Samir H. Moussa

Postdoctoral Research Fellow
Harvard Medical School
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EDUCATION

2012 **Ph.D.**, Microbiology in Department of Biochemistry/Biophysics. Chemistry-Biology Interface Research Training Program (CBI) trainee.
Texas A&M University, College Station, Texas.

2005 **Master of Science,** Biology (Environmental Microbiology emphasis).
Baylor University, Waco, Texas.

2003 **Bachelor of Science,** Biology. *Minors*: Chemistry and Criminal Justice
Baylor University, Waco, Texas.

PROFESSIONAL EXPERIENCE

2012-current **Postdoctoral Research Fellow**
Harvard Medical School, Dept. of Microbiology and Immunobiology
Advisor: Dr. Suzanne Walker
Functional analysis of putative membrane proteases in *S. aureus* cell division.

2007-2012 **Graduate Research Assistant**
Texas A&M University, Depts. of Biology and Biochemistry & Biophysics
Chemistry-Biology Interface Research Program
Advisor: Dr. Ryland Young
Deciphering lysis and its regulation in bacteriophage T4.

2005-2007 **Research Scientist**
ACT-I Research and Analytical Laboratories
Department of Defense Contractor, Waco, Texas

2003-2005 **Graduate Research Assistant**
Baylor University, Dept. of Biology
Advisor: Dr. Rene Massengale
Determining the potential sources of *Escherichia coli* in the South Bosque Watershed using Antibiotic Resistance Analysis and Carbon Utilization Profiling.

2002-2003 **Undergraduate Research Assistant**
Baylor University, Dept. of Biology
Advisor: Dr. Rene Massengale

PUBLICATIONS

6. Santa Maria Jr., JP, Sadaka, A, **Moussa, SH**, Brown, S, Zhang J, Rubin, E, Gilmore, M, and Walker, S. (2014). Compound-gene interaction mapping reveals distinct roles for *Staphylococcus aureus* teichoic acids. *Proc Natl Acad Sci USA* **111**(34), 12510-5.

5. **Moussa, SH**, Lawler, JL, and Young, R. (2014). Genetic dissection of T4 lysis. *Journal of Bacteriology* **196**(12), 2201-2209.

4. Savva, CG, Dewey, JS, **Moussa, SH**, To, K, Holzenburg, A, and Young, R. (2014). Stable micron-scale holes are a general feature of canonical holins. *Molecular Microbiology* **91**(1), 57-65.

3. **Moussa, SH**, Kuznetsov, V, Tran, TA, Sacchettini, J, and Young, R. (2012). Protein determinants of phage T4 lysis inhibition. *Protein Science* **21**(4), 571-582.

2. Pang, X, **Moussa, SH***, Targy, NM*, Bose, JL, George, NM, Gries, C, Lopez, H, Zhang, L, Bayles, KW, Young, R, and Luo, X. (2011). Active Bax and Bak are functional holins. *Genes and Development* **25**(21), 2278-2290. *Contributed equally. *Evaluated in Faculty of 1000.*

1**. Moussa, SH** and RD Massengale. (2008). Identification of the sources of *Escherichia coli* in a watershed using carbon-utilization patterns and composite data sets. *J. Water Health* **6**, 197-203.

MANUSCRIPTS SUBMITTED OR IN PREPARATION

MS1. Kuznetsov, V, **Moussa, SH**, Morales, KA, Stewart, MD, Igumenova, TI, Young, R, and Sacchettini, JC. The structural basis of lysis inhibition. *In preparation.*

MS2. Santiago, M, Matano, LM, **Moussa, SH**, Gilmore, MS, Walker, S, and Meredith, TC. Next-generation sequencing of multiplexed transposon libraries constructed via phage-based transposition in *Staphylococcus aureus*. *Submitted*

GRANTS AND AWARDS

2015 NIH Post-doctoral research fellowship (1F32AI118160).

2013 American Society for Microbiology Science Teaching Fellowship.

2011 Lawrence S. Dillon Distinguished Graduate Student Award in Biological Sciences, Biology Department, Texas A&M University.

2011 Gisela Mosig Student Travel Award for Excellence in phage molecular biology to attend and present an oral presentation at the American Society for Microbiology General Meeting in New Orleans, Louisiana.

2010 Paul W. Zuccaire Foundation Travel Grant to attend and present at the First International Conference on Virus of Microbes, Institut Pasteur, Paris, France.

2007-2010 Pre-doctoral Chemistry-Biology Interface Research Training Program traineeship (NIGMS/NIH program), Texas A&M University.

2005 Jack G. and Norma Jean Folmar Research Award, Baylor University.

2005 Charlie Gauntt Graduate Student Award, Texas American Society for Microbiology meeting.

PRESENTATIONS (2005-present)

Samir Moussa. 2012. A three-pronged approach to deciphering lysis and its regulation in bacteriophage T4. Invited talk at Harvard Medical School, Boston, Massachusetts.

Samir Moussa. 2012. A three-pronged approach to deciphering lysis and its regulation in bacteriophage T4. Invited talk at Tufts University School of Medicine, Boston, Massachusetts.

Samir Moussa, Vladimir Kuznetsov, James Sacchettini, and Ryland F. Young. 2011. Structural and genetic dissection of lysis and lysis inhibition in Phage T4. Invited talk at the American Society for Microbiology General Meeting, New Orleans, Louisiana.

Winner of the Gisela Mosig Travel Award (for best abstract submitted to Section M of ASM 2011 General Meeting)

Samir Moussa. 2011. Using structure and genetics to decipher lysis inhibition in T4. Invited talk at the Student/Post-doc Research Conference. Biology Department, Texas A&M University.

Samir Moussa, Vladimir Kuznetsov, James Sacchettini, and Ryland F. Young. 2010. Structural and genetic dissection of lysis inhibition in phage T4. Poster presentation at the First International Conference on Virus of Microbes, Institut Pasteur, Paris, France.

Winner of the Paul W. Zuccaire Foundation Travel grant (to attend and present)

Samir Moussa, Vladimir Kuznetsov, and Ryland F. Young. 2009. Structural characterization of bacteriophage T4 lysis proteins. Poster presentation at the 18th Biennial Evergreen International Phage Meeting, Olympia, Washington.

Samir Moussa and Rene D. Massengale. 2006. Identification of the sources of *Escherichia coli* in watersheds using composite data sets. Poster presentation at the meeting of the American Society of Microbiology, Orlando, Florida.

Samir Moussa and Rene D. Massengale. 2005. Determining the Potential Sources of *Escherichia coli* in the South Bosque Watershed Using Antibiotic Resistance Analysis and Carbon Utilization Profiling. Oral Presentation at the meeting of the Texas Branch of the American Society of Microbiology, San Marcos, Texas.

Winner of the Charlie Gauntt Graduate Student Award (for best Graduate Student Oral Presentation)

TEACHING & MENTORING EXPERIENCE

2012 Supervisor of graduate rotation student in the Walker lab, Department of Microbiology and Immunobiology, Harvard Medical School. *Student*: Sanchez Jarrett. *Project:* "Understanding the role of Sle1, a peptidoglycan hydrolase, in *S. aureus*."

2010-2012 Supervisor of undergraduate research student (BICH 491) in the Young lab, Biochemistry and Biophysics Department, Texas A&M University. *Student*: Jessica Lawler. *Project*: "Mutagenesis and characterization of mutants of the bacteriophage T4 holin."

2011 Supervisor of graduate rotation student in the Young lab, Biochemistry and Biophysics Department, Texas A&M University. *Student*: Ivy Zheng. *Project*: "Visualization of the phage T4 holin and its regulation by fluorescence microscopy."

2010 Teaching Assistant, Cell Biology course (BIOL 413), Texas A&M University. *Supervisor*: Karl Aufderheide, Ph.D.

2008-2009 Teaching Assistant, Microbiology laboratory (BIOL 351), Texas A&M University. *Laboratory Coordinator*: Rita Moyes, Ph.D.

2004-2005 Teaching Assistant, Microbiology/Bacteriology laboratory (BIO 1402/4401), Baylor University. *Laboratory Coordinator*: Diane Hartman, DVM.

2004-2005 Tutor in various Biology and Chemistry courses, Baylor University.