Michelle Marie Jonika
Genetics Interdisciplinary Program
Texas A&M University
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EDUCATION

Ph.D., Genetics   **2018-present**
Texas A&M University   College Station, TX
Research Adviser: Heath Blackmon

B.S., Forensic and Investigative Science (Genetics minor)   **2014-2018**
Texas A&M University Deans list 2016-2018   College Station, TX
Thesis: *Genes as Markers of Sex for Forensic Entomology*
Research Adviser: Aaron M. Tarone

RESEARCH GRANTS AND MAJOR FELLOWSHIPS

2019 – The evolution of sex chromosomes in charismatic tiger beetle species of the southern United States
Texas Ecolab Fund – $17,335

2018 – 2022 – STEM Fellowship, Texas A&M University. Interdisciplinary Genetics Program – $215,000

PEER-REVIEWED PUBLICATIONS

4. Johnathan Lo, **M.M. Jonika**, H. Blackmon. 2019. micRocounter: Microsatellite Characterization in Genome Assemblies. G3: Genes | Genomes | Genetics 9(10), 3101-3104

3. Riddhi D Perkins, J.R. Gamboa, **M.M. Jonika**, J. Lo, A. Shum, R.H. Adams, H. Blackmon. 2019. A Database of Amphibian Karyotypes. Chromosome Res 1-7

2. Blake Guard, J Honneffer, A Jergens, **M.M. Jonika**, L. Toresson, Y. Lawrence, C. Webb, S. Hill, J. Lidbury, J. Steiner, J. Suchodolski. 2018. Longitudinal Assessment of Microbial Dysbiosis and Fecal Bile Acids Concentrations in Dogs with Chronic Inflammatory Enteropathy. J Vet Intern Med. 2018 33:1295-1305.

1. Michelle M. Jonika, C.E. Hjelmen, A.M. Faris, A.S. McGuane, A.M. Tarone. Genes as Markers of Sex for Forensic Entomology. Journal of Forensic Science – *Under Peer Review*

OTHER PUBLICATIONS

6. Michelle M. Jonika, A.M. Faris, C.E. Hjelmen, A.M. Tarone. 2019. Transcriptional Markers of Sex Determination for Forensic Entomology. Proceedings of the American Academy of Forensic Sciences. 2019 25 813

5. Amanda B. Blake, B.C. Guard, J.B. Honneffer, **M.M. Jonika**, J.A. Chaitman, J.A. Lidbury, J.M. Steiner and J.S. Suchodolski. 2018. Altered Fecal Fatty Acid, Sterol and Bile Acid Metabolism in Dogs with Acute Diarrhea. J Vet Intern Med. 2018 32:2248.

4. Michelle M. Jonika, A.M. Tarone. 2018. Genes as Markers of Sex for Forensic Entomology. Undergraduate Thesis, Texas A&M University, College Station, Texas.

3. Blake C. Guard, **M.M. Jonika**, J.B. Honneffer, J.A. Lidbury, J.M. Steiner, A.E. Jergens, and J.S. Suchodolski. 2017. Longitudinal Characterization of the Fecal Metabolome in Dogs with Inflammatory Bowel Disease. J Vet Intern Med. 2017 31:1289.

2. Blake C. Guard, **M.M. Jonika**, J.B. Honneffer, J.A. Lidbury, J.M. Steiner, and J.S. Suchodolski. 2017. Development and Analytical Validation of an Assay for the Quantification of Fecal Bile Acids. J Vet Intern Med. 2017 31:1289.

1. Blake C. Guard, J.B. Honneffer, **M.M. Jonika**, J.A. Lidbury, J.M. Steiner, A.E. Jergens, and J.S. Suchodolski. 2017. Longitudinal Characterization of Dysbiosis and Unconjugated Bile Acid Profiles in the Feces of Dogs with Inflammatory Bowel Disease. Gastroenterology 152.5 (2017): S992.

PRESENTATIONS (T: talk, P: poster, † coauthored with a student/postdoc)

2019

Rise of the Machines: Using a Convolutional Neural Networks to Elucidate Genomic Architecture; Genetics Department G2 Seminar Series; College Station, Texas-T

Opportunities for Genetics Research and How to Apply to Graduate Schools; Genetics and Biochemistry Club; Clemson, South Carolina-T

Microsatellite Evolution in Hexapods; Southeast Texas Evolutionary Genetics and Genomics; College Station, Texas–P

Sixty percent of the time, it works every time: sex identification in immature Calliphoridae; Southeast Texas Evolutionary Genetics and Genomics; College Station, Texas– P† (co-author Alexander McGuane)

Mode and Tempo of Microsatellite Evolution Across 300 Million Years of Insect Divergence; Evolution; Providence, Rhode Island–T

micRocounter: Identification of Microsatellite Inference; Biology Undergraduate Research Symposium; College Station, Texas– P† (co-author Johnathan Lo)

Characterization of Microsatellite Evolution in Insects; Houston Regional Ecology and Evolution Student Symposium; Houston, Texas–T

micRocounter: Identification of Microsatellite Inference; Texas Genetics Society; College Station, Texas– P† (co-author Johnathan Lo)

Mode and Tempo of Microsatellite Evolution in Insects; Texas Genetics Society; College Station, Texas–T

Rapid Identification of Microsatellite Content; Student Research Week; College Station, Texas– P† (co-author Johnathan Lo)

Microsatellite Evolution in Hexapods; Student Research Week; College Station, Texas–P

Characterization of Microsatellite Evolution in Insects; Genetics Recruiting Symposium; College Station, Texas–P

Transcriptional Markers of Sex Determination for Forensic Entomology; American Academy of Forensic Science; Baltimore, Maryland–T

2018

Transcript-based Sex Determination for Forensic Entomology; Entomological Society of America; Vancouver, Canada–T

Markers of Sex Determination in Blow Flies; LAUNCH Research Conference; College Station, Texas–P

Transcript-Based Sex Determination for Forensic Entomology; International Association for Identification; San Antonio, Texas–P

Transcript-Based Sex Determination for Forensic Entomology; Southeast Texas Evolutionary Genetics & Genomics Symposium; Houston, Texas–P

Let's Talk About Sex: Identifying Female and Male Markers in Blow Flies; Ecological Integration Symposium; College Station, Texas–T

Let's Talk About Sex: Identifying Female and Male Markers in Blow Flies; Undergraduate Student Research Conference; College Station, Texas–T

Development of Mass Spectral Database Using Direct Analysis in Real Time (DART); American Academy of Forensic Science; Seattle, Washington–P

Let's Talk About Sex: Identifying Female and Male Markers in Blow Flies; Entomology Department Seminar; College Station, Texas–T

2017

Development of Mass Spectral Database Using Direct Analysis in Real Time (DART); USR Conference; College Station, Texas–T

Development of Mass Spectral Database Using Direct Analysis in Real Time (DART); U.S. Customs and Border Protection–T

Development and Analytical Validation of an Assay for the Quantification of Fecal Bile Acids; USR Conference; College Station, Texas–P

WORKSHOPS (F: Facilitated, T: Taught, † Co-taught)
Texas Genetics Society (TGS) R Workshop, TGS– F [~150 Attendees]
Computational and Artificial Intelligence, TAMU Institute of Data Science (TAMIDS)–T†(Gave presentations below) [12 Attendees]
1. *Use of Convolutional Neural Networks for Determination of Pseudoautosomal Region in Mammals*
2. *Simulations and Factorial Design*

R Hackday, Department of Biology–T† (co-taught with Dr. Heath Blackmon)[~50 Attendees]
R Workshop, Aggies Veterans Who Code—F [15 Attendees]

HACKING COMPETITIONS
2019 TAMU Datathon
1. On the Origins of Tacos- https://devpost.com/software/on-the-origins-of-tacos
2. Random Forest Models for Predicting Oil Drill Failures-
   https://devpost.com/software/random-forest-models-for-predicting-oil-drill-failures

TEACHING EXPERIENCE
(U- undergraduate) Average student Evaluation: 4.7/5.0
Laboratory Instructor
    2019   Introduction to Genetics   U-64 Students

WORK EXPERIENCE
Research Assistant, Department of Biology, Texas A&M   May 2019-present
Lead researcher on three projects focused on comparative genomic analyses of mammalian and invertebrate genomes. Responsibilities include maintaining public code base, molecular wet lab work and mentoring of undergraduate and graduate students.

Research Technician, Department of Entomology, Texas A&M   May–August 2018
Completed research from undergraduate thesis and follow-up studies for sex determination in forensic entomology.

Supplemental Instructor-Organic Chemistry II, Texas A&M   January–May 2018
Helped facilitate understanding and teach concepts for organic chemistry II.

Research Intern, U.S. Department of Homeland Security, Newark, New Jersey   June–August 2017
Created a direct analysis in real-time mass spectral database of drug standards for use in a forensic chemistry laboratory at U.S. Customs and Border Protection.

Student Researcher, Gastrointestinal Laboratory, Texas A&M   January 2016–August 2018
Investigated the effects of antibiotics on the gut health and microbiota of companion animals.

AWARDS AND MINOR GRANTS

1st Place Genetics Graduate Student Science Art Competition ($200), Texas A&M University. 2019
Genetics Graduate Student Travel Award ($600), Texas A&M University. 2019
Undergraduate Research Scholar, Texas A&M University. 2018
Texas A&M Senior Merit Award, Texas A&M University. 2018
1st place Poster Presentation ($250), Texas A&M University Student Research Week. 2018
Sigma Xi STEM Award ($250), Texas A&M University Student Research Week. 2018
1st place Department of Entomology Mentorship Symposium ($500), Texas A&M University. 2018
George Bush Presidential Library Foundation Undergraduate Travel Grant ($750). 2017
Carolyn J. and Robert J. Allison Jr. Scholarship ($3,000), Anadarko Petroleum Corporation, 2017
2nd place Poster Presentation ($150), Texas A&M University Student Research Week. 2017
Distinguished Student Award, Texas A&M University. 2016–2018

OUTREACH AND COMMUNITY SERVICE

Ethel Ashworth-Tsutsui Memorial Award Selection Committee, Texas A&M University. 2019.
Women in Science and Engineering, Expanding your Horizons Workshop Helper, Texas A&M University. 2019.
Southeast Texas Evolutionary Genetics and Genomics Planning Committee, Texas A&M University. 2019.
Mentoring Undergraduate Research invited Panelist, Texas A&M University. 2019.
R Workshop Facilitator Texas Genetics Society Annual Meeting, Texas A&M University. 2019.
Student Research Week Judge, Texas A&M University. 2019.
Undergraduate Research Symposium Judge, Texas A&M University. 2019.
Science Bowl, Texas A&M University. 2019.
Junior Science Bowl, Texas A&M University. 2019.
Texas Junior Academy of Science Judge, Texas A&M University. 2019.
Internship Opportunities Presentation, Aggie Forensic Science Org. 2018.
College Education Outreach (Aggies Reaching Out), Texas A&M University. 2018.
American Academy of Forensic Science Annual Meeting. 2017–2019.
Chemistry Open House Outreach, Texas A&M University. 2016–2017.
Forensic Science Outreach, Magnolia High School. 2015–2016.
Aggieland Saturday Outreach, Texas A&M University. 2015–2018.
Big Event, Texas A&M University. 2015–2018.
Aggie Relay for Life, Texas A&M University. 2015–2018.
Special Olympics, Texas A&M University. 2015–2018.
Freshmen Orientation Program Leader, Texas A&M University. 2015–2016.

MENTORED STUDENTS (U: Undergraduate, G: Graduate)

Alexander McGuane- U	Joseph Ward- U
Anika Sharma- G	Johnathan Lo- U

PROFESSIONAL ORGANIZATIONS

American Academy of Forensic Science	North American Forensic Entomology Assoc.
International Association for Identification	Genetics Graduate Student Organization

Golden Key International Honor Society
Kappa Theta Epsilon Co-Op Honor Society
Women in Science and Engineering
National Society of Leadership and Success

Sigma Alpha Lambda
Entomological Society of America
Society for the Study of Evolution
Genetics Society of America

ADDITIONAL TRAINING

Texas A&M TEEX Forensic Science Academy
Foundations of Courtroom Testimony
Forensic Technician I
Latent Print Processing
Foundations of Fingerprint Comparison
Digital Forensics Basics
Cyber Ethics
Crime Scene Investigation
Cyber Law and White Collar Crime
Foundations of Forensic Photography
Fingerprint Processing on Difficult Surfaces
Investigative Tools and Equipment

National Institute of Justice
Familial DNA Searching

HPRC Short Courses
Introduction to Linux
Introduction to Python
Introduction to Scientific Python
Introduction to Next Generation Sequencing
NGS Assembly
Introduction to Julia
Introduction to Deep Learning with TF
Introduction to CUDA

TAMU Institute of Data Science
Introduction to Data Science
Exploratory Data Analysis with pandas
Machine Learning with Scikit-learn
Deep Learning with Keras
NVIDIA Deep Learning Computer Vision
Computational and Artificial Intelligence

REFERENCES

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