

**Dr. Shauna M. McGillivray**  
Curriculum Vita

Department of Biology  
Texas Christian University  
TCU Box 298930  
Fort Worth TX 76129

s.mcgillivray@tcu.edu  
Office: (817) 257-6178  
Fax: (817) 257-6177

**EDUCATIONAL BACKGROUND**

**University of California, San Diego**, La Jolla, CA  
Ph.D. in Biomedical Science, 2006

**Concordia College**, Moorhead, MN  
B.A., *magna cum laude*, December 1999  
Majors: Biology Honors, Chemistry and German

**YEAR OF APPOINTMENT TO THE UNIVERSITY AND RANK**

2015 Associate Professor of Biology  
2009 Assistant Professor of Biology

**PREVIOUS TEACHING AND RESEARCH APPOINTMENTS**

2006-2009 Postdoctoral Research Fellow, University of San Diego, CA  
Summer 2008 Adjunct Instructor, San Diego State University

**TEACHING RESPONSIBILITIES**

BIOL 30303: Microbiology  
BIOL 30603: Cell, Molecular and Developmental Biology\*  
BIOL 40303/60403: Medical Microbiology  
BIOL 40300: Teaching of Biology  
BIOL 40900: Independent Research in Biology  
BIOL 40803: Biological Research and Writing  
BIOL 40033: Seniors Honors Research  
BIOL 70980/70990: Thesis

\* *Denotes team-taught course*

**EXTRAMURAL GRANTS RECEIVED**

Validation of *trans*-translation as a target for antibiotic development in *S. aureus*. NIH R21/R33, Ken Keiler (Pennsylvania State University) primary investigator. \$64,000 subaward to S. McGillivray. 2014-2016

**INTRAMURAL GRANTS RECEIVED**

**Faculty Grants Awarded to S. McGillivray**

Role of the ClpXP protease in antibiotic resistance in *Staphylococcus aureus*. TCU Research and Creative Activities Fund, \$4,000, 2016-2017

Connection between Autolytic Activity and Antibiotic Sensitivity in *Bacillus anthracis*. TCU Research and Creative Activities Fund, \$4,000, 2013-2014

Role of the Tellurium Resistance Genes in the Pathogenesis of *Bacillus anthracis*. TCU Research and Creative Activities Fund, \$4,000, 2012-2013.

Role of the Bacterial protease, ClpXP, in Maintaining the Bacterial Cell Envelope. TCU Research and Creative Activities Fund and Junior Faculty Summer Research Program, \$10,000, 2011-2012.

Increasing Bacterial Susceptibility to Antimicrobial Compounds. TCU Research and Creative Activities Fund and Junior Faculty Summer Research Program, \$10,000, 2010-2011.

#### **Student Grants Awarded to S. McGillivray**

Role of the ClpXP protease in antibiotic resistance in *S. aureus*. SERC Undergraduate Research Grant to Madeline Bush, \$1497, 2016-2017.

Role of ClpX in *S. aureus* antimicrobial virulence and survival. SERC Undergraduate Research Grant to Candler Boortz, \$1499, 2015-2016.

Overexpression of FtsZ in *Bacillus anthracis*. SERC Undergraduate Research Grant to Quynh Ngo, \$1494, 2015-2016.

*Galleria mellonella* as an infection model to study the pathogenesis of *Bacillus anthracis*. SERC Undergraduate Research Grant to Madison Rogan, \$1499, 2014-2015.

Inability of Mutant *Bacillus anthracis* to Sequester Iron from Hemoglobin. SERC Undergraduate Research Grant to Mariah Green, \$1347, 2013-2014.

Role of LrgAB in Susceptibility to Antibiotics and Antimicrobial Peptides in *Bacillus anthracis*. SERC Undergraduate Research Grant to Kevin Claunch, \$1500, 2012-2013

Discovery of Novel Iron Acquisition Genes in *Bacillus anthracis*. Student Government Association Award to Julio Manceras. Funded \$400. 2012-2013

Investigation of Cell Charge in *Bacillus anthracis* and Its Role in Antimicrobial Defense. Student Government Association Award to Renee Rosati. 2012-2013. Funded \$400.

#### **GRADUATE THESES DIRECTED**

Kevin Claunch. 2016. Role of LrgAB and the ClpXP Protease in Antibiotic Resistance and Autolysis in Gram-Positive Pathogens.

Yueyang Huang. 2015. Investigating tmRNA and SmpB as Antibiotic Targets for Methicillin-Resistant *Staphylococcus aureus*

Elizabeth Franks. 2013. Role of the Tellurium Resistance Genes in the Pathogenesis of *Bacillus anthracis*.

Chris Evans. 2013. Role of the ClpXP protease in the Structure/Composition of the Cell Wall of *Bacillus anthracis*.

## **PUBLICATIONS**

Sreepereumbuduru, R.S.\*, Z.M. Abid, K.M. Claunch\*, H.H. Chen, **S.M. McGillivray** and E.E. Simanek, 2016, Synthesis and Antimicrobial Activity of Triazine Dendrimers with DABCO Groups, *RSC advances*, v. 6, p. 8806-8810.

Franks, S.E.\*, C. Ebrahimi, A. Hollands, C.Y. Okumura, R.V. Aroian, V. Nizet, and **S.M. McGillivray**, 2014, A novel role for tellurium resistance genes in the pathogenesis of *Bacillus anthracis*, *Infection and Immunity*, v. 82, p. 1132-40.

**McGillivray, S.M.**, D.N. Tran, N.S. Ramadoss, J.N. Alumasa, C.Y. Okumura, G. Sakoulas, M.M Vaughn\*\*, D.X. Zhang, K.C. Keiler, and V. Nizet, 2012, Pharmacological inhibition of the ClpXP protease increases bacterial susceptibility to host cathelicidin antimicrobial peptides and cell-envelope active antibiotics, *Antimicrobial Agents and Chemotherapy*, v. 56, p. 1854-61.

Kho, M.F., A. Bellier, V. Balasubramani, Y. Hu, W. Hsu, C. Nielsen-Leroux, **S. M. McGillivray**, V. Nizet, and R. V. Aroian, 2011, The pore-forming protein Cry5B elicits the pathogenicity of *Bacillus sp.* against *Caenorhabditis elegans*, *PloS One*, v. 6, e29122.

Yang, H., C. Sikavi, K. Tran, **S.M. McGillivray**, V. Nizet, M. Yung, A. Chang, and J.H. Miller, 2011, Papillation in *Bacillus anthracis* colonies: a tool for finding new mutators, *Molecular Microbiology*, v. 79, p. 1276-93.

Kisseleva, T., M. Köckritz-Blickwede, D. Reichart, **S.M. McGillivray**, G. Wingender, M. Ronenberg, C.K. Glass, V. Nizet, and D.A. Brenner, 2011, Fibrocyte-like cells recruited to the spleen support innate and adaptive immune responses to acute injury or infection, *Journal of Molecular Medicine*, v. 89, p. 997-1013.

Guichard, A., **S.M. McGillivray**, M. Beatriz-Cruz, N. van Sorge, V. Nizet, and E. Bier, 2010, Anthrax toxins cooperatively inhibit endocytic recycling by the Rab11/Sec15 exocyst, *Nature*, v. 467, p. 854-8.

Rooijackers, S.H., S.L. Rasmussen, **S.M. McGillivray**, T.B. Bartnikas, A.B. Mason, A.M. Friedlander, and V. Nizet, 2010, Human Transferrin confers serum resistance against *Bacillus anthracis*, *Journal of Biological Chemistry*, v. 285, p. 27609-13.

**McGillivray, S.M.**, C. Ebrahimi, N. Fisher, M. Sabet, D.X. Zhang, Y. Chen, N.M. Haste, R. Aroian, R.L. Gallo, D.G. Guiney, A.M. Friedlander, T.M. Koehler, and V. Nizet, 2009, ClpX Protease Contributes to Antimicrobial Peptide Resistance and Virulence Phenotypes of *Bacillus anthracis*, *Journal of Innate Immunity*, v. 1, p. 494-506.

Van Sorge, N.M., C.M. Ebrahimi, **S.M. McGillivray**, D. Quach, M. Sabet, D.G. Guiney, K.S. Doran, 2008, Anthrax toxins inhibit neutrophil signaling pathways in brain endothelium and contribute to the pathogenesis of meningitis, *PLoS ONE*, v. 3, e2964.

Hsu, L.C., R. Ali, **S. McGillivray**, P.H. Tseng, S. Mariathasan, E. Humke, L. Eckmann, J. Powell, V. Nizet, V. Dixit, M. Karin, 2008, A NOD2-NALP1 complex mediates caspase-1 dependent IL-1 $\beta$  secretion in response to *Bacillus anthracis* infection and muramyl dipeptide, *Proc Natl Acad Sci USA*, v. 105, p. 7803-7808.

**McGillivray, S.M.**, V.G. Thackray, D. Coss, and P.L. Mellon, 2006, Activin and Glucocorticoids Synergistically Activate Follicle-Stimulating Hormone  $\beta$ -Subunit Gene Expression in the Immortalized L $\beta$ T2 Gonadotrope Cell Line, *Endocrinology*, v. 148, p. 762-73.

Thackray, V.G., **S.M. McGillivray**, and P.L. Mellon, 2006, Progestins and Glucocorticoid Steroid Induce Follicle Stimulating Hormone  $\beta$ -Subunit Gene Expression at the Level of the Gonadotrope, *Molecular Endocrinology*, v. 20, p. 2062-79.

**McGillivray, S.M.**, J.S. Bailey, R. Ramezani, B.J. Kirkwood, and P.L. Mellon, 2005, Mouse GnRH Receptor Gene Expression Is Mediated by the LHX3 Homeodomain Protein, *Endocrinology*, v. 146, p. 2180-2185.

Bailey, J.S., N. Rave-Harel, **S.M. McGillivray**, D. Coss, and P.L. Mellon, 2004, Activin Regulation of the Follicle-Stimulating Hormone  $\beta$ -Subunit Gene Involves Smads and the TALE Homeodomain Proteins Pbx1 and Prep1, *Molecular Endocrinology*, v. 18, p. 1158-70.

Jacobs, S.B.R., D. Coss, **S.M. McGillivray**, and P.L. Mellon, 2003, NF-Y and SF-1 Physically and Functionally Interact to Contribute to Cell-Specific Expression of the Mouse FSH $\beta$  Gene, *Molecular Endocrinology*, 8: 1470-83.

Aho, E.L., A.M. Keating, **S.M. McGillivray SM**, 2000, A Comparative Analysis of Pilin Genes from Pathogenic and Nonpathogenic *Neisseria* Species, *Microbiol Pathogenesis*, v. 28, p. 81-88.

## **PRESENTATIONS (PAST 3 YEARS)**

**\*\***, undergraduate student; **\***, graduate student

### **Poster presentation:**

Bush, M. **\*\***, K.M. Claunch\*, J. Malmquist\*, C.R. Evans\*, and **S.M. McGillivray**, 2016, Role of the ClpXP protease in antibiotic resistance in *B. anthracis* and *S. aureus*, Fall Meeting of the Texas Branch of the American Society of Microbiology, Dallas TX.

### **Poster presentation:**

Ngo, Q. **\*\*** and **S.M. McGillivray**, 2016, Investigating the connection between the ClpXP protease and FtsZ in antimicrobial peptide resistance in *Bacillus anthracis*, Texas Branch Spring Meeting of the American Society for Microbiology, New Braunfels, TX.

**Poster presentation:**

Rogan, M.R.\*\* and **S.M. McGillivray**, 2015, Protein tyrosine phosphatase YwIE as a potential regulator of oxidative stress in *Bacillus anthracis*, Texas Branch Spring Meeting of the American Society for Microbiology, New Braunfels, TX.

**Oral presentation:**

Claunch, K.C.\*, C.R. Evans\*, and **S.M. McGillivray**, 2015, Connection of the ClpXP protease to antibiotic resistance and autolytic activity in *Bacillus anthracis*, Fall Meeting of the Texas Branch of the American Society of Microbiology, Huntsville TX.

**Poster presentation:**

Huang, Y.\*, J. Alumasa, K.C. Keiler, and **S.M. McGillivray**, 2014, Small molecule inhibition of trans-translation impairs *Staphylococcus aureus* viability, Annual Meeting of the Texas Branch of the American Society of Microbiology, Houston, TX.

**Poster presentation:**

Claunch, K.C.\*\*\*, C.R. Evans\*, and **S.M. McGillivray**, 2014, Connection of the ClpXP protease to autolytic activity and antibiotic resistance in *Bacillus anthracis*, 114<sup>th</sup> General Meeting of the American Society of Microbiology, Boston, MA.

**INVITED SPEAKER**

Texas Branch of the American Society of Microbiology Annual Meeting, Houston TX, November 2014

Department of Biology, University of Texas-Arlington, Arlington TX, March 2013.

IRACDA Fellowship Program, University of California-San Diego, La Jolla CA, March 2012.

Department of Molecular Virology and Microbiology Seminar Series, Baylor College of Medicine, Houston TX, April 2011.

18<sup>th</sup> International Microbial Genomes Conference, Lake Arrowhead CA, September 2010

California State University Los-Angeles Department of Biological Science's seminar series in BioSecurity Research and Education. August 2009

**DEPARTMENTAL SERVICE**

2014-present	Biology Department Curriculum Committee
2012-2014	Mondays at TCU
Fall 2013	Tenure-Track Geneticist Search Committee
Summer 2013	Staff Lab Coordinator Search Committee
Fall 2012	Tenure-Track Physiologist Search Committee
Fall 2011	Chair, Instructor of Anatomy & Physiology Search Committee

**COLLEGE SERVICE**

2013-present	Associate Director, Pre-Health Institute
2013-present	Associate Chair, Health Professionals Advisory Committee

2013-2016                    College Curriculum Committee  
2011-2013                    Member, Health Professionals Advisory Committee

**UNIVERSITY SERVICE**

Faculty Facilitator at Frog Camp June 2012

Faculty Facilitator at Frog Camp June 2011

Common Readings, August 19, 2011

*Last updated January 2017*