
William T. Boswell

📍 601 University Drive, Centennial Hall 419 • San Marcos, Texas 78666 ☎ 512-245-0358 ✉ wboswell@txstate.edu

~ CURRICULUM VITAE ~

EDUCATION

- Aug 2008–2012 **Master of Science in Biology, with Concentration in Microbiology and Infectious Disease, GPA: 3.67**
George Mason University, Molecular and Microbiology Department, Bioscience • *Fairfax, VA*
- Aug 2005–Dec 2007 **Master of Science in Biology, with Concentration in Microbiology, GPA: 4.0**
Brightest Star for Academic Achievement (2007) | Department of Biology Outstanding Academic Achievement (2007) |
Texas State University, Department of Biology • *San Marcos, TX*
- Aug 2001–Aug 2004 **Bachelor of Science in Biology, GPA: 3.34**
National Dean's List (2003-2004) | College of Science Dean's List (2003-2004) | Air Force ROTC Scholarship, Detachment 840 (2002) |
Texas State University, Department of Biology • *San Marcos, TX*

LABORATORY AND TEACHING EXPERIENCE

- 2013-Present **Senior Research Assistant, Xiphophorus Genetic Stock Center** | Texas State University • San Marcos, TX
- Assist senior research personnel in all research projects
 - Train faculty/staff/graduate/undergraduate students on appropriate use of advanced research instruments
 - Conduct high level independent research leading to impacting discoveries and publications
 - Utilize nucleotide isolation (TRIzol/chloroform extraction and kit) from individual organs dissected from a wide variety of medical models including mouse, zebrafish, medaka, platyfish, and swordtail fish as well as non-medical models including turtles and hawks for downstream applications such as RNA sequencing for transcriptome analysis, qRT-PCR, NanoString direct mRNA molecule counting, and standard PCR
 - Run pre-designed Perl scripts and use command line arguments to filter RNA sequencing samples through ssh into the university server
 - Utilize R scripts to call differentially expressed genes and generate figures
 - Facilitate research lab maintenance including ordering/receiving/stocking inventory, equipment calibration and QC, and act as liaison for scheduling preventative maintenance and/or instrument repair
 - Maintain, update, and ensure all IACUC approved experimental protocols are followed for animal experiments and procedures
 - Update XGSC/MBRG website through the university GATO system, and provide IT support for all computers in the XGSC organizational unit including binding new installs to the matrix
- 2012-2013 **Lab Technician, Texas State University** | Texas State University • San Marcos, TX
- Used standard column purification and strict aseptic techniques to purify yeast protein for subsequent crystallization and characterization
 - Used SDS-Page gels for protein visualization and Bradford assays for quantification.
 - Maintained laboratory inventory and research equipment
 - Effectively trained students in basic microbial techniques and plasmid cloning into maintenance bacterial strains
- 2009–2011 **Contract Researcher, Naval Research Laboratory** | George Mason University • *Washington, DC*
- Thesis research: Applied a systems biology approach in modeling *Vibrio campbellii*, including molecular cloning, tri-parental mating for directed gene deletion, expression profiling, qRT-PCR, PCR, growth phenotyping, and immunohistochemistry
- 2008–2011 **Graduate Teaching Assistant** | George Mason University • *Fairfax, VA*
- Demonstrated leadership in directing students and new teaching assistants in the performance of basic microbiology-related activities
 - Exemplified keen expertise in motivating teachers and other staff toward completion and achievement of improvement plans
- 2007–2008 **Instructional Assistant** | Texas State University • *San Marcos, TX*
- Assisted in developing student lab skills in the Department of Chemistry/Biochemistry by providing necessary instruction on various subjects, including General Chemistry, Quantitative Analysis, and Chemistry for non-majors

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- 2005–2007 **Graduate Instructional Assistant** | Texas State University • *San Marcos, TX*
- Mentored students as well as other instructional assistants on proper methods to perform weekly laboratory experiments using effective approaches, styles, and techniques of teaching
 - Took full charge of preparing all required media, bacteria, and other supplies for weekly laboratory experiments
- 2005–2007 **Master of Science Thesis Research** | Texas State University • *San Marcos, TX*
- Study the Effects of *N*-acyl-L-Homoserine Lactone Lactonase on Prevention of Biofilm Formation, Disruption of Preformed Biofilms, and Bacterial Recruitment
- 2007 **Microbiology Laboratory Technician** | Prolab Diagnostics • *Austin, TX*
- Identified pathogens in patient samples through the use of selective and differential media
 - Determined antibiotic resistant pathogens utilizing Vitek ID and sensitivity specimen analyzer

PUBLICATIONS

- 2019 Boswell, M., Lu, Y., **Boswell, W.**, Savage, M., Hildreth, K., Salinas, R., Walter, A.C., Walter, B.R., 2019. Fluorescent Light Incites a Conserved Immune and Inflammatory Genetic Response within Vertebrate Organs (*Danio rerio*, *Oryzias latipes* and *Mus musculus*). *Genes* 10.
- 2019 Barbara Klotz, Susanne Kneitz, Yuan Lu, **William Boswell**, John Postlethwait, Wesley Warren, Ronald B. Walter, and Manfred Schartl, Expression Signatures of Cisplatin- and Trametinib-Treated Early-Stage Medaka Melanomas. 3: GENES, GENOMES, GENETICS July 1, 2019 vol. 9 no. 7 2267-2276.
- 2019 Lu, Y., **Boswell, W.**, Boswell, M., Klotz, B., Kneitz, S., Regneri, J., Savage, M., Mendoza, C., Postlethwait, J., Warren, W.C., Schartl, M., Walter, R.B., Application of the Transcriptional Disease Signature (TDSs) to Screen Melanoma-Effective Compounds in a Small Fish Model. *Sci Rep* 9, 530.
- 2018 Zavadil, J.A., Herzig, M.C.S., Hildreth, K., Foroushani, A., **Boswell, W.**, Walter, R., Reddick, R., White, H., Zare, H., Walter, C.A., C3HeB/FeJ Mice mimic many aspects of gene expression and pathobiological features of human hepatocellular carcinoma. *Mol Carcinog*.
- 2018 Lu, Y., Boswell, M., **Boswell, W.**, Kneitz, S., Klotz, B., Savage, M., Salinas, R., Marks, R., Regneri, J., Postlethwait, J., Warren, W.C., Schartl, M., Walter, R., Gene expression variation and parental allele inheritance in a *Xiphophorus* interspecies hybridization model. *PLoS Genet* 14, e1007875.
- 2018 Walter, R.B., Boswell, M., Chang, J., **Boswell, W.T.**, Lu, Y., Navarro, K., Walter, S.M., Walter, D.J., Salinas, R., Savage, M., Waveband specific transcriptional control of select genetic pathways in vertebrate skin (*Xiphophorus maculatus*). *BMC Genomics* 19.
- 2018 Lu, Y., Boswell, M., **Boswell, W.**, Kneitz, S., Hausmann, M., Klotz, B., Regneri, J., Savage, M., Amores, A., Postlethwait, J., Warren, W., Schartl, M., Walter, R., Comparison of *Xiphophorus* and Human Melanoma Transcriptomes Reveals Conserved Pathway Interactions. *Pigment Cell Melanoma Res*.
- 2018 Lu, Y., **W. Boswell**, M. Boswell, S. Kneitz, B. Klotz, J. Regneri, M. Savage, J. Postlethwaite, W. Warren, M. Schartl, R. Walter. “Application of Transcriptional Disease Signature (TDS) to Screen Compounds in a Small Fish Model”. 4th Strategic Medaka Conference, Heidelberg, Germany
- 2017 Lu, Y., Reyes, J., Walter, S., Gonzalez, T., Medrano, G., Boswell, M., **Boswell, W.**, Savage, M., Walter, R., Characterization of basal gene expression trends over a diurnal cycle in *Xiphophorus maculatus* skin, brain and liver. *Comp Biochem Physiol C Toxicol Pharmacol*.
- 2017 Lu, Y., Klimovich, C.M., Robeson, K.Z., **Boswell, W.**, Rios-Cardenas, O., Walter, R.B., Morris, M.R., Transcriptome assembly and candidate genes involved in nutritional programming in the swordtail fish *Xiphophorus multilineatus*. *PeerJ* 5, e3275.
- 2017 Lu, Y., Boswell, M., **Boswell, W.**, Kneitz, S., Hausmann, M., Klotz, B., Regneri, J., Savage, M., Amores, A., Postlethwait, J., Warren, W., Schartl, M., Walter, R., Molecular genetic analysis of the melanoma regulatory locus in *Xiphophorus* interspecies hybrids. *Mol Carcinog* 56, 1935-1944.
- 2017 Klotz, B., Kneitz, S., Regensburger, M., Hahn, L., Dannemann, M., Kelso, J., Nickel, B., Lu, Y., **Boswell, W.**, Postlethwait, J., Warren, W., Kunz, M., Walter, R.B., Schartl, M., Expression signatures of early-stage and advanced medaka melanomas. *Comp Biochem Physiol C Toxicol Pharmacol*.
- 2017 Gonzalez, T.J., Lu, Y., Boswell, M., **Boswell, W.**, Medrano, G., Walter, S., Ellis, S., Savage, M., Varga, Z.M., Lawrence, C., Sanders, G., Walter, R.B., Fluorescent light exposure incites acute and prolonged immune responses in zebrafish (*Danio rerio*) skin. *Comp Biochem Physiol C Toxicol Pharmacol*.
- 2017 **Boswell, W.T.**, Boswell, M., Walter, D.J., Navarro, K.L., Chang, J., Lu, Y., Savage, M.G., Shen, J., Walter, R.B., Exposure to 4100K fluorescent light elicits sex specific transcriptional responses in *Xiphophorus maculatus* skin. *Comp Biochem Physiol C Toxicol Pharmacol*.

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- 2017 Boswell, M., **Boswell, W.**, Lu, Y., Savage, M., Mazurek, Z., Chang, J., Muster, J., Walter, R., The transcriptional response of skin to fluorescent light exposure in viviparous (*Xiphophorus*) and oviparous (*Danio, Oryzias*) fishes. *Comp Biochem Physiol C Toxicol Pharmacol*.
- 2017 Reyes, J. S. Walter, Y. Lu, T. Gonzalez, G. Medrano, M. Boswell, **W. Boswell**, M. Savage, R. Walter. “Circadian Oscillation of Gene Expression in *Xiphophorus maculatus* Skin and Brain”. 8th Aquatic Models for Human Disease, Birmingham, AL.
- 2016 Shen, Y., Chalopin, D., Garcia, T., Boswell, M., **Boswell, W.**, Shiryev, S.A., Agarwala, R., Volf, J.N., Postlethwait, J.H., Schartl, M., Minx, P., Warren, W.C., Walter, R.B., *X. couchianus* and *X. hellerii* genome models provide genomic variation insight among *Xiphophorus* species. *BMC Genomics* 17, 37.
- 2015 Walter, R.B., Walter, D.J., **Boswell, W.T.**, Caballero, K.L., Boswell, M., Lu, Y., Chang, J., Savage, M.G., Exposure to fluorescent light triggers down regulation of genes involved with mitotic progression in *Xiphophorus* skin. *Comp Biochem Physiol C Toxicol Pharmacol* 178, 93-103.
- 2015 Lu, Y., Boswell, M., **Boswell, W.**, Yang, K., Schartl, M., Walter, R.B., Molecular genetic response of *Xiphophorus maculatus*-*X. couchianus* interspecies hybrid skin to UVB exposure. *Comp Biochem Physiol C Toxicol Pharmacol* 178, 86-92.
- 2015 Chang, J., Lu, Y., **Boswell, W.T.**, Boswell, M., Caballero, K.L., Walter, R.B., Molecular genetic response to varied wavelengths of light in *Xiphophorus maculatus* skin. *Comp Biochem Physiol C Toxicol Pharmacol* 178, 104-115.
- 2015 **Boswell, W.**, Boswell, M., Titus, J., Savage, M., Lu, Y., Shen, J., Walter, R.B., Sex-specific molecular genetic response to UVB exposure in *Xiphophorus maculatus* skin. *Comp Biochem Physiol C Toxicol Pharmacol* 178, 76-85.
- 2015 Boswell, W., M. Boswell, J. Titus, M. Savage, A. Riojas, K. Yang, J. Shen, R. Walter. “Sex Specific Response to UVB Exposure in *Xiphophorus maculatus* Skin”. 7th Aquatic Models for Human Disease, Bastrop, TX.
- 2014 Walter, D.J., Boswell, M., Volk de Garcia, S.M., Walter, S.M., Breitenfeldt, E.W., **Boswell, W.**, Walter, R.B. Characterization and differential expression of CPD and 6-4 DNA photolyases in *Xiphophorus* species and interspecies hybrids. *Comp Biochem Physiol C Toxicol Pharmacol* 163, 77-85.
- 2013 Breitenfeld, E., **W. Boswell**, D. Walter, S. Walter, K. Downs, M. Savage, R. Walter. “Fluorescent Light Inducible Expression in *Xiphophorus*”. 6th Aquatic Models for Human Disease, Milwaukee, WI
- 2013 Anguiano, D., C.M. Brittsan, J.K. Titus, **W. Boswell**, C. Guthrie, C. Maeder. Investigation of Functionally Critical Residues in the Pseudo-Helicase Domain of Brr2. *The FASEB Journal* 27 (1 Supplement), 988.2-988.2
- 2010 Verhoeven, A.B., M. Durham-Colleran, T. Pierson, **W. Boswell**, M. van Hoek, “*Francisella philomiragia* Biofilm Formation and Interaction with the Aquatic Protist *Acanthamoeba castellanii*”. *Biol Bull* 219, 178-188.
- 2007 **Boswell, W.**, W. Fast, and R. JC McLean. “Ecological Influence of Quorum-Quenching Lactonase on Bacterial Biofilms.” 3rd ASM Conference on Cell-Cell Communication on Bacteria, Austin, TX
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AWARDS AND ACHIEVEMENTS

- 2011 Molecular and Microbiology Supplemental Fellowship – George Mason University
- 2010 Internship: Naval Research Laboratory summer internship with Dr. Gary Vora
- 2009 Internship: American Society for Engineering Education for the Naval Research Enterprise Internship Program
- 2007 Outstanding Academic Achievement, Texas State University, Department of Biology
Texas State’s Brightest Star for academic achievement
- 2003–2004 Dean’s List, College of Science, Texas State University
National Dean’s List
- 2002–2003 Fundraising Chair for Student Volunteer Connection, Texas State University
- 2002 Air Force ROTC Scholarship, Detachment 840, Texas State University

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AREAS OF EXPERTISE

Clinical/Laboratory Knowledge and Skills	TRIzol/chloroform and Qiagen RNeasy RNA isolation/purification; Qualify RNA through Agilent 2100 Bioanalyzer; RNA quantification with NanoDrop and Qubit 2.0; Medium Throughput RNA isolation with Qiacube HT; Column Protein Purification; NanoString direct mRNA counting; qRT-PCR; Bacterial Transformation; Brightfield Light Microscopy; BSL2 Safety Cabinet Trained; Colorimetric Enzyme Activity Assay; Differential Microbial Staining; Live/Dead Staining; DNA Isolation; Eukaryotic and Prokaryotic Cell Culturing; Fluorescence Microscopy; Gel Electrophoresis; Growth Phenotyping; Immunohistochemistry; Kirby-Bauer Disk Diffusion; LDH Assay for Detection of Apoptosis; Media Specific Species Selection/Identification; Mutagenic Testing using Ames Test; Plasmid Isolation; Primer Design; PCR; Serial Dilutions for Bacterial Quantification; Transformation–Electroporation; Transformation–Heat Shock; Tri-Parental Mating for Gene Deletion
Research Field	Current: Use bioinformatic approach to analyzing RNA-Seq data for quantifying gene expression in response to external stimuli in <i>Xiphophorus</i> , <i>Oryzias</i> , <i>Danio</i> , and <i>Mus</i> species through the use of tools such as samstools, GSNAP, edgeR, GeneMania, DAVID, ConsensuspathDB, Panther, and additional custom in-house Perl and R scripts. Previous: Elucidate two component signaling pathways to include cloning, tri-parental mating for directed gene deletion, expression profiling, immunohistochemistry, and other molecular microbiology techniques such as identifying effects of N-acyl-L-homoserine lactone lactonase on prevention of biofilm formation, disruption of preformed biofilms, and bacterial recruitment
Technical Acumen	Proficient in Mac and PC, Microsoft Office Suite (PowerPoint, Word, and Excel), and iWork Office Suite, small group user management through Windows Server 2016 (minimal), and ability to navigate and execute commands (basic navigation commands to advanced commands such as launching scripts to filter sequence data, map filtered sequence data, and etc.) through Terminal connected to University server through SSH

REFERENCES

Dr. Raquel Salinas Assistant Director Career Development University of Texas MD Anderson Cancer Center	Phone: 919-564-6684 Email: Raquel.y.salinas@uth.tmc.edu
Dr. Yuan Lu Program Faculty Texas State University	Phone: 573-823-3357 Email: y_154@txstate.edu
Dr. Rachell Booth Professor University of Incarnate Word	Phone: 512-665-2744 Email: rbooth@uiwtx.edu
Donnie Eckhoff	Phone: 512-745-0092 Email: dleckhoff78@yahoo.com

Current Supervisor:
Dr. Ron Walter
512-245-0357

Please do not contact Dr. Walter unless I am considered a final candidate for the position