robson

Farmington, CT

The Jackson Laboratory for Genomic Medicine

- Advanced molecular, cellular, and stem cell biology approaches to study evolution, development, and disease relevant to the human condition.
- Data Production Center for the NIH funded MorPhic Initiative to develop a catalog of molecular and cellular phenotypes for null alleles for every human gene by using in-vitro multicellular systems.
- Differentiate human induced pluripotent stem cells with a focus on extra-embryonic lineages and neuroectoderm 3D organoid models to understand the underlying genetic regulatory network which may be altered in disease.
- Use tissue mapping tools to define and map the cellular complexity and age-related changes of human tissues and organs as a part of the Human BioMolecular Atlas Program and the Cellular Senescence Network.

Undergraduate Research Assistant I

January, 2021 – May, 2023

Pharmacology and Toxicology Laboratory, PI: Dr. Julie A. Gosse

Orono, ME

Department of Molecular and Biomedical Sciences, University of Maine Honors College

- Assessed the euakryotic health risks vs. the benefits of toxic pharmaceutical agents that are exposed to humans and disrupt immune cell function.
- Demonstrated proficiency in literature research, data analysis, figure generation, and manuscript preparation to communicate an understanding of the harmful mechanism of toxic chemicals by contributing to scientific publications and professional presentations.
- Perform independent research by maintaining cell culture, preparing drug treatment solutions, and triggering immune cell response by experimental conditions.

Academic Honors, Scholarships, and Fellowships

- Highest Honors – University of Maine Honors College (2023)
- Magna Cum Laude – University of Maine (2023)
- INBRE Honors Thesis Fellowship Award (2022-2023)
- Frederick Radke Research Fellowship (2021-2022)
- Frederick Radke Summer Research Fellowship (2022)
- Charlie Slavin Research Grant (2022-2023)
- Dean's List (final 6 of 8 semesters, 2020-2023)
- Presidential Scholar (2019-2023)
- Connecticut Flagship Scholarship (2019-2023)

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Publications

“Pharmaceutical Agent Cetylpyridinium Chloride Inhibits Immune Mast Cell Function by Interfering with Calcium Dynamics”. B Obeng*, C Potts, BE West JE Burnell, **PJ Fleming**, JK Shim, MS Kinney, EL Ledue, S Sangroula, AY Baez Vazques, JA Gosse. 2023. *bioRxiv: The Preprint Server for Biology*.

“The Toxic Irony of Pharmaceutical Agent Cetylpyridinium Chloride: An ELISA and Molecular Dynamics Examination of Tyrosine Phosphorylation and Lipid Interaction in Immune Mast Cells”. **PJ Fleming**. Honors Thesis. Embargoed until 2025.

“Honors College: ‘Screw This Virus’ Essay”. **Patrick Fleming**. 2020. Maine Contemporary Archives.

“Novel bacteriophage ‘Upyo’.” **Patrick Fleming** and Hannah Kline. 2020. The Actinobacteriophage Database. <https://phagesdb.org/phages/Upyo/>

Presentations

The Toxic Irony of Pharmaceutical Agent Cetylpyridinium Chloride: An ELISA and Molecular Dynamics Examination of Tyrosine Phosphorylation and Lipid Interaction in Immune Mast Cell. **Patrick J Fleming**. Poster. **University of Maine Student Symposium**. 2023.

The Toxic Irony of Pharmaceutical Agent Cetylpyridinium Chloride: An ELISA and Molecular Dynamics Examination of Tyrosine Phosphorylation and Lipid Interaction in Immune Mast Cell. **Patrick J Fleming**. Poster. **Maine Biological and Medical Sciences Symposium**. 2023.

Stop! Viral Infection in the Name of Drugs: Assessing JCPyV Infectivity After Treatment with Potential Inhibitors. N Burby, D Drinkert, **PJ Fleming**, S Foust, A French, K Murawski, H Orellana, D Smith, K Southworth, S Weafer, L Cusson, L Bennett. Poster. University of Maine Student Symposium. 2023.

*Characterization of the Yeast *Saccharomyces pastorianus* Digestive Enzyme *Alpha-galactosidase**. H Foreman, E Ledue, K Amero, **PJ Fleming**, S Foust, N Goyette, A Hatt, E Irvine, D Joy, T Mattson, B Rockwell, R Southwick, K Southworth, A Weymouth. Poster. University of Maine Student Symposium. 2023.

Effect of Pharmaceutical Agent Cetylpyridinium Chloride on Early Tyrosine Phosphorylation Events in Immune Mast Cells. M Paine, B Obeng, L Bennett, **PJ Fleming**, J Gosse. Poster. University of Maine Student Symposium. 2022.

The Effects of Common Water Contaminants on Zebrafish Mitochondria Function and Behavior. A French, N Burby, G LaFrance, **PJ Fleming**, M Thibodeau, R Babich. Poster. University of Maine Student Symposium. 2021.

*What is Upyo? Isolation and Annotation of *Gordonia* Phage Upyo*. **PJ Fleming***, G LaFrance, M Blackerby, H Foreman, B Moline. Poster. University of Maine Student Symposium. 2020.