

Thomas Samuel O'Leary

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Education

2019 – now Ph.D. Student, Biology, Mentor: Dr. Brent Lockwood, University of Vermont, *Burlington, VT*
2012 – 2016 B.A. Biology, *cum laude*, University of Vermont, *Burlington, VT*

Fellowships & Awards

2022 – now National Science Foundation (NSF) EPSCoR Research Assistantship, *University of Vermont*
2019 – now National Science Foundation (NSF) Research Traineeship Fellow, QuEST, *University of Vermont*
2012 – 2016 UVM Presidential Scholarship
2012 – 2016 UVM Men's Track and Field Athletic Scholarship
2015 America East All-Academic Team

Publications

- Wood, N. B., Kelly, C.M., **O'Leary, T. S.**, Marin, J.L., & Previs, M. J. (2022). Cardiac muscle thick filaments are maintained by stochastic protein replacement. *Molecular & Cellular Proteomics*. 21 (10), 100274.
<https://doi.org/10.1016/j.mcpro.2022.100274>
- Previs, M. J., **O'Leary, T. S.**, Morley, M. P., Palmer, B. M., LeWinter, M., Yob, J. M., ... & Day, S. M. (2022). Defects in the Proteome and Metabolome in Human Hypertrophic Cardiomyopathy. *Circulation. Heart Failure*
<https://doi.org/10.1161/CIRCHEARTFAILURE.121.009521>
- Tsan, Y.-C., DePalma, S. J., Zhao, Y.-T., Capilnasiu, A., Wu, Y.-W., ... **O'Leary, T. S.**, ... Helms, A. S. (2021). Physiologic biomechanics enhance reproducible contractile development in a stem cell derived cardiac muscle platform. *Nature Communications*, 12 (1), 6167. <https://doi.org/10.1038/s41467-021-26496-1>
- Rahmanseresht, S., Lee, K. H., **O'Leary, T.S.**, McNamara, J. W., Sadayappan, S., Robbins, J., Warshaw, D. M., Craig, R., & M. J. Previs. (2021). The N Terminus of Myosin-Binding Protein C Extends toward Actin Filaments in Intact Cardiac Muscle. *The Journal of General Physiology*, 153 (3). <http://dx.doi.org/10.1085/jgp.202012726>
- Lecheta, M.C., Awde, D.N., **O'Leary, T.S.**, Unfried, L.N., Jacobs, N.A., Whitlock, M.H., ... Helms Cahan, S. (2020). Integrating GWAS and transcriptomics to identify the molecular underpinnings of thermal stress responses in *Drosophila melanogaster*. *Frontiers in Genetics*, 11 (658), 1–17. <http://dx.doi.org/10.3389/fgene.2020.00658>
- Daneshparvar, N., Taylor, D.W., **O'Leary, T.S.**, Rahmani, H., Yeganeh, F.A., Previs, M.J., & Taylor, K.A. (2020). CryoEM Structure of *Drosophila* Flight Muscle Thick Filaments at 7 Å Resolution. *Life Science Alliance*, 3 (8), e202000823. <http://dx.doi.org/10.26508/lsa.202000823>
- Helms, A.S., Tang, V.T., **O'Leary, T.S.**, Friedline S., Wauchope, M., Arora A., ... Day S.M. (2020). Effects of MYBPC3 loss of function mutations preceding hypertrophic cardiomyopathy. *Journal of Clinical Insights*, 5 (2), e133782. <http://dx.doi.org/10.1172/jci.insight.133782>
- O'Leary, T. S.**, Snyder, J., Sadayappan, S., Day, S. M., & Previs, M. J. (2019). MYBPC3 truncation mutations enhance actomyosin contractile mechanics in human hypertrophic cardiomyopathy. *Journal of Molecular and Cellular Cardiology*, 127, 165–173. <http://dx.doi.org/10.1016/j.yjmcc.2018.12.003>

Li, A., Nelson, S. R., Rahmanseresht, S., Braet, F., Cornachione, A. S., Previs, S., **O'Leary, T.S.**, ... Warshaw, D. M. (2019). Skeletal MyBP-C isoforms tune the molecular contractility of divergent skeletal muscle systems. *Proceedings of the National Academy of Sciences*, 116 (43), 21882–21892.
<http://dx.doi.org/10.1073/pnas.191054911>

Teaching

Teaching Assistant

2022 – now Molecular and Cellular Biology, sophomore level for science majors, *University of Vermont*
2020 Genetics, sophomore level for science majors, *University of Vermont*
2019 – now Comparative Physiology, biology capstone course, *University of Vermont*

Guest Lectures

2022 Acclimation to temperature using epigenetic regulation, Climate Change Genetics, *Univ. of Vermont*
2021 Redox homeostasis & heat adaptation in *D. melanogaster*, Comparative Physiology, *Univ. of Vermont*
2019 Proteomics & hypertrophic cardiomyopathy, Comparative Physiology, *Univ. of Vermont*

Committees

2022 – now Graduate Student Affairs, Graduate Student Representative, Biology Dept., *University of Vermont*
2020 – now QuEST Leadership Team, Cohort Two Representative, *University of Vermont*
2020 – now Biology Graduate Student Social Committee, *University of Vermont*
2020 – 2022 Science Outreach and Communication Team, QuEST, *University of Vermont*

Seminars & Presentations

2021 Role of redox balance in heat tolerance in *D. melanogaster* embryos. Graduate Seminar, *University of Vermont*
2021 Molecular mechanisms of heat adaptation in *D. melanogaster*. Graduate Seminar, *University of Vermont*
2019 *MYBPC3* truncation mutations and hypertrophic cardiomyopathy. Graduate Seminar, *University of Vermont*

Skills

Programming R, python, and Matlab
Lab enzyme activity, proteomics, transcriptomics, RNA & DNA extraction, and sequencing

Professional Experience

2018 – 2019 Lab Research Technician, Previs Lab, *Dept. Mol. Phys. & Biophys, University of Vermont*
2017 – 2018 Lab Research Technician, Lockwood Lab, *Biology Dept., University of Vermont*
2016 – 2017 Molecular Biology Laboratory Technician I & II, *Charles River Labs, Malvern, PA*

Athletics

2017 – now Volunteer Coach, Varsity Cross Country and Track & Field, *University of Vermont*
2014 – 2016 Captain Cross Country and Track & Field, *University of Vermont*
2012 – 2016 Varsity Cross Country and Track & Field, *University of Vermont*