

BIOMEDICAL & VETERINARY SCIENCES

GRADUATE PROGRAM



ANNOUNCES

The Master of Science Seminar and Examination of

S. Tristan Stoyanof

"Characterizing a Small Regulatory RNA in *Brucella abortus* Linked to Outer Membrane Stress Resistance"

Thursday, November 30th, 2023

9:00am

Classroom 102



Bio

Originally from Huntsville, AL, I later moved to Virginia where I attended Virginia Tech as an undergraduate in the Biological Sciences program from 2014-2018. During this time, I was introduced to bacteriology research in Dr. Scharf's lab and fell in love with the work. In 2018 I accepted a post-bachelor's position in Dr. Michelle Olsen's neurobiology lab, further solidifying my interest in scientific research. In 2019 I was accepted into the BMVS graduate program and began working with Dr. Caswell, studying *Brucella* small RNAs. Through the opportunities provided by his lab, I was able to participate in the federal Select Agent Program, experience corporate research (SINTX), and study a new emerging pathogen (*Streptococcus suis*). In addition to numerous side projects and collaborations, my final project was characterizing a novel sRNA in *B. abortus*, now called MssR. After graduation, I will be joining the lab of Dr. Yuchin Albert Pan, studying the effects of chronic stress on brain development using a zebrafish model.

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VMCVM Office of Research and Graduate Studies
SINTX Technologies, inc.

Awards and Academic Achievements

Tutored the first DVM class to obtain a 100% OSCE pass rate

BMVS GSA President - 2023

SINTX Corporate Research Grant – 2021

Lay Language Abstract

Brucella abortus is a bacterial pathogen that infects cattle but can also be transmitted to humans. This is a global issue, made worse by the lack of vaccines for humans. To understand how *B. abortus* evades the host immune system so efficiently, small regulatory RNAs (sRNAs) employed by the bacterium were studied. These short strands of RNA are a rapid and energetically cost-effective way of controlling gene expression. One such sRNA, annotated as MssR, was shown to be linked to resistance to outer membrane stress.

Publications

Characterizing a Small Regulatory RNA in *Brucella abortus* Linked to Outer Membrane Stress Resistance – Primary author (in progress)

Post-transcriptional control of the essential enzyme MurF by a small regulatory RNA in *Brucella abortus* – Co-author, *Molecular Microbiology* (in review)

Magnetic Cell Sorting for In Vivo and In Vitro Astrocyte, Neuron, and Microglia Analysis – Co-author, *Current Protocols in Neuroscience* 2019

Presentations

- Mid-Atlantic Microbial Pathogens Meeting (2021, 2022)
- Wind River Conference on Prokaryotic Biology (2021, 2022, 2023)
- International Brucellosis Meeting (2022)
- BMVS Research Symposium (2019, 2020, 2021, 2022)
- VCOM Research Symposium (2020, 2021)

Examination Graduate Committee

Major Advisor/Chair:

Clayton Caswell, PhD
Associate Professor
Department of Biomedical Sciences and Pathobiology

Graduate Advising Committee Members:

Birgit Scharf, PhD
Professor
Department of Biological Sciences

Irving Coy Allen, PhD, MBA, MS
Professor, Assistant Head for Research Support
Department of Biomedical Sciences and Pathobiology

Kevin Lahmers, PhD
Clinical Professor
Department of Biomedical Sciences and Pathobiology



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