# Jessie (Hoffman) Morrill

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## EDUCATION

**Doctor of Philosophy in Biomedical Sciences**, University of Texas MD Anderson Cancer Center
UTHealth Graduate School of Biomedical Sciences, Houston, TX
Program Affiliation: Biochemistry and Cell Biology
Dissertation Title: *Effects of dietary fat and ambient temperature on body weight homeostasis*
Advisors: Qingchun Tong, PhD and Ilya Levental, PhD
Degree Start Date: July 2018
Expected Date of Completion: May 2022

**Master of Science in Animal Science**, Texas A&M University, College Station, TX
Areas of Study: Ruminant Nutrition and Meat Science
Thesis Title: *Effects of post-extraction algal residue on nutrient utilization, carcass performance, and beef tenderness and flavor in finishing steers*
Advisors: Tryon Wickersham, PhD and Jason Sawyer, PhD
Degree Awarded: December 2015

**Bachelor of Science in Animal Science**, Texas A&M University, College Station, TX
Degree Awarded: December 2013

## EXPERIENCE

**Graduate Research Assistant,** MDACC UTHealth GSBS, July 2018 - Present
- Manage my portion of the mouse colony consisting of eight strains. Duties include maintenance of animal breeding, weaning, genotyping, specialty diet feeding, record keeping, and characterizing two novel strains.
- Prepare DNA constructs and perform aseptic stereotaxic neurosurgery to deliver viral preparations designed to express or silence genes of interest in mouse hypothalamic regions using Cre-lox systems.
- Conduct metabolic and behavioral experiments using indirect calorimetry, real-time food and water intake monitoring systems, implantable microchip body temperature monitoring systems, infrared thermography, NMR-MRI based body composition, open field and place preference assays, and insulin and glucose assays.
- Collect, preserve, and process samples for biochemical, histological, or immunohistochemical analyses. Have specialized training in: shotgun lipidomics, laser capture microdissection, bimolecular fluorescence complementation, and confocal microscopy.
- Analyze and visualize data in R and MATLAB; assist colleagues with data visualization and image analysis.
- Conduct cell culture based experiments using cell transfection to express genes of interest and pharmacological treatments to inhibit protein function. Have experience using C2C12 myoblast, HEK-293, and RBL-2H3 cell lines.
- Participate in the grant and scientific writing process; was awarded two years of NIH training grant funding.
- Train graduate rotation students, visiting undergraduate students, new lab staff, and Department colleagues in any of the above techniques, as needed.

**Graduate Research and Teaching Assistant,** Texas A&M University, January 2014 - December 2016
- Collaborated with colleagues in ruminant nutrition, meat science, and agricultural economics to conduct nutrient utilization experiments in finishing beef steers, fabricate beef cuts, formulate ground meat products, and conduct trained and consumer sensory panels and consumer willingness-to-pay surveys. Gained additional experience in ex-vivo muscle tissue culture, fatty acid analysis, and Warner-Bratzler shear force evaluation.
- Taught and mentored undergraduate students as a teaching assistant for three different subjects over four semesters and engaged with a total of approximately 200 students. Courses included animal nutrition, livestock feeds and feeding, and introductory animal science. Also assisted with course curriculum and material development; course materials have thenceforth been distributed to over 500 students/year.

**Meat Science Student Worker,** Texas A&M University, October 2012 - December 2013
- Helped coordinate approximately 30 AgriLife Extension courses and events, which reached over 1,200 participants involved in food animal production. Participants ranged from youth to industry experts. Courses included Beef 101, Beef 706, Zoetis/Pfizer Beef University, Pork 101, BBQ Summer Camp, Center of the Plate Training, and the Aggie Processed Meat School.

## RESEARCH

### Research Support

01/01/2020 - 12/31/2021

**NIH-TL1 Training Grant (No. TL1 TR003169)**
Competitive training grant with The University of Texas Health Science Center at Houston Center for Clinical and Translational Sciences TL1 Program. **Amount: $95,554.**

### Publications and Professional Output

#### Scientific Journal Articles

1. Fan, S., Y. Xu, Y. Lu, Z. Jiang, H. Li, **J.C. Morrill**, J. Cai, Q. Wu, Y. Xu, M. Xue, B.R. Arenkiel, C. Huang, and Q. Tong. A neural basis for brain leptin action on reducing type 1 diabetic hyperglycemia. 2021. Nat. Commun. 12:2662.
2. Trubenbach, L.A., T.A. Wickersham, L.N. Bierschwale, **J.C. Morrill**, J.R. Baber, and J.E. Sawyer. 2019. Limit feeding as a strategy to increase energy efficiency in intensified cow-calf production systems. Transl. Anim. Sci. 3:796-810.
3. Smith, S.B., T.L. Blackmon, J.E. Sawyer, R.K. Miller, J.R. Baber, **J.C. Morrill**, A.R. Cabral, and T.A. Wickersham. 2018. Glucose and acetate metabolism in bovine intramuscular and subcutaneous adipose tissues from steers infused with glucose, propionate, or acetate. J. Anim. Sci. 96:921-929.
4. **Morrill, J.C.**, J.E. Sawyer, S.B., Smith, R.K. Miller, J.R. Baber, and T.A. Wickersham. 2017. Post-extraction algal residue in beef steer finishing diets: I. Nutrient utilization and carcass characteristics. Algal Res. 25:584-588.
5. **Morrill, J.C.**, J.E. Sawyer, S.B., Smith, R.K. Miller, M.D. Johnson, and T.A. Wickersham. 2017. Post-extraction algal residue in beef steer finishing diets: II. Beef flavor, fatty acid composition, and tenderness. Algal Res. 25:578-583.
6. Johnson, M.D., R.K. Miller, **J.C. Morrill**, D.P. Anderson, T.A. Wickersham, J.E. Sawyer, J.W. Richardson, and M.A. Palma. 2016. The influence of taste in willingness-to-pay valuations of sirloin steaks from postextraction algal residue-fed cattle. J. Anim. Sci. 94:1-13.

#### Book Chapters

1. Cai, J., R. Cassidy, **J. Morrill**, and Q. Tong. 2021. Neurotransmitter co-transmission in brain control of feeding and body weight. In: Q. Tong, editor, Neuron signaling in metabolic regulation. CRC Press, Boca Raton, FL. Chapter 3.

#### Scientific Abstracts

1. **Morrill, J.C.,** J.E. Sawyer, J.R. Baber, S.B. Smith, R.K. Miller, and T.A. Wickersham. 2016. Inclusion of post-extraction algal residue in finishing rations of beef steers: Trained sensory panel ratings for strip steaks. J. Anim. Sci. 94 (Suppl.1):24.
2. **Morrill, J.C.,** J.E. Sawyer, J.R. Baber, S.B. Smith, R.K. Miller, and T.A. Wickersham. 2016. Inclusion of post-extraction algal residue in finishing rations of beef steers: Consumer sensory panel ratings and fatty acid composition of ground beef. J. Anim. Sci. 94 (Suppl.1):22.
3. Johnson, M.D., R.K. Miller, **J. Morrill**, D.P. Anderson, J.E. Sawyer, T.A. Wickersham, J.W. Richardson, and M.A. Palma. 2016. Consumer preference for sirloin steaks from post-extraction algal residue (PEAR) fed animals. J. Anim. Sci. 94 (Suppl.1):25.
4. Johnson, M.D., M.A. Palma, R.K. Miller, **J.C Morrill**, D.P. Anderson, J.E. Sawyer, T.A. Wickersham, and J.W. Richardson. 2016. Consumer preferences for sirloin steak: The influence of tasting. Southern Agricultural Economics Association Annual Meeting. San Antonio, Texas.
5. Blackmon, T.L., J.R. Baber, **J.C. Morrill**, T.A. Wickersham, J.E. Sawyer, R.K. Miller, S.B. Smith. 2016. Ruminal acetate infusion increased marbling scores and flavor attributes of beef relative to beef from abomasal or ruminal glucose-infused steers. Meat Sci. 112:172-173.
6. **Morrill, J.C.**, J.E. Sawyer, S.B. Smith, J.R. Baber, and T.A. Wickersham. 2015. Effect of inclusion of post-extraction algal residue on nutrient utilization and carcass performance in finishing steers. J. Anim. Sci. 93 (Suppl.1):14.

7. Voegele, H.R., C.R. Kerth, T.A. Wickersham, **J.C. Hoffman**, and T.J. Luckemeyer. 2014. Addition of post-extraction algal residue (PEAR) to cattle finishing diets reduces the quantity of fecal volatile chemicals often associated with feedlot malodors. J. Anim. Sci. 92 (Suppl. 2):450.

**Conference Proceedings and Symposium Talks**

1. **Morrill, J.C.**, I. Levental, Y. Xu, and Q. Tong. 2021. Defining the contribution of body temperature to obesity development. Society for Chinese Bioscientists in America, Texas Chapter Virtual Symposium. Third place oral presentation.
2. **Morrill, J.C.**, I. Levental, Y. Xu, and Q. Tong. 2021. Defining the contribution of body temperature to obesity development. Biochemistry and Cell Biology Virtual Spring Symposium. Houston, Texas.
3. **Morrill, J.C.**, I. Levental, Y. Xu, and Q. Tong. 2021. Defining the contribution of body temperature to obesity development. McGovern Medical School Research Retreat. Houston, Texas. First place oral presentation.
4. **Morrill, J.C.** and R. Berdeaux. 2018. Techniques and lessons learned during my BCB rotation. Biochemistry and Cell Biology Retreat. Houston, Texas.
5. Sawyer, J.E., **J.C. Morrill**, and T.A. Wickersham. 2016. Do antimicrobials contribute to sustainable beef production? Dr. Kenneth and Caroline Eng Symposium. Lincoln, Nebraska.

**Poster Presentations**

1. **Morrill, J.**, I. Levental, K.R. Levental, C. Young, A. Gadicherla, and Q. Tong. 2021. Warm-sensitive preoptic area neurons influence body weight homeostasis. Biochemistry and Cell Biology Fall Symposium. Houston, Texas.
2. **Morrill, J.C.**, I. Levental, K.R. Levental, and Q. Tong. 2021. Using shotgun lipidomics to gain mechanistic insight into leptin resistance and obesity development. Association for Clinical and Translational Science Virtual Meeting. Washington, DC. Top poster award.
3. **Morrill, J.**, I. Levental, K. Levental, and Q. Tong. 2019. Exploring membrane properties influenced by dietary fat consumption that contribute to leptin resistance and obesity. GSBS Graduate Student Research Day. Houston, Texas.
4. **Morrill, J.C.,** J.E. Sawyer, J.R. Baber, R.K. Miller, S.B. Smith, and T.A. Wickersham. 2015. Effects of post-extraction algal residue on nutrient utilization, carcass performance, and beef flavor in finishing steers. The Plains Nutrition Council Spring Conference. San Antonio, Texas.

**Popular Press**

1. **Morrill, J.C.,** and T.A. Wickersham. 2015. What's the beef quality impact of algae co-product? Progressive Cattleman.

## TEACHING

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**Courses Taught and/or Assisted with as a Graduate Teaching Assistant**

1. **ANSC 108**, General Animal Science, 1 Credit Hour Lab, Fall 2014, Spring 2015
   Course Description: Laboratory to accompany ANSC 107 (see description below). Concurrent registration with ANSC 107 required.
2. **ANSC 303/NUTR 303**, Principles of Animal Nutrition, 3 Credit Hour Lecture, Fall 2016
   Course Description: Scientific approach to nutritional roles of water, carbohydrates, proteins, lipids, minerals, vitamins, and other dietary components; emphasis on the comparative aspects of gastrointestinal tracts and on digestion, absorption, and metabolism of nutrients.
3. **ANSC 318**, Livestock Feeds and Feeding, 3 Credit Hour Lecture and Lab, Spring 2016 (Lab Only)
   Course Description: Characteristics of feedstuffs used in livestock enterprises; manual and computer ration formulation procedures and life cycle nutritional management of beef, swine, sheep, dairy, horses, fish and pets; methods of grain, protein supplement and forage processing and evaluation; commercial and on-the-farm feed mixing methods and feed control laws.

**Courses Assisted with as an Undergraduate Teaching Assistant**

1. **ANSC 107**, General Animal Science, 3 Credit Hour Lecture, Fall 2012
   Course Description: Scientific animal agriculture; selection, reproduction, nutrition, management and marketing of beef cattle, swine, sheep, goats and horses; evaluation and processing of meat, wool and mohair. Importance of livestock and meat industries.
2. **ANSC 307**, Meat Science, 3 Credit Hour Lecture and Lab, Spring 2012 (Lab Only)
   Course Description: Integrated studies of the meat animal processing sequence regarding the production of meat-type animals and the science and technology of their conversion to human food.

**Teaching Evaluations (2014 - 2016)**

| Course | Yr./Sem. | Students Enrolled | Knowledge of Subject | Prepared for Class | Respect for Students |
|---|---|---|---|---|---|
| ANSC 108 | 2014C | 22 | 4.94 | 4.94 | 4.94 |
| ANSC 108 | 2015A | 11 | 4.80 | 5.0 | 5.0 |
| ANSC 318 | 2016A | 26 | 4.91 | 4.95 | 4.95 |
| ANSC 303 | 2016C | 134 | | *Results Not Available* | |
| **Averages** | | | **4.88** | **4.96** | **4.96** |

*Scores are reported on a five-point scale.*

**Selected Comments from Teaching Evaluations**

1. "Jessie was one of the best TAs I've ever had, she always came to class enthusiastic and [was] always willing to answer questions."
2. "Mrs. Morrill did a phenomenal job of working with her students...she is courteous, respectful and caring, yet stern and was able to push us to get the most out of this class."
3. "Overall, Jessie was a great TA. She was helpful and kind. She knew a lot about the material and was always willing to slow down when teaching to help everyone fully understand."
4. "Jessie was so great and always made this lab enjoyable. She's very sweet and genuinely cares if we understand the material."

**Course and Extracurricular Guest Lectures**

| Audience | Topic | Date(s) |
|---|---|---|
| TAMU ANSC 303 Students | Lipids: Where energy is stored | 2021 |
| TAMU ANSC 402 Students | Using an animal science degree in biomedical research | 2019 |
| TAMU ANSC 107 Students | Growth strategies for beef cattle | 2015, 2016 |
| TAMU Meat Judging Team | Writing meat judging reasons | 2015-2017 |
| TAMU Meat Science Quiz Bowl | Lipids and lipid metabolism | 2014, 2015 |
| TAMU Meat Science Quiz Bowl | Biochemistry in livestock species | 2014, 2015 |
| TAMU Meat Science Quiz Bowl | Use of beta-agonists in the beef industry | 2014, 2015 |

## SERVICE

**Departmental Service**

| Event or Organization | Demonstration or Task | Date(s) |
|---|---|---|
| BCB Webinar Series Committee | Webinar coordination | 10/2020 - Present |
| BCB Symposium Committee | Research symposium coordination | 10/2019 - Present |
| GSBS Core Survey Focus Group | Revision of course survey | 10/2019 |
| BCB Retreat Planning Committee | Event coordination | 7/2019 - Present |
| GSBS Interviews | Student recruiting | 2/2019 - Present |
| Texas Beef Council/US-MEF | Talk on feeding cattle in Texas | 8/2016 |
| 4-H Youth Tour | Animal nutrition demonstration | 7/2016 |
| TSCRA Convention | Animal Science booth/recruiting | 4/2016 |
| Lavaca County Health Day | Meat and protein in the diet educational event | 10/2014 |
| Beef Cattle Short Course | Animal Science booth/recruiting | 8/2014 |

| Event or Organization | Demonstration or Task | Date(s) |
|---|---|---|
| Texas FFA Convention | Animal Science booth/recruiting | 7/2014 |
| Aggie Commercial Steer Camp | Animal nutrition demonstration | 7/2013, 7/2014 |
| Aggie REPS | Student recruiting | 2011 - 2013 |
| Texas Pork Leadership Camp | Pork demonstration & department tour | 6/2012, 6/2013 |
| Edwards Teaching Award Committee | Award selection committee member | 12/2012 |

## PROFESSIONAL AND STUDENT ORGANIZATIONS

| Year(s) | Organization |
|---|---|
| 2012 - 2013 | Member, Meat Science Quiz Bowl Team, Texas A&M University |
| 2012 - 2013 | Member, Meat Judging Team, Texas A&M University |
| 2012 - 2015<br>2021 - | Member, American Meat Science Association |
| 2014 - | Member, American Society of Animal Science |
| 2014 - 2016 | Member, Animal Science Graduate Student Association, Texas A&M University<br>Treasurer, 2015-2016 |
| 2018 - | Member, Graduate Student Association, MD Anderson UTHealth GSBS |
| 2018 - | Member, Association of Science Communication, MD Anderson UTHealth GSBS |
| 2018 - | Member, First Generation Student Group, MD Anderson UTHealth GSBS |
| 2021 - | Chair, Biochemistry and Cell Biology Student Council, MD Anderson UTHealth GSBS |
| 2021 - | Member, Graduate Student Education Committee, MD Anderson UTHealth GSBS |

## HONORS AND AWARDS

| Year(s) | Description |
|---|---|
| 2010 | Texas Valedictorian Tuition Waiver |
| 2010 | Texas 4-H Gold Star Award |
| 2010 - 2014 | Texas Top 10% Scholarship |
| 2010 - 2014 | Texas 4-H Foundation Scholarship |
| 2010 - 2014 | Terry Foundation Scholarship |
| 2010 - 2014 | Karnes County National Bank Scholarship |
| 2011 - 2013 | Texas A&M University College of Agriculture and Life Sciences Scholarship |
| 2011 - 2013 | Texas A&M University Department of Animal Science Scholarship |
| 2013 | International Livestock Congress Chosen Attendee |
| 2013 | American Meat Science Association All-American Meat Judging Award |
| 2013 - 2016 | Texas Cattle Feeders Association Scholarship |
| 2014 | American Meat Science Association Undergraduate Achievement Honor Roll Award |
| 2016 | Feedlot Nutritionist Boot Camp Chosen Attendee |
| 2020 | Mercedes-Benz of West Houston Scholarship, MD Anderson UTHealth GSBS |
| 2021 | 1st Place Presentation, McGovern Medical School Research Retreat |
| 2021 | 3rd Place Presentation, Society for Chinese Bioscientists in America Symposium, Texas Chapter |
| 2021 | Top Poster Award, Association for Clinical and Translational Science Meeting |