

JAMES R. ABSHIRE

jabshire@mit.edu

EDUCATION

- 2008-Present: Massachusetts Institute of Technology, Cambridge, MA GPA: 5.00
Ph. D., Biological Engineering (Anticipated May 2014) (5.0 scale)
- 2004-2008: University of Maryland, College Park, MD GPA: 3.97
B.S., Biological Resources Engineering (4.0 scale)
Magna cum laude, with Honors in Engineering
Thesis: "Production of Neisserial Opa Membrane Protein Using the
Baculovirus Expression Vector System"

WORK EXPERIENCE

- 2008-Present: *Graduate Research Assistant*, Massachusetts Institute of Technology
Design, build, and test novel protein sensors for parasite metabolites.
Advisor: Jacquin Niles, M.D., Ph. D.
- 2012: *Summer Intern, Enzymology*, Amyris Inc., Emeryville, CA
Engineered yeast strains to improve yields of farnesene, a C₁₅ isoprenoid.
Developed *in vitro* activity assays for enzymes in the farnesene pathway.
Supervisor: Eugene Antipov, Ph. D.
- 2006-2008: *Undergraduate Research Assistant*, University of Maryland
Expressed pathogenic bacterial proteins in a baculovirus expression system.
Advisors: Daniel C. Stein, Ph. D. and William E. Bentley, Ph. D.
- 2006-2008: *Resident Assistant*, Department of Resident Life, University of Maryland
Served as a liaison between the University and on-campus residents.
Administered University policy, collected data, mediated conflicts, and
develop community among residents.
- 2005: *Data Analyst (Volunteer)*, NASA Goddard Space Flight Center, Greenbelt,
MD. Processed and visualize arrays of clock oscillator timing
measurements and determine reliability trends. Co-authored technical
report analyzing clock oscillator reliability.
Advisor: Xiaoli Sun, Ph. D.
- 2005: *Film Librarian (Volunteer)*, Diagnostic Imaging, Howard County General
Hospital, Columbia, MD. Processed requests from patients and physicians
for test results and imaging studies.
- 2003-2004: *Summer Research Intern*, Laboratory of Cell Biology, National Heart,
Lung, and Blood Institute, National Institutes of Health, Bethesda, MD.
Captured images using confocal fluorescence microscopy. Optimized
image processing protocols.
Advisor: Xufeng Wu, Ph. D.

TEACHING EXPERIENCE

- Fall 2009: *Graduate Teaching Assistant*, Massachusetts Institute of Technology
Course Title: 20.320 – Analysis of Biomolecular and Cellular Systems
Taught weekly recitation sections of 15-20 students. Held weekly office hours. Created homework problem sets and exams.
- Spring 2008: *Undergraduate Teaching Assistant*, University of Maryland
Course Title: BSCI223H – General Microbiology (Honors)
Demonstrated laboratory techniques. Prepared reagents and materials.
Lead class discussions.

TECHNICAL EXPERIENCE

- Laboratory: Molecular cloning, protein expression and purification, quantitative malaria parasite propagation and red blood cell manipulation, liquid chromatography (HPLC and FPLC), ESI and MALDI mass spectrometry, flow cytometry, spectroscopy, Western blotting, mammalian and insect cell culture
- Computing: MATLAB, Python, PyMOL, Vector NTI, Fluent, PSpice, C/C++, Java

CONFERENCE PRESENTATIONS

- Abshire, JR and Niles, JC. Genetically-encoded FRET sensors for quantitatively monitoring labile heme pools in *Plasmodium falciparum*. 2012 Molecular Parasitology Meeting, Woods Hole, MA

HONORS AND AWARDS

- 2009-Present: Biotechnology Training Program Fellowship, NIH/NIGMS, MIT
2008-2009: DuPont Presidential Fellowship (Highest merit scholarship), MIT
2008: Undergraduate Research Award, Clark School of Engineering, University of Maryland
2006-2008: Tau Beta Pi Engineering Honor Society, University of Maryland
2006: University Honors Citation, University of Maryland
2004-2008: Banneker/Key Scholarship (Highest merit scholarship), University of Maryland
2004-2008: Maryland Distinguished Scholarship

OTHER ACTIVITIES

- 2010-2011: Treasurer, Biological Engineering Graduate Student Board, MIT
2010-2011: Controller, Sidney-Pacific Graduate Community, MIT
2009-2010: Social Chair, Biological Engineering Graduate Student Board, MIT
2009-2010: Photofile/Archive Chair, Sidney-Pacific Graduate Community, MIT
2007-2008: Treasurer, Tau Beta Pi Engineering Honor Society, University of Maryland
2004-2005: Percussionist, Concert Band, University of Maryland
2002: All-Eastern Band, Percussion Section
2000-2004: Maryland All-State Band, Percussion Section