

Michelle A. O'Malley

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EDUCATION

- 2009 Ph.D. Chemical Engineering** **University of Delaware**
Thesis Project: *Expression, Purification, and Biophysical Characterization of G-Protein Coupled Receptors Expressed from Saccharomyces cerevisiae*
Advisor: Professor Anne Skaja Robinson
- 2004 B.S. Chemical Engineering** **Carnegie Mellon University**
B.S. Biomedical Engineering
University Honors, College of Engineering Research Honors

SELECTED HONORS AND AWARDS

American Institute of Chemical Engineers Women's Initiatives Committee Travel Award, 2007, 2009
Merck Award for Best Overall Poster, Biochemical Engineering XV, 2007
American Chemical Society Leadership Development Award, 2007
University of Delaware Department of Chemical Engineering Teaching Fellowship, 2007
NASA-Harriet G. Jenkins Pre-doctoral Fellowship (20 awarded nationally), 2006 – 2009
Integrative Graduate Education Research Traineeship (IGERT) NSF Fellowship, 2004 – 2006
University Athletic Association (UAA) Academic Honors, 2000 – 2004
Presidential Scholarship, Carnegie Mellon University, 2000 – 2004

RESEARCH EXPERIENCE

- Heterologous Expression and Assembly of Fungal Cellulosomes in *Saccharomyces cerevisiae***
Massachusetts Institute of Technology, Cambridge, MA, September 2009 – Present
Postdoctoral Associate, Dept. of Biology, Advisor: Prof. Chris A. Kaiser
- Expression, Purification and Biophysical Characterization of GPCRs Expressed from *Saccharomyces cerevisiae***
University of Delaware, Newark, DE, June 2005 – August 2009
Ph.D. Thesis, Dept. of Chemical Engineering, Advisor: Prof. Anne Skaja Robinson
- Aqueous Two-Phase Polymers for PNA-Assisted DNA Purification**
Carnegie Mellon University, Pittsburgh, PA, August 2003 – May 2004; August 2002 – May 2003
Honors Research Project, Dept. of Chemical Engineering, Advisor: Prof. James Schneider
- Characterization of Mixing in Single Screw Extruder Channels**
Case Western Reserve University, Cleveland, OH
NSF REU Fellow, Dept. of Macromolecular Science and Engineering, Summer 2003
Advisor: Prof. Ica Manas-Zloczower
- Characterization of M40J and M60J Desized and Finished Fibers**
NASA Glenn Research Center, Cleveland, OH
L.E.R.C.I.P. Internship, Polymers Division, Summer 2001, Winter 2001 – 2002
Co-Advisors: Dr. James Sutter and Dr. Eugene Shin

PUBLICATIONS

- M. A. O'Malley**, A. N. Naranjo, T. Lazarova, A. S. Robinson, "Biophysical characterization of the human adenosine A_{2a} G-protein coupled receptor expressed from *Saccharomyces cerevisiae*," In preparation.
- M. A. O'Malley**, M. E. Helgeson, N. J. Wagner, A. S. Robinson, "Characterization of maltoside-based mixed micelles for the *in vitro* stabilization of a model G-protein coupled receptor," In preparation.
- M. A. O'Malley**, J. D. Mancini, C. L. Young, E. C. McCusker, D. Raden, A. S. Robinson, "Progress towards heterologous expression of active G-protein coupled receptors in *Saccharomyces cerevisiae*: linking cellular stress responses with translocation and trafficking" *Protein Science*, In press: DOI 10.1002/pro.246

M. A. O'Malley, T. Lazarova, Z. T. Britton, A. S. Robinson, "High-level expression in *Saccharomyces cerevisiae* enables isolation and spectroscopic characterization of functional human adenosine A_{2a} receptor," *Journal of Structural Biology* 159:166-178 (2007).

E. C. McCusker, S. E. Bane, **M. A. O'Malley**, A. S. Robinson, "Heterologous GPCR expression: a bottleneck to obtaining crystal structures," *Biotechnology Progress* 23(3):540-547 (2007).

A. Wedekind, **M. A. O'Malley**, R. T. Niebauer, A. S. Robinson, "Optimization of the Human Adenosine A_{2a} Receptor Yields in *Saccharomyces cerevisiae*," *Biotechnology Progress* 22(5):1249-1255 (2006).

SELECTED CONFERENCE PRESENTATIONS

M. A. O'Malley^{*}, J. D. Mancini, C. L. Young, D. Raden, A. S. Robinson, "Engineering *Saccharomyces cerevisiae* for the Heterologous Expression of Mammalian G-protein Coupled Receptors", American Institute of Chemical Engineers National Meeting, Philadelphia, PA, November, 2008.

M. A. O'Malley^{*}, J. D. Mancini, C. L. Young, D. Raden, A. S. Robinson, "Engineering *Saccharomyces cerevisiae* for the Heterologous Expression of Mammalian G-protein Coupled Receptors", Annual Meeting of the American Chemical Society, Philadelphia, PA, August 2008.

M. A. O'Malley^{*}, T. Lazarova, A. S. Robinson, "Biophysical Characterization of the Human Adenosine A_{2a} Receptor", Joint Meeting of the Biophysical Society and the International Biophysics Congress, Long Beach, CA, February 2008.

M. A. O'Malley^{*}, T. Lazarova, A. S. Robinson, "Biophysical Characterization of the Human Adenosine A_{2a} G-Protein Coupled Receptor Expressed from *Saccharomyces cerevisiae*", American Institute of Chemical Engineers National Meeting, Salt Lake City, UT, November 2007.

A. S. Robinson, **M. A. O'Malley**^{*}, E. C. McCusker, "Engineering Approaches to Membrane Protein Expression in Yeast," Biochemical Engineering XV, Québec City, Canada, July 2007.

M. A. O'Malley^{*}, A. S. Robinson, "Surfactant Effects on Activity and Structure of the Human Adenosine A_{2a} G-protein Coupled Receptor," American Chemical Society Colloids Division Meeting, Newark, DE, June 2007.

INVITED LECTURES

M. A. O'Malley^{*}, M. E. Helgeson, N. J. Wagner, A. S. Robinson, "Surfactant Effects on Activity and Structure of the Human Adenosine A_{2a} G-Protein Coupled Receptor," National Institute of Standards and Technology Center for Neutron Research, Gaithersburg, MD, June 2008.

TEACHING EXPERIENCE

Teaching Fellow, University of Delaware, Department of Chemical Engineering Heat and Mass Transfer (Spring 2007)

- Designed and delivered ~1/3 of course lectures, prepared exams, and evaluated student progress for 60+ enrolled chemical engineering students

Teaching Assistant, University of Delaware, Department of Chemical Engineering Biochemical Engineering (Fall 2006)

- Designed and delivered several course lectures, graded course material, conducted review sessions, and addressed questions for 35+ enrolled engineering students

Undergraduate Research Advisor, University of Delaware

- **Mark Richards**, Senior Research Project, August 2008 – May 2009
Project: "Analysis of Membrane Sterol Composition in the Heterologous Expression of Human Adenosine Receptors in *S. cerevisiae*"
- **J. Dominic Mancini**, Honors Thesis Project, May 2007 – August 2008
Project: "Activation of the Unfolded Protein Response Pathway in *S. cerevisiae* due to Heterologous Expression of Mammalian GPCRs"
- **Josh Stottmann**, HHMI Undergraduate Researcher, May 2006 – May 2008
Project: "Process Scale-up for Enhanced Recovery and Purification of the Human Adenosine A_{2a} G-Protein Coupled Receptor from *S. cerevisiae*"
- **Arjun Gopalratnam**, High School Researcher, September 2005 – June 2006
Project: "Investigation of Lysis Variables in Extraction of Active A_{2a} Receptor from *S. cerevisiae*"

References Available Upon Request