

# James Masuoka, Ph.D.

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◆ Midwestern State University  
Department of Biology  
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## EDUCATION

### **PHS/NIAID Postdoctoral Research Fellow**

University of Virginia, 1995–1998

- ❖ Regulation of cell surface hydrophobicity by remodeling of glycoprotein carbohydrate components

### **Ph.D. University of California, San Diego, 1994**

Biology, Area of Specialization: Biochemistry

- ❖ “Determination of Intrinsic Stoichiometric Binding Constants for Metal-Protein Interactions”
- ❖ Dissertation Advisor: Paul D. Saltman
- ❖ Dissertation Committee: Russell F. Doolittle, Murray Goodman, Jeffrey B. Graham, Paul A. Price

### **B.S., with highest honors, Montana State University, 1985**

Microbiology with Chemistry Minor

### **Undergraduate Research**

Montana State University, Department of Microbiology, 1984–1985

- ❖ Advisor: Sandra J. Ewald
- ❖ Honors Thesis: “Inhibition of T Lymphocyte-Mediated Killing by the Anti-T200 Antibody, I3/2.4.a”

## CERTIFICATIONS (PROFESSIONAL)

Certified Texas Master Naturalist: 2011. Re-certified 2012–2025.

## PROFESSIONAL EXPERIENCE

### **Professor of Biology**

Midwestern State University, Sept. 2025 – present

- ❖ Teaching responsibilities for undergraduate and graduate courses
- ❖ Mentoring undergraduate student research projects
- ❖ Mentoring graduate student thesis research

### **Associate Professor of Biology**

Midwestern State University, Sept. 2014 – Aug. 2025

- ❖ Teaching responsibilities for undergraduate and graduate courses
- ❖ Mentoring undergraduate student research projects
- ❖ Mentoring graduate student thesis research

### **Biology Department Graduate Coordinator**

Midwestern State University, Sept. 2014 – Aug. 2022; interim, Sept. 2024 – Aug. 2025

- ❖ Coordinated seven-year program review and report (2014)
- ❖ Coordinated program policies with Graduate Council
- ❖ Coordinated evaluation of graduate program applications
- ❖ Served as academic adviser for all entering graduate students in the program

### **Assistant Professor of Biology**

Midwestern State University, Sept. 2007 – Aug. 2014

- ❖ Teaching responsibilities for undergraduate and graduate courses
- ❖ Mentoring undergraduate student research projects
- ❖ Mentoring graduate student thesis research

### **Adjunct Faculty Instructor**

Germana Community College, Locust Grove, VA, Spring 2007

- ❖ Teaching responsibilities for undergraduate course (Introductory Biology)

### **Instructor of Research**

University of Virginia Department of Pathology, 2003–2007

- ❖ Role of surface components in *Candida albicans*-host interactions
- ❖ Method development for identification of *C. albicans* surface structures
- ❖ Method development of blotting techniques for oligosaccharide analysis

### **Research Associate**

University of Virginia Department of Pathology, 1998–2003

- ❖ Disruption of glycosylation gene expression by gene knockout
- ❖ Role of hydrophobic cell wall proteins in *C. albicans* pathogenesis

### **Research Assistant**

University of Virginia Department of Pathology, 1994–1995

- ❖ Effect of nutrition (esp. trace metals) on fungal (*C. albicans*) morphology
- ❖ Adaptation of existing platforms for conducting antifungal susceptibility assays

## TEACHING RESPONSIBILITIES (SINCE ADVANCEMENT TO ASSOCIATE)

### Midwestern State University

- ❖ **BIOL 2114 – Life III: The Diversity of Life:** Undergraduate course surveying the diversity of living things. Responsible for 1/3 of the course that covers microbial life. Lecture and two laboratory sections comprising 48–56 students. Fall 2018–2021. Spring 2022.
- ❖ **BIOL 2144 – Fundamental Clinical Microbiology:** Undergraduate course in medical microbiology and infectious diseases. Lecture and laboratory sections comprising 48–55 students. Fall 2007 (2 sections), 2008–2024. Spring 2008 (2 sections), 2009–2024. Summer 2008–2012.
- ❖ **BIOL 3044 – Bacteriology:** Undergraduate course in bacteriology. Lecture and laboratory section comprising approximately 25 students. Fall 2008–2020, 2022, 2024.
- ❖ **BIOL 3054 – Principles of Biology I:** First semester of the two-course core survey of biology. This first semester covers cellular structure and function, and the fundamentals of genetics and inheritance. Lecture and laboratory section comprising 42 students. Spring 2018.
- ❖ **BIOL 3314 – General Microbiology:** Undergraduate course surveying microbial diversity (fungi, protozoa, bacteria, archaea, viruses) and metabolism. Lecture and laboratory section comprising 24 students. Spring 2021, 2023, 2024.
- ❖ **BIOL 4021 – Immunology Laboratory:** Undergraduate laboratory course on immunological techniques comprising 20 – 25 students. Spring 2008–2021. Fall 2021, 2023.
- ❖ **BIOL 4023 – Immunology:** Undergraduate lecture course on Immunology comprising approximately 25 students. Spring 2008 – 2021. Fall 2021, 2023.
- ❖ **BIOL 4911 – Independent Study:** Independent Study. Directed research and study in specialized areas of biology (1 SCH). Summer 2010. Fall 2021, 2022. Spring 2024.
- ❖ **BIOL 4693 – Tropical Rainforest Ecology:** Combined lecture & field course on tropical rainforest ecology comprising 6 – 16 students, both undergraduate and graduate. Course provides an introduction to the ecology and biodiversity of the neotropical rainforest. Co-Instructor of Record sharing responsibilities for preparing/giving lectures, grading assignments, and chaperoning students in Panama. Summer 2012, 2016, 2018.
- ❖ **BIOL 5011 – History of the Biological Sciences:** Graduate seminar course comprising 3 – 5 students. Students read primary (when available) and secondary sources and discuss the historical context of advances in our understanding of biology as a science. Fall 2022, 2024.
- ❖ **BIOL 5823 – Mycology:** Graduate course developed from the Graduate Seminar (6003, see below). Course provides an introduction to fungi. Lecture study material covers fundamental mycology during the first half of the semester. The second half of the semester focuses on fungal pathogenesis, with instructor and student presentations on specific fungal pathogens covering basic biology, disease, virulence, epidemiology, and treatment. Course requires creation of a voucher specimen collection and presentation of a semester-long research paper on a fungal infectious agent of choice. Spring 2020, 2022, 2024.
- ❖ **BIOL 6003 – Graduate Seminar in Biology:** Graduate course comprising 7 students. Course was a survey of mycology and included discussion of current literature, creation

of a voucher collection, and presentation of a semester-long research paper. Fall 2013. Spring 2010, 2016.

## GRADUATE STUDENT MENTORING

### Thesis Committee Chair, Midwestern State University

- ❖ **Tenzin Shakya:** "Investigating the mechanisms of *Candida albicans* survival in the presence of the human gut bacterium *Escherichia coli*." Master of Science awarded May 2025.
- ❖ **Anastasia Guseva:** "The effect of soil moisture on *Juniperus virginiana* (Easter Red Cedar) rhizosphere microbiome and leaf endophytes composition." Master of Science awarded May 2025.
- ❖ **Isabella Makelaar:** "Utilizing membrane protein chaperone to prevent and disrupt alpha synuclein protein aggregation in Parkinson disease." Master of Science awarded December 2024.
- ❖ **Merina Guiste:** "Energy production pathways – respiration or fermentation – used by *Escherichia coli* in lung atmosphere when grown in an artificial mucus medium." Master of Science awarded May 2024.
- ❖ **Jonathan Lucas:** "Gastrointestinal Iron-Uptake Competition Between *Candida albicans* and the Human Native Intestinal Bacteria." Master of Science awarded August 2021.
- ❖ **John Ford:** "Detection of a Fas-L-like Protein in *Candida albicans*." Master of Science awarded December 2018. Currently: Assistant Program Director – Medical Laboratory Science (United Regional Health Care System, Wichita Falls, TX).
- ❖ **Ibtissem Derouiche:** "Cell Surface Hydrophobicity of *Candida albicans* Upon Release of Cell Wall Proteins by Dithiothreitol Treatment." Master of Science awarded May 2018. Currently: PhD Student (University of Massachusetts Lowell).
- ❖ **Pinkal Patel:** "Role of CSA1, CSA2 and PGA7 in the Secondary Utilization of Hemoglobin-derived Iron by *Candida albicans*." Master of Science awarded December 2015. Currently: Postdoctoral Scientist (UNT Health Science Center).
- ❖ **Nitant Gandhi:** "Determining Mechanisms for Serotonin Uptake in Yeast Cells of *Candida albicans*." Master of Science awarded December 2015. Currently: Senior Quality Control Analyst (Johnson & Johnson Innovative Medicine).
- ❖ **Kriston McLaughlin:** "Survey for the Presence of *Naegleria fowleri* in Wichita Falls, Texas Area Lakes." Master of Science awarded May 2012. Currently: Director of Clinical Laboratory Science (United Regional Health Care System, Wichita Falls, TX).
- ❖ **Gizelle Simpson:** "Identification of Novel Quorum Sensing Molecules Affecting Lag Phase in *Candida albicans*." Master of Science awarded December 2010. Currently: Biology Lecturer (Dominica State College).

### Thesis Committee Member, Midwestern State University

- ❖ **Dalton Penick:** "Endoparasite biodiversity among native deer populations in central Texas." In progress. Expected defense in fall 2025.
- ❖ **Shenice Walters:** "The effect of heat-dependent extraction methods on yield and activity of acetogenins from *Annona muricata* (Soursop) leaves." Master of Science awarded May 2024.

- ❖ **Blake Babyak:** "Genetic Variability of Lichens at Dalquest Desert Research Station." Master of Science awarded May 2023.
- ❖ **Blair Ramon:** "A Faunal Survey of the Bees (Hymenoptera: Apoidea) from Wichita County of North-Central Texas." Master of Science awarded May 2021.
- ❖ **Candace Paschal:** "An Investigation of the Cellulose Degradation Process of the Grass Eating Desert Termite of Wichita County, Texas." Master of Science awarded August 2018.
- ❖ **Kareem Small:** "The Effect of Exogenous Melatonin on Gene Expression of Germinating Tobacco (*Nicotiana tabacum* cv. *Havana*) Seeds." Master of Science awarded May 2018.
- ❖ **Jaydeep Kolape:** "Digestive Physiology and Gut Morphology of the Ground Skink, *Scintella lateralis*." Master of Science awarded December 2015.
- ❖ **Prakash Dhanjani:** "Identification of Microsatellite Markers in the Genome of *Peromyscus leucopus*." Master of Science in Biology awarded May 2012.
- ❖ **Johnica Fetsch:** "A Comparative Analysis of Elemental Content in Chelonian Bone Tissue" Master of Science in Biology awarded May 2012. Currently: NANO-BME Program Coordinator (South Dakota School of Mines and Technology).

#### Independent Study, Midwestern State University

- ❖ **Gisela Knightstep** (Spring 2017): "Isolation of cell wall glycoproteins released from the *Candida albicans* cell wall during lag and early log phase."
- ❖ **Johnica Fetsch** (Fall 2011): "A Survey of Coccidians (Apicomplexa: Eucoccidiorida) Infecting a Red-Eared Slider (*Trachemys scripta elegans*) Population at Sikes Lake in Wichita Fall, Texas."

## UNDERGRADUATE STUDENT MENTORING

#### Midwestern State University:

- ❖ **Zaniya Medlin:** EURECA Project (Fall 2024 – Spring 2025): "Identification and Characterization of Bacterial Isolates from Local and Migratory Waterfowl." EURECA Project (Fall 2022 – Spring 2023, Fall 2023 – Spring 2024): "Genetic Typing of Antibiotic-resistant *E. coli* Strains from Local Waterfowl."
- ❖ **Luis Tamez:** EURECA Project (Fall 2023 – Spring 2024): "Reversion of antibiotic-resistance to antibiotic susceptibility: genetic effects."
- ❖ **Nasiha Khan:** EURECA Project (Spring 2023, Fall 2023): "Effect of wall protein glycosylation on *Candida albicans* cell surface properties."
- ❖ **Francine Pascal:** EURECA Project (Spring 2023, Fall 2023): "Effect of Indole, Tryptophan and Serotonin on Germination of *Candida albicans*."
- ❖ **Ryan Azzouz:** EURECA Project (Fall 2022 – Spring 2023): "Reversion of Antibiotic-resistance to Antibiotic Susceptibility: Genetic Effects."
- ❖ **Kaylee Twilligear:** EURECA Project (Fall 2023): "Phosphate-linked Glycans and *Candida albicans* Cell Wall Properties". Redwine Honors Program Contract (Fall 2021): "An Analysis of COVID Vaccines Being a Source of Infection."
- ❖ **Ashley Alvarez:** (Fall 2021 – Spring 2022): "Fungal Endophytes Isolated from Honey Locust (*Gleditsia triacanthos*) Leaves and Seed Pods."

- ❖ **Mikaela Inderman & Grace Palmer:** EURECA Project (Fall 2021 – Spring 2022): “Untreated Wastewater as a Source of Virus to Treat Antibiotic-Resistant Bacteria.”
- ❖ **Cheslin Maloney:** Redwine Honors Program Contract (Fall 2021): “While we wait: The efficacy of vitamin D as a natural immune booster against SARS-CoV-2 infection.”
- ❖ **Andrea Repici:** Redwine Honors Program Contract (Fall 2021): “On the Immunological Difference of SARS CoV-2 Infections and Vaccines.”
- ❖ **Brett Mitchell:** (Summer 2021): “Characterization of Antibiotic-Resistance in Bacteria Isolated from Local Waterfowl.”
- ❖ **Natalie McLaurin:** (Fall 2019): “Expanded survey of local and migratory waterfowl for antibiotic resistant *E. coli* strains.; “Antibiotic Resistance, Sugar Fermentation, and DNA Fingerprinting of *Escherichia coli* Isolates from Resident and Migratory Waterfowl.” (Spring 2019)
- ❖ **Jenna Lawrence & David Ahle:** (Spring 2019 – Fall 2020): “Isolation and Characterization of Bacteriophages that Invade *Staphylococcus aureus* strains, esp. MRSA strains.”; **(JL)** Redwine Honors Program Contract (Fall 2019): “Historical review of phage therapy.”
- ❖ **Abigail DeLizio:** (Fall 2018 – Fall 2019): “The Effect of the Human Hormone Serotonin and Derivatives on the Growth of the Fungal Pathogen *Candida albicans*.” (EURECA project, Spring 2019); “The Effect of Serotonin and Indole on the Attachment of the Fungal Pathogen *Candida albicans*.” (EURECA project, Fall 2019).
- ❖ **Christian Casto:** (Summer 2018): Continuation of “Identification of Antibiotic Activity from Fungal Symbionts of Native Texas Plants.” Collection of plant specimens during different seasons to determine similarity of fungal endophyte populations over time; (Spring 2019): “Development of a CRISPR/Cas9 system of gene disruption to characterize genetic elements involved in cell surface hydrophobicity of *Candida albicans*.”
- ❖ **Tarrah Miller & Shanice Touissant:** EURECA Project (Fall 2018 – Spring 2019): “Isolation and Molecular Characterization of Antibiotic-Resistant *Escherichia coli* from Migratory Seagulls and Resident Waterfowl.”
- ❖ **Carson Barnard:** EURECA Project (Fall 2017): “Identification of Antibiotic Activity from Fungal Symbionts of Native Texas Plants.”
- ❖ **Paytan Stubbs:** EURECA Project (Fall 2017): “Antibacterial and Antifungal Activity Produced by Symbiotic Bacteria from Grass-feeding Termites.”
- ❖ **Dorcas Matuwana & Chiara Del Vecchio:** EURECA Project (Spring 2017): “Identification of Antibiotic Activity from Fungal Symbionts of Native Texas Plants.”
- ❖ **Melissa Rose:** EURECA Project (Spring 2017 – Spring 2018): “Effect of Growth Temperature on Cell Surface Hydrophobicity of *Candida albicans*.” Redwine Honors Program Contract (Fall 2018): “Review: Selection and culturing of candidate microbes to improve methane production in biodigesters.”
- ❖ **Alyssa Bell:** (Spring 2017): “Inhibition of Growth of the Opportunistic Fungal Pathogen *Candida albicans* by Indole, a Product of Tryptophan Metabolism.” Results presented at the MSU Undergraduate Research and Creative Activity Forum (Spring 2017).
- ❖ **Bethany Russell:** EURECA Project (Spring 2016 – Spring 2019): “Mechanisms of Reversion to Tetracycline-Susceptibility by Tetracycline-Resistant Bacteria.”
- ❖ **Kathryn Crouch:** EURECA Project (Fall 2015): “Effect of Glycosylation on Cell Surface Hydrophobicity of the Opportunistic Fungal Pathogen *Candida albicans*.”

- ❖ **Qianying He & Yaning Liu:** EURECA Project (Spring 2015 – Spring 2017): “Prevalence of Pathogenic Isolates in Migratory Birds and Transfer to Local Populations.” A portion of this project is in collaboration with Dr. Jahangir Alam, University of Houston College of Pharmacy.
- ❖ **Alger Remy:** Redwine Honors Program Contract (Fall 2014): “Analysis of designs for methane-producing biogesters.”
- ❖ **Tamika Harford:** UGROW Project (June 2012): “Comparison of Acid Hydrolysis versus Enzymatic Digestion of Protein and Polysaccharides in the Initial Stage of Biogas Generation.”
- ❖ **Alejandro Ochoa & Verona Sutton:** UGROW project (June 2011): “Culturing Acetogenic and Methanogenic Bacteria.”
- ❖ **Genia Northcutt:** Independent Study (June 2011): “Distribution of Halophilic Prokaryotes Surrounding an Oil Drilling Rig.”
- ❖ **Airicca Perritt:** Independent Study (Spring 2011): “Identification and Characterization of Fungi Infecting Rodent Pelts in a Voucher Mammal Collection.”
- ❖ **Jae Cho:** UGROW project (June 2010): “Enrichment and Isolation of Methanogens from Local Sources.”
- ❖ **Samara McIntyre:** UGROW project (June 2009): “Microbial Cooperativity: Mixed Bacterial Populations and Control of Oxygen Tension.”
- ❖ **Donley Antoine:** UGROW project (June 2008): “Isolation of Acetic Acid Producing Bacteria from MSU Food Waste.”

#### Independent Study, Midwestern State University

- ❖ **Brenda Devora** (Spring 2024): “Could B-Cells be the new alternative treatment in patients diagnosed with Cancer?”
- ❖ **Andrea Gonzalez Hernandez** (Fall 2022): “Is CBD a better clinical therapeutic than the current standard of care for labor and delivery pain?”
- ❖ **Airrica Pettit** (Spring 2011): “Fungal isolates associated with alopecia in specimens within the MSU Mammal Collection.”

#### University of California, San Diego

- ❖ **Todd Cort:** (1993-1994) Guided an undergraduate biology student through a year-long research project. This project determined serum zinc levels in various species of marine fish, reptiles, birds, and marine mammals within the context of phylogeny and comparative trace element metabolism. The work resulted in a senior research thesis and two publications in the *Journal of Zoology*, including one with the student as first author.

#### HIGH SCHOOL STUDENT MENTORING

- ❖ **Sai Chada** – Hirschi High School (Summer 2022). General introduction to the research lab environment. Determining titer of bacteriophage isolated from local wastewater. Troubleshooting plaque assay procedure.

- ❖ **Sarayu Malireddy** – Hirschi High School (Fall 2018 to present) Effect on different laboratory water sources on bacterial growth in prepared growth media. Manuscript in preparation for submission to *Fine Focus*. Currently attending Texas A&M University.
- ❖ **Kirthi (Sankirthana) Malireddy** – Hirschi High School (Summer 2016 to Fall 2017). Fungal endophytes from native north Texas plants. (Spring 2018) IB research project testing claims of bactericidal activity in commercial disinfectants. Currently attending Texas A&M University School of Medicine.
- ❖ **Ahad Mohamed** – Hirschi High School (January 2017 to Spring 2018). Fungal endophytes from native north Texas plants. BA (Psychology): Austin College (2022).

## RESEARCH & SCHOLARLY ACTIVITY

### Publications: Works in Progress

- ❖ Cody, W., Huddleston, J., Hughes, L., **Masuoka, J.**, Edwards, D. Paper describing exercises facilitating use of statistics in a microbiology teaching laboratory course. For submission to *Journal of Microbiology and Biology Education*. Target submission for April 2026.
- ❖ Mailireddy, S., **Masuoka, J.** “The Effect of Laboratory Water Type on Bacterial Growth in Prepared Media.” Accepted for publication to *Fine Focus*: June 2025.

### Publications: Review Articles

- ❖ **Masuoka, J.** (2004) “Surface Glycans of *Candida albicans* and Other Pathogenic Fungi: Physiological Roles, Clinical Uses and Experimental Challenges.” *Clinical Microbiology Reviews* 17(2): 281–310.

### Publications: Peer-Reviewed Research Articles

- ❖ Adams, H., Fulton, C., Southard, M., Shao, J., Reeder, S., Price, J., Appleton, E., Hansen, C., Colvin, B., Mahmud, K., Nix, D., **Masuoka, J.**, Odlare, M., Ikehata, K. (2025) “Academia-Industry Collaboration: Water Chemistry and Environmental Education.” *Journal of Chemical Education*. (<https://doi.org/10.1021/acs.jchemed.5c00246>).
- ❖ Shipley, M.M., **J. Masuoka**, D.B. McDonald, and J. Brink. (2017) “Work Sampling of University Academics in STEM Departments With and Without a Graduate Programme.” *World Transactions on Engineering and Technology Education*. 15(1): 6–11.
- ❖ Hazen, K.C., Dirks, D., **Masuoka, J.** (2009) “Determination of Echinocandin MICs for *Candida* Species in Less than Eight Hours: Comparison of the Rapid Susceptibility Assay with the Clinical and Laboratory Standards Institute’s Broth Microdilution Assay.” *Journal of Clinical Microbiology*. 47(12): 4043–4048.
- ❖ Hazen, K.C., Singleton, D.R., **Masuoka, J.** (2007) “Influence of Outer Region Mannosylphosphorylation on N-glycan Formation by *Candida albicans*: Normal Acid-stable N-glycan Formation Requires Acid-labile Mannosylphosphate Addition.” *Glycobiology*. 17(10): 1052-1060.

- ⊕ **Masuoka, J.**, Hazen, K.C. (2006) "Effect of Monosaccharide Composition, and Glycosidic Linkage Position and Anomerity on the Electrophoretic Mobility of Labeled Oligosaccharides." *Electrophoresis*. 27(2): 365-372.
- ⊕ Singleton, D.R., **Masuoka, J.**, Hazen, K.C. (2005) "Surface Hydrophobicity Changes of Two *Candida albicans* Serotype B *mnn4Δ* Mutants." *Eukaryotic Cell*. 4(4): 639-648.
- ⊕ **Masuoka, J.**, Hazen, K.C. (2004) "Cell Wall Mannan and Cell Surface Hydrophobicity in *Candida albicans* Serotype A and B Strains." *Infection and Immunity*. 72(11): 6230-6236.
- ⊕ **Masuoka, J.**, Guthrie, L.N., Hazen, K.C. (2002) "Complications in Cell-surface Labeling by Biotinylation of *Candida albicans* due to Avidin Conjugate Binding to Cell-wall Proteins." *Microbiology*. 148(4): 1073-1079.
- ⊕ Singleton, D.R., **Masuoka, J.**, Hazen, K.C. (2001) "Cloning and Analysis of a *Candida albicans* Gene That Affects Cell Surface Hydrophobicity." *Journal of Bacteriology*. 183(12): 3582-3588.
- ⊕ Hazen, K.C., Wu, J.G., **Masuoka, J.** (2001) "Comparison of Hydrophobic Properties Between *Candida albicans* and *Candida dubliniensis*." *Infection and Immunity*. 69(2): 779-786.
- ⊕ **Masuoka, J.**, Hazen, K.C. (1999) "Differences in the Acid-labile Component of *Candida albicans* Mannan from Hydrophobic and Hydrophilic Yeast Cells." *Glycobiology*. 9(11): 1281-1286.
- ⊕ **Masuoka, J.**, Wu, G., Glee, P.M., Hazen, K.C. (1999) "Inhibition of *Candida albicans* Attachment to Extracellular Matrix by Antibodies which Recognize Hydrophobic Cell Wall Proteins." *FEMS Immunology & Medical Microbiology* 24: 421-429.
- ⊕ **Masuoka, J.**, Glee, P.M., Hazen, K.C. (1998) "Preparative Isoelectric Focusing and Preparative Electrophoresis of Hydrophobic *Candida albicans* Cell Wall Proteins with In-line Transfer to Polyvinylidene Difluoride Membranes for Sequencing." *Electrophoresis*. 19: 675-678.
- ⊕ **Masuoka, J.**, Hazen, K.C. (1997) "Cell Wall Protein Mannosylation Determines *Candida albicans* Cell Surface Hydrophobicity." *Microbiology*. 143: 3015-3021.
- ⊕ Glee, P.M., **Masuoka, J.**, Ozier, W.T., Hazen, K.C. (1996) "Presence of Multiple Laminin- and Fibronectin-binding Proteins in Cell Wall Extract of *Candida albicans*: Influence of Dialysis." *Journal of Medical and Veterinary Mycology*. 34: 57-61.
- ⊕ Cort, T.†, **Masuoka, J.**, Lance, V., Saltman, P. (1995) "Plasma Zinc Concentrations in Snakes and Other Vertebrates Correlate with Specific Zinc-Binding Plasma Proteins." *Journal of Zoology* (London). 236: 513-520. †Undergraduate co-author
- ⊕ Lance, V., Cort, T.†, **Masuoka, J.**, Lawson, R., Saltman, P. (1995) "Unusually High Zinc Concentrations in Snake Plasma, With Observations on Plasma Zinc Concentrations in Lizards, Turtles and Alligators." *Journal of Zoology* (London). 235: 577-585.
- †Undergraduate co-author
- ⊕ **Masuoka, J.**, Saltman, P. (1994) "Zinc (II) and Copper (II) Binding to Serum Albumin: A Comparative Study of Dog, Bovine and Human Albumin." *Journal of Biological Chemistry*. 269(41): 25557-25561.
- ⊕ **Masuoka, J.**, Hegenauer, J., Van Dyke, B.R., Saltman, P. (1993) "Intrinsic Stoichiometric Equilibrium Constants for the Binding of Zinc (II) and Copper (II) to the High Affinity Site of Bovine Serum Albumin." *Journal of Biological Chemistry*. 268(29): 21533-21537.

### Publications: Non-Peer-Reviewed Articles

- ❖ **Masuoka, J.**, Hazen, K.C. (1997) "Isolation and Preparation for Sequencing of Hydrophobic *Candida albicans* Cell Wall Proteins by In-line Transfer from Continuous Elution Preparative Gel Electrophoresis to PVDF Membranes." Bio-Rad Laboratories, Inc. Application Note: US/EG Bulletin 2168.
- ❖ **Masuoka, J.**, Glee, P.M., Hazen, K.C. (1995) "Preparative SDS Gel Electrophoresis of Hydrophobic Cell Wall Proteins from *Candida albicans*." Bio-Rad Laboratories, Inc. Application Note: US/EG Bulletin 1953.

### Invited Talks

- ❖ **Masuoka, J.** "Fungus Among Us" Presented at River Bend Nature Center, Wichita Falls, TX. Part of RBNC's "Sip n' Science" series, May 30, 2025.
- ❖ **Masuoka, J.** "Fantastic Fungi!" Presented at River Bend Nature Center, Wichita Falls, TX. Part of RBNC's "Sip n' Science" series, July 21, 2023.
- ❖ **Masuoka, J.** "*Candida albicans*: Something Old, Something New in Host-Fungal Interactions." Invited talk at the University of Texas at Arlington Department of Biology Seminar. March 29, 2018.
- ❖ **Masuoka, J.** "My Mentors and What I've Learned from Them." Undergraduate Research and Creative Activity Forum. Kickoff Dinner Keynote Address. April 25, 2018.

### Presentations

- ❖ **Masuoka, J.** (2024) "A Fluorescence-Based Spectrophotometer for Determining DNA Concentration."
  - Celebration of Scholarship, Midwestern State University.
- ❖ McLaughlin, K., **Masuoka, J.** (2014) "Survey for the Presence of *Naegleria fowleri* in Wichita Falls, Texas Area Lakes."
  - Joint Integrative Biology Workshop V, Wichita Falls, TX
- ❖ Owen, J.C., Rincón-Zachary, M., Willeby, S., **Masuoka, J.** (2012). "UGROW: Engaging Students in Undergraduate Research."
  - THECB Reinventing Instruction and Learning Conference, Austin, TX
- ❖ **Masuoka, J.**, Hazen, K.C. (2006) "Normal Secondary Branch Formation in the Outer Chain of *Candida albicans* N-Glycans Requires Tertiary Branch Mannosylphosphorylation."
  - Society for Glycobiology Annual Meeting, Universal City, CA
- ❖ **Masuoka, J.**, Hazen, K.C. (2006) "Candidate Fibril Proteins from the *Candida albicans* Cell Surface."
  - 8<sup>th</sup> American Society for Microbiology Conference on *Candida* and Candidiasis, Denver, CO
- ❖ **Masuoka, J.**, Hazen, K.C. (2004) "Identification of Candidate Surface Fibril Proteins from *Candida albicans* Yeast Cells."
  - 7<sup>th</sup> American Society for Microbiology Conference on *Candida* and Candidiasis, Austin, TX
- ❖ **Masuoka, J.**, Singleton, D. R., Hobson, R. P., Gow, N. A. R., Hazen, K.C. (2003) "Development and Characterization of an *MNN4* Knockout in a *Candida albicans* Serotype B Strain."
  - 103<sup>rd</sup> General Meeting of the American Society for Microbiology,

Washington, DC

- ❖ **Masuoka, J.**, Hazen, K. C. (2002) "Comparison of acid-stable mannan from hydrophobic and hydrophilic *Candida albicans* cell wall."
  - 6<sup>th</sup> American Society for Microbiology Conference on *Candida* and Candidiasis, Tampa, FL
- ❖ **Masuoka, J.**, Guthrie, L. N., Hazen, K. C. (2001) "Avidin Binding to *Candida albicans* Cell Wall Proteins in the Absence of a Biotin Label."
  - 101<sup>st</sup> General Meeting of the American Society for Microbiology, Orlando, FL
- ❖ **Masuoka, J.**, Hazen, K.C. (2000) "Comparison of *Candida albicans* and *Candida dubliniensis* Cell Wall Mannan and Cell Surface Hydrophobicity."
  - Society for Glycobiology Annual Meeting, Boston, MA
- ❖ **Masuoka, J.**, Hazen, K.C. (2000) "Comparison of Cell Surface Hydrophobicity and Cell Wall Mannan from *Candida albicans* and *Candida dubliniensis*."
  - American Society for Microbiology Region II Meeting, Lewes, DE
- ❖ **Masuoka, J.**, Hazen, K.C. (1999) "Analysis of Acid-labile Mannan from Hydrophobic and Hydrophilic *Candida albicans* Yeast Cells."
  - American Society for Microbiology Conference on *Candida* and Candidiasis, Charleston, SC
- ❖ **Masuoka, J.**, Wu, G., Hazen, K.C. (1998) "Evidence that Hydrophobic Interactions Mediate *Candida albicans* Adhesion to Extracellular Matrix Proteins."
  - 98<sup>th</sup> General Meeting of the American Society for Microbiology, Atlanta, GA
- ❖ **Masuoka, J.**, Hazen, K.C. (1996) "Analysis of *Candida albicans* Mannosylation Variants: Mannan Composition and Cell Surface Hydrophobicity."
  - American Society for Microbiology Conference on *Candida* and Candidiasis: Biology, Pathogenesis and Management, San Diego, CA
- ❖ **Masuoka, J.**, Glee, P.M., Hazen, K.C. (1995) "Analysis of *Candida albicans* Mannosylation Variants: Influence of Glycosylation on Cell Surface Hydrophobicity."
  - 95<sup>th</sup> General Meeting of the American Society for Microbiology, Washington, DC
- ❖ **Masuoka, J.**, Van Dyke, B.R., Hegenauer, J., Saltman, P. (1991) "A Novel Zinc-Binding Serum Protein from Albacore (*Thunnus alalunga*). Is it Species-specific?"
  - 42nd Annual Tuna Conference, Lake Arrowhead, CA

**Student Presentations (\*undergraduate research student, \*\*graduate student)**

- ❖ Guiste\*\*, M. and **Masuoka, J.** "A Comparison of Oxygen-Regulated Metabolic Adaptations in *Escherichia coli* Using a Lung Mucus Model."
  - Celebration of Scholarship, Midwestern State University. Apr 2024
- ❖ Guseva\*\*, A. and **Masuoka, J.** "Effect of hydric stress on Eastern Red Cedar (*Juniperus virginiana*) leaf fungal endophyte diversity."
  - Celebration of Scholarship, Midwestern State University. Apr 2024
- ❖ Shakya\*\*, T.T. and **Masuoka, J.** "Investigating the Mechanisms of *Candida albicans* Survival in the Presence of the Human Gut Bacterium *Escherichia coli*."
  - Celebration of Scholarship, Midwestern State University. Apr 2024
- ❖ Medlin\*, Z. and **Masuoka, J.** "Genetic typing of antibiotic-resistant *E. coli* strains from local waterfowl."
  - Celebration of Scholarship, Midwestern State University. Apr 2025

- American Society for Microbiology – Texas Branch. Mar 2025
- Celebration of Scholarship, Midwestern State University. Apr 2024
- American Society for Microbiology – Texas Branch. Mar 2024
- Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2023
- Celebration of Scholarship, Midwestern State University. Apr 2023
- American Society for Microbiology – Texas Branch. Mar 2023
- Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2022
- ⊕ Tamez\*, L. and **Masuoka, J.** "Reversion of antibiotic-resistance to antibiotic susceptibility: genetic effects."
  - Celebration of Scholarship, Midwestern State University. Apr 2024
  - American Society for Microbiology – Texas Branch. Mar 2024
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2023
- ⊕ Khan\*, N. and **Masuoka, J.** "Effect of wall protein glycosylation on *Candida albicans* cell surface properties."
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2023
  - Celebration of Scholarship, Midwestern State University. Apr 2023 [awarded 3<sup>rd</sup> place poster presentation, MCOSME]
  - American Society for Microbiology – Texas Branch. Mar 2023
- ⊕ Pascal\*, F. and **Masuoka, J.** "Effect of Indole, Tryptophan and Serotonin on Germination of *Candida albicans*."
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2023
  - Celebration of Scholarship, Midwestern State University. Apr 2023 [awarded 2<sup>nd</sup> place poster presentation, MCOSME]
  - American Society for Microbiology – Texas Branch. Mar 2023
- ⊕ Twilligear\*, K. and **Masuoka, J.** "Alcian Blue as a Detector of Phosphate Content in *Candida albicans* Cell Wall Proteins: Correlation with Wall Protein Glycosylation and Cell Surface Hydrophobicity."
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2022
- ⊕ Azzouz\*, R. and **Masuoka, J.** "Reversion of antibiotic-resistance to antibiotic susceptibility: genetic effects."
  - Celebration of Scholarship, Midwestern State University. Apr 2023 [awarded 3<sup>rd</sup> place poster presentation, MCOSME]
  - American Society for Microbiology – Texas Branch. Mar 2023
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2022
- ⊕ Alvarez\*, A. and **Masuoka, J.** "Relationship of Fungal Symbionts in Honey Locust Trees."
  - Celebration of Scholarship, Midwestern State University. Apr 2022
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2021 [awarded 3rd place poster presentation, MCOSME]

- ⊕ Inderman\*, M. and **Masuoka, J.** "Untreated Wastewater as a Source of Virus to Treat Antibiotic-Resistant Bacteria."
  - Celebration of Scholarship, Midwestern State University. Apr 2022 [awarded 3<sup>rd</sup> place poster presentation, MCOSME]
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2021 [awarded 2<sup>nd</sup> place poster presentation, MCOSME]
- ⊕ Palmer\*, G. and **Masuoka, J.** "Untreated Wastewater as a Source of Virus to Treat Antibiotic-Resistant Bacteria."
  - Celebration of Scholarship, Midwestern State University. Apr 2022
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2021 [awarded 1<sup>st</sup> place poster presentation, MCOSME]
- ⊕ Ahle\*, D., Lawrence\*, J., Machunis-Masuoka, E.A., and **Masuoka, J.** "Isolation of Bacteriophage for Methicillin-Resistant *Staphylococcus aureus* from Sewage Samples."
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2020 (Virtual Forum)
- ⊕ DeLizio\*, A. and **Masuoka, J.** "The Effect of the Human Hormone Serotonin and Derivatives on the Growth of the Fungal Pathogen *Candida albicans*."
  - Celebration of Scholarship, Midwestern State University. Apr 2019
- ⊕ McLaurin\*, N. and **Masuoka, J.** "Antibiotic Resistance, Sugar Fermentation, and DNA Fingerprinting of *Escherichia coli* Isolates from Resident and Migratory Waterfowl."
  - Celebration of Scholarship, Midwestern State University. Apr 2019
- ⊕ Miller\*, T., Toussaint\*, S. and **Masuoka, J.** "Characterization of *E. coli* Population Diversity in Locally Resident Canada Geese and Migratory Seagulls."
  - Celebration of Scholarship, Midwestern State University. Apr 2019
  - American Society for Microbiology – Texas Branch. Mar 2019
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov. 2018
- ⊕ Derouiche\*\*, I. and **Masuoka, J.** "Cell Surface Hydrophobicity of *Candida albicans* Upon the Release of Cell Wall Protein by DTT Treatment."
  - Celebration of Scholarship, Midwestern State University. Apr 2018. [awarded best graduate student poster presentation].
  - American Society for Microbiology – Texas Branch. Mar 2018
- ⊕ Ford\*\*, J. and **Masuoka, J.** "Detection of a Fas-L-like Protein in *Candida albicans*."
  - American Society for Microbiology – Texas Branch. Mar 2018 [awarded Charlie Gauntt award for best oral presentation by a graduate student].
- ⊕ Babu, A. and **Masuoka, J.** "Identifying *Hymenobacter ginsengsoli*: A Ongoing Process."
  - Celebration of Scholarship, Midwestern State University. Apr 2018
- ⊕ Rose\*, Melissa and **Masuoka, J.** "Effect of Growth Conditions on Cell Surface Hydrophobicity of *Candida albicans*."
  - American Society for Microbiology – Texas Branch. Mar 2019
  - Celebration of Scholarship, Midwestern State University. Apr 2018
  - American Society for Microbiology – Texas Branch. Mar 2018
  - Celebration of Scholarship, Midwestern State University. Apr 2017
- ⊕ Russell\*, B. and **Masuoka, J.**, Scales, J. "Reducing Chromosomal Antibiotic Resistance in *Escherichia coli*."
  - Celebration of Scholarship, Midwestern State University. Apr 2019

- Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov. 2018
- Celebration of Scholarship, Midwestern State University. Apr 2018
- American Society for Microbiology – Texas Branch. Mar. 2018
- Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov. 2017
- Celebration of Scholarship, Midwestern State University. Apr 2017 [awarded Best Undergraduate Podium Presentation, MCOSME]
- 31<sup>st</sup> Annual National Conference on Undergraduate Research. Apr 2017
- American Society for Microbiology – Texas Branch. Mar 2017
- ❖ Stubbs\*, P. and **Masuoka, J.** “Identification and Antibacterial Activity of Cellulose-Degrading Symbiotic Bacteria from Grass-feeding Termites.”
  - Celebration of Scholarship, Midwestern State University. Apr 2018
  - American Society for Microbiology – Texas Branch. Mar 2018
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2017
- ❖ Barnard\*, C. and **Masuoka, J.** “Exploring the Medicinal Effects of Smooth Sumac.”
  - Celebration of Scholarship, Midwestern State University. Apr 2018
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Nov 2017
- ❖ Bell\*, A and **Masuoka, J.** “Inhibition of Growth of the Opportunistic Fungal Pathogen *Candida albicans* by Indole, a Product of Tryptophan Metabolism.”
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Apr 2017
- ❖ Del Vecchio\*, C., Matuwana\*, D., and **Masuoka, J.** “Fungal Endophytes of Native North Texas Plants.”
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Apr 2017
- ❖ Rose\*, Meaghan, Capotosto\*, S., Machemedze\*, M., **Masuoka, J.** and Rincón-Zachary, M. “Bacterial Endophytic Diversity in Relation to Seed Melatonin Content: Metabolic Implications.”
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Apr 2017
- ❖ He\*, Q. and **Masuoka J.** “Prevalence of Pathogenic Isolates in Migratory Birds and Transfer to Local Populations.”
  - 31<sup>st</sup> Annual National Conference on Undergraduate Research. Apr 2017
  - American Society for Microbiology – Texas Branch. Mar 2017
  - American Society for Microbiology – Texas Branch. Mar 2016
- ❖ He\*, Q., Liu\*, Y and **Masuoka, J.** “Prevalence of Pathogenic Isolates in Migratory Birds and Transfer to Local Populations.”
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Apr 2016
  - Undergraduate Research and Creative Activity Forum, Midwestern State University. Apr 2015
- ❖ Rose\*, Meaghan, Thomas\*, S., **Masuoka, J.** and Rincón-Zachary, M. “Bacterial Endophytes in Seeds with Different Melatonin Content: Survival Implications.”

- Undergraduate Research and Creative Activity Forum, Midwestern State University. Apr 2016
- ❖ Patel\*\*, P., Scales, J.B. and **Masuoka, J.** "Role of CSA1, CSA2 and PGA7 in the Secondary Utilization of Hemoglobin-derived Iron by *Candida albicans*."
  - American Society for Microbiology – Texas Branch. Sam Houston State University. Oct 2015
- ❖ Harford\*, T. and **Masuoka, J.** "Comparison of acid hydrolysis and enzymatic digestion of biological macromolecules as an initial stage of biogas generation."
  - MSU Scholarship Colloquium. Apr 2013
  - Texas Academy of Sciences Annual Meeting, Schreiner University. Feb 28–Mar 2, 2013
- ❖ Gaidhani\*\*, N. and Masuoka, J. "Isolation of halophilic prokaryotes for degradation of polycyclic aromatic hydrocarbons."
  - MSU Scholarship Colloquium. Apr 2012
  - Texas Academy of Sciences Annual Meeting, Sul Ross University. Mar 1 – 3, 2012.
- ❖ McLaughlin\*\*, K. and **Masuoka, J.** "Survey of the presence of *Naegleria fowleri* in lakes of Wichita County, Texas."
  - MSU Scholarship Colloquium. Apr 2012.
  - Texas Academy of Sciences Annual Meeting, Sul Ross University. Mar 1 – 3, 2012.
- ❖ Ochoa\*, A. and **Masuoka, J.** "Enrichment of acetogenic and methanogenic bacteria for use in biogas production."
  - MSU Scholarship Colloquium. April 2012.
  - Texas Academy of Sciences Annual Meeting, Sul Ross University. Mar 1 – 3, 2012.
- ❖ Tuttle\*\*, A. and **Masuoka, J.** "Uptake and localization of serotonin in *Candida albicans* yeast cells."
  - MSU Scholarship Colloquium. Apr 2012
  - Texas Academy of Sciences Annual Meeting, Sul Ross University. Mar 1 – 3, 2012.
- ❖ Simpson\*\*, G. and **Masuoka, J.** "The Influence of Growth Medium on Quorum Sensing Effects in *Candida albicans* Lag Phase Cultures."
  - MSU Scholarship Colloquium. Apr 2010.
  - American Society for Microbiology – Texas Branch. Texas State University. Oct 2010.
- ❖ Cho\*, J. Azzouz, S., McDonald, D. and **Masuoka, J.** "Enrichment and Isolation of Methanogens from Local Sources."
  - MSU Scholarship Colloquium. Apr 2011.
  - Texas Undergraduate Research Day at the Capitol. Austin, TX, Feb 2011.
- ❖ McIntyre\*, S. and **Masuoka, J.** "Microbial Cooperativity: Mixed Bacterial Populations and Control of Oxygen Tension."
  - Results presented at the MSU Scholarship Colloquium. Apr 2010.

## GRANTS & AWARDS

### 2023 National Institutes of Health. Center for Scientific Review Special Emphasis Panel. Instrumentation Grant Program for Resource-Limited Institutions (S10):

- ❖ "Advanced Microscopy Station: Epifluorescence, Total Internal Reflection Fluorescence, Differential Interference Contrast."
- ❖ Requested: \$250,000
- ❖ Outcome: Not funded; Resubmitted June 30, 2025

### 2022 MSU Intramural Award:

- ❖ "Qubit Spectrophotometer."
- ❖ Requested: \$4027
- ❖ Outcome: Awarded (spectrophotometer purchased Dec 2022)

### 2011 MSU Intramural Award:

- ❖ "Surface Fibril Glycoproteins in *Candida albicans* Pathogenesis."
- ❖ Requested: \$4,980
- ❖ Outcome: Awarded

### 2006 National Institute for Dental and Craniofacial Research (R21):

- ❖ "Surface Fibril Glycoproteins in *C. albicans* Pathogenesis."
- ❖ Outcome: Not funded

### 1995 American Heart Association, Virginia Affiliate:

- ❖ "Treatment of Fungal Endocarditis: Effect on *Candida albicans* Surface Glycosylation and Hydrophobicity."
- ❖ Outcome: Not funded

### 1994 National Institute for Allergy & Infectious Diseases (National Research Service Award):

- ❖ "*C. albicans* Surface Hydrophobicity and Glycosylation."
- ❖ Outcome: Awarded (\$73,200)

### 2015–2024 EURECA Faculty Award (JM Author and Principal Investigator):

- ❖ "Identification and Characterization of Bacterial Isolates from Local and Migratory Waterfowl." (Zaniya Medlin – student research, Fall 2024/Spring 2025). Outcome: \$1000 (supplies & reagents); \$296 (student travel)
- ❖ "Effect of wall protein glycosylation on *Candida albicans* cell surface properties." (Nasiha Khan – student research, Fall 2023). Outcome: \$500 (supplies & reagents)
- ❖ "Effect of Indole, Tryptophan and Serotonin on Germination of *Candida albicans*." (Francine Pascal – student research, Fall 2023). Outcome: \$500 (supplies & reagents)
- ❖ "Genetic typing of *E. coli* strains from local waterfowl to determine the presence of virulence factors." (Zaniya Medlin – student research, Fall 2023/Spring 2024). Outcome: \$441 (supplies & reagents); \$296 (student travel)

- ⊕ "Reversion of antibiotic-resistance to antibiotic susceptibility: genetic effects." (Luis Tamez – student research, Fall 2023/Spring 2024). Outcome: \$500 (supplies & reagents); \$296 (student travel)
- ⊕ "Effect of wall protein glycosylation on *Candida albicans* cell surface properties." (Nasiha Khan – student research, Spring 2023). Outcome: \$405 (supplies & reagents); \$296 (student travel)
- ⊕ "Effect of Indole, Tryptophan and Serotonin on Germination of *Candida albicans*." (Francine Pascal – student research, Spring 2023). Outcome: \$486 (supplies & reagents); \$296 (student travel)
- ⊕ "Reversion of Antibiotic-resistance to Antibiotic Susceptibility: Genetic Effects." (Ryan Azzouz – student research, Fall 2022/Spring 2023). Outcome: \$499 (supplies & reagents); \$296 (student travel).
- ⊕ "Genetic Typing of Antibiotic-resistant *E. coli* Strains from Local Waterfowl." (Zaniya Medlin – student research, Fall 2022/Spring 2023). Outcome: \$499 (supplies reagents); \$296 (student travel).
- ⊕ "Phosphate-linked Glycans and *Candida albicans* Cell Wall Properties." (Kaylee Twilligear – student research, Fall 2022). Outcome: \$457 (supplies & reagents).
- ⊕ "Untreated Wastewater as a Source of Virus to Treat Antibiotic-Resistant Bacteria." (Mikaela Inderman & Grace Palmer – student research). Outcome: \$500 (supplies & reagents); \$906 (student travel).
- ⊕ "Exploring Possible Roles for Bacterial Endophytes in Seeds and Seedlings." (**Collaboration with Dr. Rincón-Zachary**). (Ayeshi Jayasinghe & Alaska Carillo-Bell – student research, Fall 2018); Outcome: \$576 (supplies & reagents); \$2040 (student travel).
- ⊕ "Identification of Antibiotic Activity from Fungal Symbionts of Native Texas Plants." (Carson Barnard – student research, Spring 2018) (project renewal); Outcome: \$500 (supplies & reagents); \$320 (student travel).
- ⊕ "Bacterial Endophytes in Seeds with Varying Melatonin Content: Verification and Exploring Possible Roles for Bacterial Endophytes in Seeds." (**Collaboration with Dr. Rincón-Zachary**). (Alaska Carillo-Bell – student research, Spring 2018); Outcome: \$500 (supplies & reagents); \$1628 (student travel).
- ⊕ "Identification of Antibiotic Activity from Fungal Symbionts of Native Texas Plants." (Carson Barnard – student research, Fall 2017); Outcome: \$498 (supplies & reagents).
- ⊕ "Bacterial Endophytes in Seeds with High Melatonin Content: Survival Implications." (**Collaboration with Dr. Rincón-Zachary**). (Salvatore Capotosto & Mutandwa Machemedze – student research, Fall 2017); Outcome: \$500 (supplies & reagents); \$1628 (student travel).
- ⊕ "Effect of Growth Conditions on Cell Surface Hydrophobicity of *Candida albicans*." (Melissa Rose – student research, Fall 2017); Outcome: \$327 (supplies & reagents).
- ⊕ "Identification of Antibiotic Activity from Fungal Symbionts of Native Texas Plants." (Dorcas Matuwana & Chiara Del Vecchio – student research, Spring 2017); Outcome: \$220 (supplies & reagents).
- ⊕ "Effect of Growth Temperature on Cell Surface Hydrophobicity of *Candida albicans*." (Melissa Rose – student research, Spring 2017); Outcome: \$290 (supplies & reagents).
- ⊕ "Bacterial Endophytes in Seeds with High Melatonin Content: Survival Implications." (**Collaboration with Dr. Rincón-Zachary**). (Meghan Rose, Salvatore Capotosto, &

Mutandwa Machemedze – student research, Spring 2017); Outcome: \$500 (supplies & reagents); \$2550 (student travel).

- ❖ "Prevalence of Pathogenic Isolates in Migratory Birds and Transfer to Local Populations." (Qianying He & Yaning Liu – student research, Fall 2016, project renewal); Outcome: \$4,647. Faculty stipend: \$1000; Student stipend: \$1500 each; Supplies: \$252; Travel: \$395. Funding Source: EURECA.
- ❖ "Bacterial Endophytes in Seeds with High Melatonin Content: Survival Implications." **(Collaboration with Dr. Rincón-Zachary).** (Meghan Rose – student research, Fall 2016); Outcome: \$3,000. Student stipend: \$1500; Supplies: \$500; Travel: \$1000. Funding Source: EURECA.
- ❖ "Prevalence of Pathogenic Isolates in Migratory Birds and Transfer to Local Populations." (Qianying He & Yaning Liu – student research, Spring 2016, project renewal); Outcome: \$4,245. Faculty stipend: \$1000; Student stipend: \$1500 each; Supplies: \$245; Travel: from Fall. Funding source: EURECA.
- ❖ "Bacterial Endophytes in Seeds with High Melatonin Content: Survival Implications." **(Collaboration with Dr. Rincón-Zachary).** (Meghan Rose & Shamberia Thomas – student research, Spring 2016); Outcome: \$4,500. Faculty stipend: \$500 (JM), \$1000 MRZ; Student stipend: \$1500 each; Supplies: \$500; Travel: \$1000. Funding Source: EURECA.
- ❖ "Prevalence of Pathogenic Isolates in Migratory Birds and Transfer to Local Populations." (Qianying He & Yaning Liu – student research, Fall 2015, project renewal); Outcome: \$4,658. Faculty stipend: \$1000; Student stipend: \$1500 each; Supplies: \$313; Travel: \$345. Funding source: EURECA.
- ❖ "Effect of Glycosylation on Cell Surface Hydrophobicity of the Opportunistic Fungal Pathogen *Candida albicans*." (Kathryn Crouch – student research, Fall 2015); Outcome: \$2,606. Faculty: \$1000; Student: \$1000; Supplies: \$341; Travel: \$265. Funding source: EURECA.
- ❖ "Bacterial Endophytes in Seeds with High Melatonin Content: Survival Implications." **(Collaboration with Dr. Rincón-Zachary).** (Meghan Rose & Shamberia Thomas – student research, Fall 2015); Outcome: \$7,830. Faculty stipend: \$500 (JM), \$1000 MRZ; Student stipend: \$1500 each; Supplies: \$500; Travel: \$2830. Funding Source: EURECA.
- ❖ "Prevalence of Pathogenic Isolates in Migratory Birds and Transfer to Local Populations." (Qianying He & Yaning Liu – student research, Spring 2015); Outcome: \$4,325. Faculty: \$1000; Students: \$1500 each; Supplies: \$325. Funding source: EURECA.

#### 2016–2019 EURECA Undergraduate Student Awards (JM Co-author and Principal Investigator)

- ❖ **Abigail DeLizio** (Fall 2019); \$1,498.76. "The Effect of Serotonin and Indole on the Attachment of the Fungal Pathogen *Candida albicans*." Faculty stipend: \$500; Student stipend: \$500; Supplies: \$498.76; Travel: \$0. Funding Source: EURECA.
- ❖ **Mi'Kayla Billinger** (Fall 2019); \$2,503. "Exploring Potential Roles of Bacterial Endophytes in Plants During Environmental Stress." (Collaboration with Dr. Rincón-Zachary). Faculty: \$0 (1 faculty stipend/semester); Student stipend: \$500; Supplies: \$467; Travel: \$1536. Funding Source: EURECA.

- ⊕ **Abigail DeLizio** (Spring 2019); \$1,400. "The Effect of the Human Hormone Serotonin and Derivatives on the Growth of the Fungal Pathogen *Candida albicans*." Faculty stipend: \$500; Student stipend: \$400; Supplies: \$500; Travel: \$0. Funding Source: EURECA.
- ⊕ **Melissa Rose** (Fall 2018); \$1,833.25. "Analysis of the Effect of Yeast Extract Content on Cell Surface Hydrophobicity of *Candida albicans*." Faculty stipend: \$500; Student stipend: \$600; Supplies: \$500; Travel: \$233.25. Funding Source: EURECA.
- ⊕ **Beth Russell** (Fall 2018) (project renewal); \$1,314.25. "Using Sub-inhibitory Pressure of Antibiotics to Reduce Antibiotic Resistance in *Escherichia coli* QH020816-1.1." Faculty stipend: \$0 (1 faculty stipend/semester); Student stipend: \$600; Supplies: \$481; Travel: \$233.25. Funding Source: EURECA.
- ⊕ **Tarrah Miller & Shanice Toussaint** (Fall 2018); \$1,700. "Isolation and Molecular Characterization of Antibiotic-Resistant *Escherichia coli* from Migratory Seagulls and Resident Waterfowl." Faculty stipend: \$0 (1 faculty stipend/semester); Student stipend: \$600 each; Supplies: \$500; Travel: \$0. Funding Source: EURECA.
- ⊕ **Melissa Rose** (Spring 2018); \$1,370. "Effect of Growth Medium pH on Cell Surface Hydrophobicity of *Candida albicans*." Faculty stipend: \$0 (1 faculty stipend/semester); Student stipend: \$800; Supplies: \$250; Travel: \$320. Funding Source: EURECA.
- ⊕ **Paytan Stubbs** (Spring 2018); \$1,370. "Antibacterial and Antifungal Activity Produced by Symbiotic Bacteria from Grass-feeding Termites." Faculty stipend: \$0 (1 faculty stipend/semester); Student stipend: \$800; Supplies: \$250; Travel: \$320. Funding Source: EURECA.
- ⊕ **Beth Russell** (Spring 2018) (project renewal); \$1,404. "Mechanisms of Reversion to Erythromycin-Susceptibility by Erythromycin-Resistant Bacteria." Faculty stipend: \$0 (1 faculty stipend/semester); Student stipend: \$800; Supplies: \$284; Travel: \$320. Funding Source: EURECA.
- ⊕ **Beth Russell** (Fall 2017) (project renewal); \$1,300. "Mechanisms of Reversion to Erythromycin-Susceptibility by Erythromycin-Resistant Bacteria." Faculty stipend: \$0 (1 faculty stipend/semester); Student stipend: \$800; Supplies: \$500; Travel: \$0. Funding Source: EURECA.
- ⊕ **Paytan Stubbs** (Fall 2017); \$1,300. "Antibacterial and Antifungal Activity Produced by Symbiotic Bacteria from Grass-feeding Termites." Faculty stipend: \$0 (1 faculty stipend/semester); Student stipend: \$800; Supplies: \$500; Travel: \$0. Funding Source: EURECA.
- ⊕ **Beth Russell** (Spring 2017, project renewal); \$2,065. "Mechanisms of Reversion to Tetracycline-Susceptibility by Tetracycline-Resistant Bacteria." Faculty stipend: \$500; Student stipend: \$800; Supplies: \$500; Travel: \$265. Funding Source: EURECA.
- ⊕ **Beth Russell** (Fall 2016); \$3,000. "Mechanisms of Reversion to Tetracycline-Susceptibility by Tetracycline-Resistant Bacteria." Faculty stipend: \$1000; Student stipend: \$1500; Supplies: \$500. Funding Source: EURECA.

### Graduate Student Awards

- ⊕ **Isabella Makelaar** (Summer 2023); \$2620.00. "Utilizing Membrane Protein Chaperone to Prevent and Disrupt Alpha Synuclein Protein Aggregation in Parkinson Disease." Funding Source: McCoy College of Science, Mathematics and Engineering.

- ❖ **Tenzin Shakya** (Summer 2023), \$1458.50. "Investigating the mechanisms of *Candida albicans* survival in the presence of the human gut bacterium *Escherichia coli*." Funding source: McCoy College of Science, Mathematics and Engineering.
- ❖ **Anastasia Guseva** (Fall 2022); \$1824.70. "Effect of hydric stress on Eastern Red Cedar (*Juniperus virginiana*) leaf and soil microbiome diversity." Funding Source: McCoy College of Science, Mathematics and Engineering.
- ❖ **Merina Guiste** (Fall 2022); \$2691.03. "A Comparison of Oxygen-Regulated Metabolic Adaptations in *Escherichia coli* Using a Lung Mucus Model." Funding Source: McCoy College of Science, Mathematics and Engineering.
- ❖ **Jonathan Lucas** (Spring 2019); \$1,860.81. "Gastrointestinal Iron-Uptake Competition Between *Candida albicans* and the Human Native Intestinal Bacteria." Funding Source: McCoy College of Science, Mathematics and Engineering.
- ❖ **Ibtissem Derouiche** (Summer 2017); \$1,432.90. "Cell Surface Hydrophobicity of *Candida albicans* Upon the Release of Cell Wall Proteins by DTT Treatment." Funding Source: College of Science and Mathematics
- ❖ **John Ford** (Spring 2017); \$1,400. "Detection of a Fas-L-Like Protein in *Candida albicans*." Funding Source: College of Science and Mathematics.
- ❖ **Nitant Gandhi** (2015); \$2,251. "Determining Mechanisms for Serotonin Uptake in Yeast Cells of *Candida albicans*." Funding source: College of Science & Mathematics.
- ❖ **Pinkal Patel** (2014); \$1,820. "Role of CSA1, CSA2 and PGA7 in the Secondary Utilization of Hemoglobin-derived Iron by *Candida albicans*." Funding source: College of Science & Mathematics.
- ❖ **Nikhil Gaidhani** (2011); \$1,055. "Degradation of High Molecular Weight Polyaromatic Hydrocarbons by Halophilic Archaea Isolated from Hypersaline Environments Near Wichita Falls, TX." Funding source: College of Science & Mathematics.
- ❖ **Kriston McLaughlin** (2011); \$2,023. "Survey for the Presence of *Naegleria fowleri* in Wichita Falls, Texas Area Lakes." Funding source: College of Science & Mathematics.
- ❖ **Alissa Tuttle** (2010); \$1,860. "Antifungal Activity of 5-Hydroxy Tryptamine in *Candida albicans*." Funding source: College of Science & Mathematics.
- ❖ **Gizelle Simpson** (2007); \$1,200. "Identification of Novel Quorum Sensing Molecules Affecting Lag Phase in *Candida albicans*." Funding source: College of Science & Mathematics.

## SERVICE

### Service to the University

- ❖ **Faculty Senate:**
  - Aug 2023–May 2025
  - Sept–Dec 2011 (proxy for Dr. Mills)
  - Mar 2010–Aug 2011 (proxy for Dr. Elliott)
  - Jan–Aug 2009 (proxy for Dr. Mills)
- ❖ **Undergraduate Research Advisory Committee** (formerly EURECA Advisory Committee): Member: (Mar 2013 to present)
  - Sub-committee to revise the rubric used to evaluate undergraduate posters and oral presentations at the Research Forum and Celebration of Scholarship (**Chair**) (2022)

- Sub-committee to develop an embedded course proposal procedure and form (**Member**) (2022)
- ❖ **Health Professions Advisory Committee:** Member: (Aug 2013 to present)
- ❖ **University Library Committee:** Member: (2011–2013)
- ❖ **University representative at COPLAC Faculty Summer Institute on Liberal Learning in the Disciplines** (June 5–8, 2008)
- ❖ **College of Science and Mathematics Laboratory Safety Committee:** (Aug 2013 to present)
- ❖ **College of Science and Mathematics Promotion & Tenure Committee:** (Aug 2013–Aug 2016)
- ❖ **Graduate Coordinator, Department of Biology:** (Sep 1, 2014 – Aug 31, 2022; Aug 1, 2024 to May 31, 2025)
- ❖ **Biology Department Chemical Hygiene Contact:** coordinate with College Chemical Safety Officer on compliance issues including training of Biology faculty, staff and students; conducting lab inspections; hazardous waste disposal (2013 to present)
- ❖ **Department of Biology Committees:**
  - Environmental Compliance (Chair, 2012 to present)
  - Equipment Maintenance (2012–2015, 2017 to present)
  - Graduate Admissions (Chair, 2014 to present)
  - Graduate Merit Scholarship (2014 to present)
  - Graduate TA Selection (Chair, 2014 to present)
  - SACS Assessment (2012–2014)
- ❖ **Graduate School & Career Fair Departmental Representative** (Oct. 9, 2008)
- ❖ **Summer Orientation & Advising** (Spirit Days, MORE) Departmental Advisor (2009 to present)
- ❖ **Discover MSU Departmental Representative** (2018)
- ❖ **Mustangs Rally Departmental Representative** (2007 to present)
- ❖ **Family Day Departmental Representative** (2007, 2008, 2010, 2012)
- ❖ **Majors' Fair Departmental Representative** (2007, 2012)

### Service to the Profession

- ❖ Reviewed Revision Proposal for **Elsevier**: Edition update for ***Environmental Microbiology*** by Pepper, Gerba & Gentry (March 2023)
- ❖ **American Society for Microbiology, Texas Branch:**
  - Elected President-Elect (July 2025 – July 2027)
  - Will serve as Branch President (July 2027 – July 2029)
  - Poster and Oral Presentation Evaluator; Fall meeting: 2010, 2011, 2014 – present; Spring meeting: 2015 to present
- ❖ **Texas Academy of Science:** Chair, Biomedical Section (March 1, 2014 – March 1, 2015); Vice-Chair, Biomedical Section (March 1, 2013 – March 1, 2014); Poster Presentation Evaluator (2012, 2013, 2014 Annual Meeting)
- ❖ **American Society for Microbiology, Virginia Branch:** Archivist, Nov. 2004 to Nov. 2007; Meeting Organizing Committee, 2002 to 2007; Website Manager, Nov. 2001 to Nov. 2007

⊕ **Ad hoc reviewer** for:

*Biotechniques*  
*Chemical Papers*  
*Clinical Microbiology Reviews*  
*Electrophoresis*  
*Journal of the Association for Laboratory Automation*  
*Journal of Biomedical Materials Research, Part A.*  
*Journal of Antimicrobial Chemotherapy*  
*Medical Mycology*  
*PLoS ONE*  
*The Texas Journal of Science*

### Service to the Community

- ⊕ **Certified Texas Master Naturalist** (2011 to present) Organization provides community outreach and education on nature and conservation matters. Helps support partners such as River Bend Nature Center, Lake Arrowhead State Park and Comanche Springs Astronomy Campus in their outreach, education and development activities.
- ⊕ Consulted with community members regarding issues of fungi in the household environment (2007 to present)
- ⊕ Elected to **Board of Directors for River Bend Nature Center** (October, 2009–2012, reelected for the 2012–2015 term)
- ⊕ **Exhibits & Property Committee, River Bend Nature Center** (January 2010 to October 2015); Chair (January 2010 to May 2013)
- ⊕ **Cub Scout Pack 122 Treasurer** (October 1, 2010 to May 24, 2013)
- ⊕ Assisted local television station (KAUZ) on stories regarding bacteria in the environment (July 18, 2008; November 11, 2010; April 29, 2011; October 28, 2012)
- ⊕ Provided consultation to River Bend Nature Center on plant fungal pathogens (June 2008)
- ⊕ Served as judge for Red River Regional Science and Engineering Fair (Feb. 28, 2008)
- ⊕ Presentation as “Community Helper” (West Foundation Elementary School, Kindergarten class, Sept. 15, 2007)
- ⊕ Assisted with Sikes Lake Cleanup Day (2007, 2011, 2012, 2015, 2016, 2017, 2018, 2019)

### AWARDS & HONORS

- ⊕ National Research Service Award, NIH: 1995–1998
- ⊕ Tuna Conference Scholarship (Travel Award): 1991
- ⊕ Frank B. Cotner Award for Microbiology, Montana State University: 1983
- ⊕ Alpha Lambda Delta Scholarship, Montana State University: 1982
- ⊕ Midwestern State University Biology Professor of the Year (student award): 2009–2010; 2012–2013 (co-recipient with Dr. Dana Mills); 2013 – 2014, 2023 – 2024.
- ⊕ Beta Beta Beta: inducted 2007
- ⊕ Phi Kappa Phi: inducted 1984
- ⊕ Mortar Board: inducted 1984
- ⊕ Alpha Lambda Delta: inducted 1982

## PROFESSIONAL AFFILIATIONS

- ❖ American Association for the Advancement of Science: 1990
- ❖ American Institute of Fisheries Research Biologists (Associate): 1990
- ❖ American Society for Microbiology (National): 1989
- ❖ American Society for Microbiology (Texas Branch): 2007
- ❖ American Society for Microbiology (Virginia Branch): 1997–2007
- ❖ Medical Mycological Society of the Americas: 2005
- ❖ Texas Academy of Science: 2008
- ❖ Texas Society for Microscopy: 2017