

ERIC DAVID TESTROET, Ph.D.

Assistant Professor

The University of Vermont

Animal and Veterinary Sciences, Burlington, VT 05405-0148. 515-230-8137

eric.testroet@uvm.edu

My key research interests include studying the epigenetic and biochemical control of physiological and metabolic adaptations that occur in livestock, specifically lipid partitioning in transition dairy cows, which impact the nutritional quality of food and quantity of production.

Education

Postdoctoral Training	Washington State University	2017 - 2018	Growth biology and basic bioscience
Ph..D.	Iowa State University	2017	Nutritional Sciences with specialization in cellular and molecular nutrition
Chemistry TA Training	Iowa State University	2016	Pedagogy and diversity training (seven-day short course)
B.A.	Iowa State University	2000 - 2008	Chemistry, minor biology

Recent awards

Writing in the Disciplines Institute, University of Vermont: 2019

Cell and Molecular Physiology Section Post-Doctoral Research Recognition Award: 2018

D. R. Griffith Research Excellence Award, Nutritional Council, Iowa State University: 2017

Center for the Integration of Research, Teaching and Learning Practitioner Certificate: 2017

Iowa State University Graduate College Research Excellence Award: 2017

Biochemistry, Biophysics, and Molecular Biology Teaching Excellence Award: 2016

Noel & Ruth Smith Family Food Science Graduate Scholarship: 2016

Paul and Candace Flakoll Scholarship: 2015

Graduate and Professional Student Senate Leadership Award: 2015

Preparing Future Faculty Fellow: 2015

Research Training

Postdoctoral Research Associate. 2017-2018. Washington State University, Pullman, WA

- *Metabolic flexibility and nutrient partitioning*
 - Training in basic science laboratory techniques including qRT-PCR, analysis of non-coding RNA, cell culture (hepatic, adipose, stem, and primary cells), and use of animal models to study human metabolic disorders and animal disease.

Graduate Research Assistant. 2011 – 2017. Iowa State University, Ames, IA

• Co-authored grant proposals, conducted research, and co-authored manuscripts in four areas:

- *Prevention of oxidative off-flavors and spontaneous oxidation in milk from dairy cattle fed distiller's grains*
 - Provided and coordinated animal care, as well as ensuring the experimental quality and integrity of the feeding trial component of this project.
 - Performed analysis of multiple measures of milk quality, including feed analysis, milk yield analysis, milk fatty acid analysis, rumen fluid VFA analysis, and rumen fluid protozoa quantification; interpreted these data.
- *Milk composition and cheese quality: Investigating the impact of distillers dried grains with solubles (DDGS)*
 - Provided and coordinated animal care and animal sampling of Holstein dairy cows (blood, fecal, and urine).
 - Performed laboratory analysis including fatty acid analysis (GC-FID) and analysis of volatile compounds in feed and milk (Headspace SPME-GC).
- *Relationship of fat quality and eating quality traits of pork*
 - Performed analysis of cellularity (cell size and number) of adipose tissue by using Coulter counter.
 - Statistically analyzed and interpreted a large dataset.
- *microRNAs in milk: a novel nutraceutical*
 - Identified and quantified microRNAs present in dairy foods and the effects of processing on their stability.

Grant Proposals

The University of Vermont

Effect of injectable supplementation with Vitamin A during gestation on offspring immune and growth response. USDA-OREI or National Pork Board (In development. PI: E. Hines, Co-PI: E. D. Testroet, Co-PI: M. Du)

A novel therapeutic to address fatty liver in post-parturient dairy cows. USDA-SBIR. (Under Review. Co-PI: E. D. Testroet, PI: P. Shao, PD: B. Hemley. 2019). \$100,000

Organic selenium supplementation during the dry period improves hepatic function, decreases systemic inflammation, and improves immune function of periparturient dairy cows during the fresh period. Zinpro Corporation. (Under Review. PI: E. D. Testroet. 2019) \$65,213.

Writing in the Disciplines Institute Grant (2019). **\$750**

Cyclic AMP (cAMP) depletion in the periparturient dairy cow: Investigating the role of key regulatory enzymes in the development of fatty liver disease. HATCH Competitive VT-AES Funding. (Not Funded. PI: E. D. Testroet 2019) \$50,000.

Cyclic Adenosine Monophosphate (cAMP) and Phosphodiesterase 4B (PDE4B) dysregulation in hepatic steatosis. University of Vermont Office of Vice President for Research REACH program. (Not Funded. PI: E. D. Testroet. 2019) \$30,000.

Grape marc inclusion in periparturient diets of dairy cows as a strategy to prevent fatty liver and associated periparturient diseases. Walker Foundation. (Not Funded. PI: E. D. Testroet. 2019) \$23,575.

cAMP Depletion In Fatty Liver Of Periparturient Dairy Cow. USDA- AFRI FASE seed grant. (Recommended for Funding – Medium Priority – Funded. PI: E. D. Testroet. 2018) **\$200,000**.

Cyclic Adenosine Monophosphate (cAMP) depletion in hepatic steatosis in transition dairy cattle. UVM OVPR EXPRESS grant. (PI: E. D. Testroet. 2018) **\$3,000**.

CAMP Depletion In Fatty Liver Of Periparturient Dairy Cow. HATCH multistate grant. (Funded. PI: E. D. Testroet. 2018) **\$10,000**.

Graduate School and Postdoctoral Training

Prepartal glucagon administration for the prevention of fatty liver in the transition dairy cow. (Not funded by Washington Dairy Products Commission. Authors: PI: M. Du. 2018) \$71,690

Vitamin A enhances mammary development and regeneration and improves immune function in cow and calf. ((Not funded by USDA AFRI Postdoctoral Fellowship) PI: E. D. Testroet. 2017)) \$165,000

MicroRNAs in milk: A novel nutraceutical (phase 2): (Not funded by Midwest Dairy Association. PI: D. C. Beitz. 2015) \$45,000

MicroRNAs in milk: A novel nutraceutical (Not funded for W. S. Martin grant. PI: E. D. Testroet. 2015) \$7,000

MicroRNAs in infant formula: A novel nutraceutical (Funded by Iowa Science Foundation. PI: D. C. Beitz. 2015) **\$5,000**

Reduced fat DDGS feeding: investigating the impact on milk composition and cheese quality (Funded by Minnesota Corn Growers Association. PI: D. C. Beitz. 2015) **\$79,146**

MicroRNAs: a novel nutraceutical in milk (Funded by Midwest Dairy Association. PI: D. C. Beitz. 2015) **\$24,132**

Graduate student teaching as research grant – evaluating the effectiveness of quizzes either delivered in class or online on student learning and retention of biochemistry (Funded by Iowa State CELT. PI: E. D. Testroet. 2015) **\$600**

Metabolic conditioning of dairy cows for lactation with glucagon (Submitted to USDA-NIFA, ranked high priority, and scored as 26th. PI: D. C. Beitz, Co-PI: K. L. Schalinske. 2014) Not funded \$460,014

Technical evaluation: Investigating the antimicrobial properties of DDGS (Funded by Midwest Dairy Association. Authors: E. D. Testroet, S. Clark, and D. C. Beitz. 2013) **\$9,000**

Milk composition and cheese quality: Investigating the impact of DDGS (Funded by Midwest Dairy Association, Agricultural Utilization Research Institute, and Midwest Corn Growers Association. PI: D. C. Beitz. 2013) **\$71,144**

Free radical generation differential scanning calorimetry (FRG-DSC): A novel and reliable method for assessing oxidative stability and predicting shelf life of milk (submitted to the Iowa Science Foundation and accepted for funding. PI: D.C. Beitz. 2012) **\$5,000**

Publications

Refereed Publications

1. Deng, Y., G. Huang, F. Chen, E. D. **Testroet**, H. Li, T. Nong, X. Yang, J. Cui, B. Huang, D. Shi, S. Yang. 2019. Hypoxia enhances proliferation and stemness of buffalo (*bubalus bubalis*) adipose-derived mesenchymal stem cells via HIF-1a interaction with bFGF and VEGF. J Cell. Physiol. 234:17254-17268.
2. **Testroet**, E. D., D. C. Beitz, M. R. O'Neil, A. L. Mueller, H. A. Ramirez-Ramirez, and S. Clark. 2018. Feeding reduced-fat dried distillers grains with solubles to lactating Holstein dairy cows does not negatively influence cow performance or cause late-blowing in cheese. J. Dairy Sci. 101:1-13
3. Son, J. S., S. A. Chae, **E. D. Testroet**, M. Du, and H. Jun. 2018. Exercise-induced myokines: a brief review of controversial issues of this decade. Expert Rev. Endocrinol. Metab. 13:51-58
4. **Testroet**, E. D., C. L. Yoder, A. Testroet, C. Reynolds, M. R. O'Neil, S. M. Lei, and D. C. Beitz. 2017. Iodine values of adipose tissues varied among breeds of pigs and were correlated with pork quality. Adipocyte. 6(4):284-292.
5. **Testroet**, E. D., C. Yoder, A. Testroet, C. Reynolds, M. R. O'Neil, S. Lei, D. C. Beitz, T. J. Baas. 2017. Relationship of fat quality and meat quality traits of fresh pork. Adipocyte 1-9.
6. **Testroet**, E. D., S. Clark, and D. C. Beitz. 2017. Feed efficiency and performance of lactating Holstein dairy cows fed two different concentrations of dried distillers grains with solubles. Prof. Anim. Sci. 33(5):567-574.
7. **Testroet**, E. D., P. J. Sherman, C. Yoder, A. Testroet, C. Reynolds, M. R. O'Neil, S. Lei, D. C. Beitz, T. J. Baas. 2017. Modeling of hypertrophy and hyperplasia of porcine adipose tissue. Adipocyte. 6:102-111.

8. Sankarlal, V. M. E. D. **Testroet**, D. C. Beitz, and S. Clark. 2015. Short communication: No antimicrobial effects from one source of commercial dried distillers grains with solubles. J. Dairy Sci. 98: 8554-8559.
9. Sankarlal, V. M., E. D. **Testroet**, D. C. Beitz, and S. Clark. 2015. Dried distillers grains with solubles are not to blame for low-quality Swiss cheese. J. Dairy Sci. 98: 8545-8553.
10. **Testroet**, E. D., G. Li, D. C. Beitz, and S. Clark. 2015. Dried distillers grains with solubles affects composition but not oxidative stability of milk. J. Dairy. Sci. 98:2908-2919.

Submitted

1. S. Shome, A. Testroet, J. Reecy, K. Amin, K. Conley, J. Reecy, R. Jernigan, D. Dobbs, M. Du, S. Clark, and D. C. Beitz, E. D. **Testroet**. 2019. Characterization of the exosomal ncRNAome of the lactating dairy cow. J. Dairy Sci. Submitted.
2. M. R. O'Neil, E. D. **Testroet**, R. L. Stuart, and D. C. Beitz. Effect of breed and stage of maturity on concentration of serum β -carotene, vitamin E, 25-hydroxyvitamin D3, and vitamin A of Angus and Holstein cows and heifer calves. Appl. An. Sci. Submitted.

In Revision

1. **Testroet**, E. D., J. M. de Avila, S. Clark D. C. Beitz, and M. Du. 2019. The effect of palmitate and TNF α on abattoir-derived Holstein cow liver primary cell culture. In preparation to be re-submitted to J. Dairy Sci.

In Preparation

1. S. Weerasinghe, E. D. **Testroet**, D. Sashital, M. Shelley, and D. C. Beitz. 2018. Evaluating the effectiveness of delivery of quizzes either online or in-class on student learning and retention in both on-campus and distance-taught graduate-level biochemistry. In preparation to be submitted to Biochem. Educ.

Published Abstracts

1. LaCasse, M., S. Choudhary, R. Choudhary. J. de Avila, D. C. Beitz, M. Du, and **E. D. Testroet**. A nonperfusion-based method of hepatic cell isolation and development of fatty liver disease model for dairy cattle. Oral. To be presented at the 2020 Experimental Biology Annual Meeting, San Diego, CA.
2. S. Choudhary, R. Choudhary, LaCasse, M., J. de Avila, D. C. Beitz, M. Du, M. Rincon and **E. D. Testroet**. Expression of mitochondrial complex 1 inhibitor in bovine tissue, primary hepatic cells, and detection of its' transcript in conditioned media mimicking fatty liver disease. Oral. To be presented at the 2020 Experimental Biology Annual Meeting, San Diego, CA.

3. **Testroet**, E. D., S. Shome, A. Testroet, J. Reecy, R. L. Jernigan. M. Zhu, M. Du, S. Clark, and D. C. Beitz. Profiling of the exosomal cargo of bovine milk reveals the presence of immune- and growth-modulatory ncRNAs. Poster. Presented at the 2018 Experimental Biology Annual Meeting, San Diego, CA.
4. **Testroet**, E. D., M. R. O'Neil, D. C. Beitz, S. Clark. Feeding reduced-fat dried distillers grains with solubles to lactating Holstein dairy cows does not negatively influence quality of baby Swiss cheese. Oral. Presented at the 2017 American Dairy Science Association Annual Meeting, Pittsburgh, PA.
5. **Testroet**, E. D., M. R. O'Neil, D. C. Beitz, and S. Clark. 2016. Feeding lactating Holstein dairy cows reduced-fat dried distillers grains with solubles II: Milk composition. Poster. Presented at the 2016 Corn Utilization Technology Conference, St. Louis, MO.
6. M. R. O'Neil, E. D. **Testroet**, D. C. Beitz, and S. Clark. 2016. Feeding lactating Holstein dairy cows reduced-fat dried distillers grains with solubles I: Production parameters. Poster. Presented at the 2016 Corn Utilization Technology Conference, St. Louis, MO.
7. **Testroet**, E. D., S. Clark, and D. C. Beitz. 2015. Feed efficiency and performance of lactating Holstein dairy cows fed two different concentrations of dried distillers grains with solubles. ADSA-ASAS-CSAS Joint Annual Meeting, Orlando, FL.
8. **Testroet**, E. D., P. J. Sherman, A. Testroet, C. L. Yoder, S. Lei, C. Reynolds, M. R. O'Neil, T. J. Baas, and D. C. Beitz. 2015. Modeling of hypertrophy and hyperplasia in porcine adipose tissue. 2015 Experimental Biology Annual Meeting. 29(1):254.5
9. Sankarlal, V. M., E. D. **Testroet**, and S. Clark. 2014. Investigating the impacts of dried distillers grains with solubles on the quality of milk and baby Swiss cheese. ADSA-ASAS-CSAS Joint Annual Meeting. Kansas City, MO
10. **Testroet**, E. D., C. Yoder, C. Bustos, S. Lei, D. C. Beitz, and T. J. Baas. 2014. Relationship of fat quality to meat quality traits of pork. J. Anim. Sci. 92 E-Suppl. 2/J. Dairy Sci. 97 E-Suppl. 1:210. ADSA-ASAS-CSAS Joint Annual Meeting. Kansas City, MO
11. **Testroet**, E. D., G. Li, D. C. Beitz, and S. Clark. 2013. Dietary inclusion of dried distillers grains with solubles modifies milk composition and production in lactating cows. J. Anim. Sci. 91(Suppl. 2)/J. Dairy Sci. 96(Suppl. 1):11. ADSA-ASAS-CSAS Joint Annual Meeting.
12. Li, G., E. **Testroet**, S. Clark, and D. Beitz. 2013. Oxidative stability evaluation of milk from cows fed with dried distillers grains with solubles by sensory and chemical analyses. J. Anim. Sci. 91(Suppl. 1)/J. Dairy Sci. 96(Suppl.1):40. ADSA-ASAS-CSAS Joint Annual Meeting. Indianapolis, IN.
13. O'Neil, M., E. **Testroet**, M. Osman, W. Kreikemeier, D. Ware, and D. C. Beitz. 2013. Influence of the direct-fed microbial Bovamine on feed efficiency and milk production of lactating Holstein cows. J. Anim. Sci. (Suppl. 2)/J. Dairy Sci. 96(Suppl. 1):35-36. ADSA-ASAS-CSAS Joint Annual Meeting. Indianapolis, IN.

Extension Publications

1. **Testroet**, E. D., S. Shome, J. Reecy, R. L Jernigan, M. Zhu, M. Du, S. Clark, D. C. Beitz. 2017. Profiling of the exosomal cargo of bovine milk reveals the presence of immune- and growth-modulatory non-coding RNAs (ncRNA). Iowa State University Animal Industry Report, AS. Leaflet R.
2. **Testroet**, E. D., M. R. O'Neil, S. Clark, and D. C. Beitz. 2017. Feeding lactating Holstein dairy cows reduced-fat dried distillers grains with solubles: milk composition and feed efficiency. Iowa State University Animal Industry Report, AS. Leaflet R3152.
3. **Testroet**, E. D., M. R. O'Neil, S. Clark, and D. C. Beitz. 2017. Feeding lactating Holstein dairy cows reduced-fat dried distillers grains with solubles: quality of baby swiss cheese. Iowa State University Animal Industry Report, AS. Leaflet R3157.
4. **Testroet**, E. D., V. M. Sankarlal, S. Clark, and D. C. Beitz. 2016. Lactational performance of Holstein dairy cows fed two concentrations of full-fat corn dried distillers grains with solubles. Iowa State University Animal Industry Report. A.S. Leaflet R3069.
5. **Testroet**, E. D., C. Yoder, A. Testroet, C. Reynolds, M. R. O'Neil, S. Lei, D. C. Beitz, and T. J. Baas. 2015. Relationship of fat quality and meat quality traits of fresh pork. Iowa State University Animal Industry Report, AS. Leaflet R2942.
6. **Testroet**, E., G. Li, S. Clark, and D. C. Beitz. 2014. Quality of milk from lactating dairy cattle fed dried distillers grains with solubles. Iowa State University Animal Industry Report, AS. Leaflet R2871.
7. O'Neil, M., M. Osman, E. **Testroet**, W. Kreikemeier, D. Ware, and D. C. Beitz. 2014. Direct-fed microbials decreases dry matter intake and increases feed efficiency when fed to lactating Holstein dairy cows. Iowa State University Animal Industry Report, AS. Leaflet R2877.

Teaching Experience

1. The University of Vermont. BCOR011. Exploring Biology. Fall 2019.
2. The University of Vermont. ASCI302A Graduate Student Seminar, Spring 2019.
3. The University of Vermont. Advanced Ruminant Nutrition Guest Lecture – Ruminant Hepatic Metabolism
4. The University of Vermont. ASC001 Guest Lecture – Monogastric Nutrition and Metabolism
5. Iowa State University. Teaching Assistant for General Chemistry for Science Majors (Chemistry 177 and Chemistry 177L), Spring 2017.

6. Iowa State University. Head Teaching Assistant for General Chemistry for Science Majors (Chemistry 177), Fall 2016:
7. Iowa State University. Teaching Assistant for Biochemistry II (Biochemistry 405 and 405XW), Fall 2011, Summer 2013, Spring 2014, Spring 2015:
8. Iowa State University. Teaching Assistant for Principles of Biology Laboratory I (Biology 211L), Fall 2013, Fall 2014.
9. Iowa State University. Guest Lecturer for Physiological Chemistry (Biochemistry 420), Spring 2012.

Professional Memberships and Service

NCCC210 Multistate Experimental Group Chair – 2019-2020

Ad hoc Reviewer 2019 - current – Nature Scientific Reports – 1 manuscript

Ad hoc Reviewer 2019- current – Journal of Dairy Science – 3 manuscripts

The University of Vermont – Committee for Diversity, Equity, and Inclusivity 2018-2020

NCCC210 Multistate Experimental Group Co-Chair – 2018-2019

The University of Vermont Station Representative for NCCC210 Multistate Experimental Group – 2018 - present

Washington State University Showcase for Undergraduate Research and Creative Activities Judge - 2018

ASN Abstract reviewer - 2018

American Physiological Society: 2017- present

Judge for the Iowa Science competition - 2017

American Association for the Advancement of Sciences: 2016 - present.

Iowa State University Food Science and Human Nutrition Computer Allocation Committee: 2016-2017.

American Dairy Science Association Professional Development Committee: 2015-2016.

American Dairy Science Association Graduate Student Division Education Committee: 2015-2016.

Gamma Sigma Delta Honor Society: 2015 - present.

Sigma Xi Research Honor Society: 2015 - present.

American Dairy Science Association Graduate Student Division Dairy Foods Director: 2014-2015.

American Dairy Science Association Graduate Student Division Treasurer: 2013-2014.

Iowa State University Food Product Development Club Treasurer (founding member): 2012-2014.

American Dairy Science Association Member: 2011 - present.

American Society of Nutrition Member: 2011 - present.

American Dairy Science Association Graduate Student Division Education Committee: 2011-2013.

University of Vermont Professional Service

Sensory Evaluation Panel – UVM Extension OREI Grant – Coordinator Susan Brouillette

Graduate Education Committee 2019 – current

Diversity, Equity, and Inclusivity Committee 2018 – current

References

Dr. Donald C. Beitz
Distinguished Professor
Iowa State University
313 Kildee
dcbeitz@iastate.edu
515 294-5626

Dr. Stephanie Clark
Professor
Iowa State University
2553 Food Science
milkmade@iastate.edu
515-294-7346

Dr. Min Du
Professor and Endowed Chair
Washington State University
150 VBRB
min.du@wsu.edu
509-335-2744

References specific to Teaching Effectiveness:

Karen Bovenmyer
Program Coordinator
Center for the Integration of Research, Teaching, and Learning (CIRTL)
Iowa State University
kbovenmyer@iastate.edu
515-294-4065

References specific to Professional Service:

Dr. Leo Timms
Morrill Professor
Iowa State University
123 Kildee Hall

ltimms@iastate.edu
515-294-4522