

## Timothy Daniel Mackie, Ph.D.

### Home:

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### Laboratory:

1959 NE Pacific St E409  
Box 357280  
Seattle WA, 98195-7280  
(Phone): 206-616-1976

### Education

University of Pittsburgh, Pittsburgh PA, August 2012-August 2018  
GPA: 3.68 on 4.0 scale  
Doctor of Philosophy in Molecular, Cellular, and Developmental Biology. Minor in Teaching.

Messiah College, Mechanicsburg PA, August 2006-May2010 *Summa Cum Laude*  
GPA: 3.92 on a 4.0 scale  
Bachelor of Science in Biology. Bachelor of Arts in English

### Research Experience

Postdoctoral Fellow, August 2018-present  
University of Washington, Seattle WA  
Mentor: Dr. Richard Gardner

Graduate Student Researcher, April 2013-July 2018  
University of Pittsburgh, Pittsburgh PA  
Mentor: Dr. Jeffrey Brodsky

STEP Student, Summers 2007 - 2009  
US Army Research Laboratory, Adelphi MD  
Mentor: Dr. James Sumner

### Publications

Mackie, T.D. and Brodsky, J.L. (2018) Investigating Potassium Channels in Budding Yeast: A Genetic Sandbox. *Genetics*, 209(3) 637-650.

Mackie, T.D., Kim B.Y., O'Donnell, A.F., Subramanya, A.R., Bain, D., Welling, P.A., and Brodsky, J.L. (2018) The endosomal trafficking factors CORVET and ESCRT negatively regulate plasma membrane residence of the Renal Outer Medullary Potassium channel (ROMK). *Journal of Biological Chemistry*, 293(9) 3201-3217.

O'Donnell, B.M., Mackie, T.D., Subramanya, A.R., and Brodsky, J.L. (2017) Endoplasmic Reticulum Associated Degradation of the Renal Outer Medullary Potassium Channel, ROMK, Underlies Type II Bartter Syndrome. *Journal of Biological Chemistry*, 292(31), 12813-12827.

O'Donnell, B.M., Mackie, T.D., and Brodsky, J.L. (2017) Linking channelopathies with endoplasmic reticulum associated degradation. *Channels (Austin)*. Jul 19:1-3.

Guerriero, C.J., Reutter, K.R., Augustine, A.A., Preston, G.M., Weiberth, K.F., Mackie, T.D., Cleveland-Rubeor, H.C., Bethel, N.P., Callenberg, K.M., Nakatsukasa, K., Grabe, M, and Brodsky, J.L. (2017)

## **Timothy Daniel Mackie, Ph.D.**

Transmembrane helix hydrophobicity is an energetic barrier during the retrotranslocation of integral membrane ERAD substrates. *Molecular Biology of the Cell*. 28(15), 2076-2090.

Hager, N.A., Krasowski, C.J., Mackie T.D., Kolb A.K., Needham P., Augustine, A.A., Dempsey A., Szent-Gyorgyi C., Bruchez M., Bain D., Kwiatkowski, A.V., O'Donnell, A.F., and Brodsky, J.L. (2018) Select  $\alpha$ -arrestins control the cell surface abundance of the mammalian Kir2.1 protein in a yeast model. *Journal of Biological Chemistry*. In press.

Finch, A.S., Mackie, T.D., Sund, C.J. and Sumner, J.J. (2011). Metabolite analysis of *Clostridium acetobutylicum*: Fermentation in a microbial fuel cell. *Bioresource Technology*, 102(1), 312-315.

### **Teaching Experience**

Teaching Fellow, August 2015 - December 2015

University of Pittsburgh, Pittsburgh PA

BIOSC 1000: Introduction to Biochemistry      Supervisor: Dr. John Rosenberg

Teaching Assistant, August 2014 - December 2014

University of Pittsburgh, Pittsburgh PA

BIOSC 0350: Genetics      Supervisor: Dr. Sara Ernst

Adjunct Instructor, September 2010 - December 2010

Prince George's Community College, Largo MD

Writing and Grammar      Supervisor: Jacqui Walpole

### **Professional Experience.**

Core Technician II, October 2011 - July 2012

Lonza Inc, Walkersville MD      Supervisor: Michael Shetty

Pilot Product Technician I, August 2010 - October 2011

MedImmune LLC, Gaithersburg MD      Supervisor: Joseph Kaufman

### **Honors and Awards.**

Andrew Mellon Predoctoral Fellowship, September 2017-April 2018

Margaret C. Oweida Predoctoral Fellowship, April 2017

APS Meritorious Research Award, April 2017

Departmental Honors, Messiah College Department of English, May 2010

First Place, US Army Research Laboratory Student Research Symposium, August 2009

### **Posters and Presentations.**

Seminar: *Mapping the cellular odyssey of a clinically important potassium channel with yeast genetics*.  
Slippery Rock University Biology Seminar Series, Slippery Rock PA

Short Talk and Poster: *A Screen for Potassium-sensitivity in Yeast Reveals Endosomal Sorting Factors that Regulate the Renal Outer Medullary Potassium (ROMK) Channel*. Authors: Timothy D. Mackie, Paul A. Welling, Arohan R. Subramanya, and Jeffrey L. Brodsky. (2017)  
Annual Pittsburgh Symposium on Intracellular Membrane Traffic, Pittsburgh PA.

## **Timothy Daniel Mackie, Ph.D.**

Short Talk and Poster: *A Screen for Potassium-sensitivity in Yeast Reveals Endosomal Sorting Factors that Regulate the Renal Outer Medullary Potassium (ROMK) Channel*. Authors: Timothy D. Mackie, Paul A. Welling, Arohan R. Subramanya, and Jeffrey L. Brodsky. (2017)  
Experimental Biology 2017, Epithelial Transport Session, Chicago IL

Poster and Lightning Talk: *Endosomal Sorting Factors and ER-Associated Degradation (ERAD) Regulate the Renal Outer Medullary Potassium (ROMK) Channel*. Authors: Brighid M, O'Donnell, Timothy D. Mackie, Arohan R. Subramanya, and Jeffrey L. Brodsky. (2016)  
Protein Folding in the Cell FASEB Science Research Conference., Saxton's River VT.

Poster: *Endosomal Sorting Factors and ER-Associated Degradation (ERAD) Regulate the Renal Outer Medullary Potassium (ROMK) Channel*. Authors: Brighid M, O'Donnell, Timothy D. Mackie, Arohan, R. Subramanya, and Jeffrey L. Brodsky. (2016)  
Annual Pittsburgh Symposium on Intracellular Membrane Traffic, Pittsburgh PA.

Poster: *ROMK quality control in the secretory pathway: Using yeast genetics to define the cellular itinerary of a human ion channel*. Authors: Timothy D. Mackie and Jeffrey L. Brodsky. (2015)  
Annual Pittsburgh Symposium on Intracellular Membrane Traffic, Pittsburgh PA

Poster: *A whole genome approach to identify factors that regulate ROMK trafficking and quality control*. Authors: Timothy D. Mackie, Patrick G. Needham, and Jeffrey L. Brodsky. (2014)  
Protein Folding in the Cell FASEB Science Research Conference, Saxton's River VT

### **Student Leadership**

Organized graduate student invited seminar for Dr. Hazel Barton of the University of Akron (2015).  
Biological Sciences Graduate Student Social Chair (2015-2017)

### **Professional Associations**

American Society of Biochemistry and Molecular Biology