Jennifer R. Wood

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EDUCATION

- **Ph.D. (2000)** University of Illinois, Champaign, IL; Department of Molecular and Integrative Physiology/Reproductive Endocrinology; Mentor: Ann M. Nardulli, Thesis: *Estrogen Receptor Conformation: Modulation by Estrogen Response Elements*
- **M.S. (1996)** University of Illinois, Champaign, IL; Department of Molecular and Integrative Physiology/Reproductive Endocrinology; Mentor: Ann M. Nardulli
- **B.A. (1992)** Indiana University, Bloomington, IN; Major: Microbiology

PROFESSIONAL TIMELINE

- **Associate Dean (2023-present)** Graduate Education, Office of Graduate Studies, University of Nebraska-Lincoln, Lincoln, NE
- **Professor (2020-present)** Molecular Reproductive Physiology, Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE
- **Associate Professor (2012-2020)** Molecular Reproductive Physiology, Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE
- **Assistant Professor (2006-2012)** Molecular Reproductive Physiology, Department of Animal Science, University of Nebraska-Lincoln, Lincoln, NE
- **Post-Doctoral Fellow (2000-2006),** Reproductive Physiology, Center for Research on Reproduction and Women's Health, University of Pennsylvania, Philadelphia, PA; Mentor: Jerome F. Strauss, III; Area of research: *Analysis of the PCOS Phenotype in Theca Cells and MII-Oocytes using Microarray Technology*
- **Graduate Research Assistant (1995-2000)** Department of Molecular and Integrative Physiology, University of Illinois, Champaign, IL; Funded by University of Illinois T32 Reproductive Biology Training Grant and American Heart Association Illinois Affiliate Student Award.
- **Graduate Teaching Assistant (1994-1995)** Department of Molecular and Integrative Physiology, University of Illinois, Champaign, IL; Courses – Organismic and Plant Biology (Fall 1994) and Human Physiology (Spring 1995)
- **Cytogenetic Technologist (1992-1994)** Department of Medical Genetics, Indiana University School of Medicine, Indianapolis, IN; Board Certified

LEADERSHIP

National and International

- President (2024-2025), Society for the Study of Reproduction
- Vice-President (2023-2024), Society for the Study of Reproduction
- Vice-President Elect (2022-2023), Society for the Study of Reproduction
- Secretary (2019-2022), Society for the Study of Reproduction
- Program Executive Committee Member (2019-2021), Society for the Study of Reproduction
- FASEB Publications and Communication Committee Member (2018-2020), Representative of the Society for the Study of Reproduction
- Awards Committee Chair (2013-2016), Society for the Study of Reproduction
- Director (2011-2013), USDA Multi-State Research Group, NE1227; Led USDA re-writes for project renewal in 2012, 2017, and 2022.
- Public Affairs Committee Member (2018), Society for the Study of Reproduction

Scientific Journals

- Senior Editor (2023-2024), Journal of Molecular Endocrinology and Journal of Endocrinology

- Editorial Board (2022-present), Molecular Cellular Endocrinology
- Associate Editor (2020-2023), Frontiers in Cell and Developmental Biology, Molecular and Cellular Reproduction
- Board of Reviewing Editors (2017-present), Biology of Reproduction
- Editorial Board (2016-2020), Molecular Reproduction and Development

University
- Student Health Insurance Committee (2023-present), Office of Grad Studies rep
- Post-Doctoral Annual Evaluation Committee (2023), Office of Grad Studies rep
- Women Supporting Women in IANR (2021-present), Steering Committee and Co-lead of Events Committee
- Faculty Senate (2021-2023), Department of Animal Science Representative
- Office of Research and Economic Development, Scientific Research Oversight Committee (2019-present), Co-Chair (2022-present)
- Molecular Mechanism of Disease Training Grant (2021-2023), Executive Committee Member
- Special Academic Freedom and Tenure -B Committee Chair (2020-2022), University Academic Rights and Responsibilities Committee
- Teaching and Learning Improvement Council Chair (2016-2018), College of Agricultural Sciences and Natural Resources, UNL

Department
- Promotion and Tenure Committee, Chair (2024-2025), Department of Animal Science, UNL
- Promotion and Tenure Committee, co-Chair (2023-2024), Department of Animal Science, UNL
- Promotion and Tenure Committee, member (2022-2023), Department of Animal Science, UNL
- Graduate Committee Chair (2020-2023), Department of Animal Science, UNL
- Safety Committee Chair (2011-2021)
- Departmental Mission Statement Development Committee (2013)

AWARDS AND RECOGNITION
- Recognition for Support of LGBTQA+ Students, UNL Center for Gender and Sexuality (2023)
- Outstanding Associate Editor, Frontiers in Molecular and Cellular Reproduction (2023)
- Gamma Sigma Delta Teaching Award (2019)
- Certificate of Recognition for Contributions to Students, UNL Teaching Council (2019, 2013)
- Biology of Reproduction 2017 Top Reviewing Editor, Society for the Study of Reproduction (2018)
- IANR Dinsdale Family Faculty Award, University of Nebraska (2012)
- Holling Family Junior Faculty Teaching Excellence Award, University of Nebraska (2011)
- Nebraska Physiological Society, Young Investigator Award (2008)
- Society of Gynecological Investigation, President's Presenter Award (2005)
- University of Pennsylvania, Bayard T. Storey Research Award (2004)
- Endocrine Society, Young Investigator's Travel Grant (2001)
- University of Illinois, American Heart Association Illinois Affiliate Student Award (1998-2000)
- University of Illinois, Reproductive Biology Training Grant Predoctoral Trainee (1996-1998)

ADMINISTRATIVE (0.49 FTE)
Contribute to the leadership team in the Graduate College including strategic planning and prioritization of programming for graduate students at the University of Nebraska. I lead the teams that deliver content for grad student onboarding, teaching and pedagogy support, manuscript and grant writing support, grad student wellness, postdoctoral fellow support, the summer undergraduate research program, and the McNair Scholars program.

RESEARCH (0.41 FTE)

Obesity, characterized by hyperglycemia and chronic inflammation, results in female subfertility, increased incidence of miscarriage, and reduced IVF success. This is due in part to poor oocyte quality. However, the mechanistic effects of inflammation on the developing oocyte are poorly understood. My research program takes a molecular and cellular approach to (1) demonstrate that signaling pathways activated by proinflammatory cytokines, excess adipose tissue, and hyperglycemia differentially alter somatic cell steroidogenesis and oocyte development; (2) delineate mechanisms by which inflammation changes the stability and localization of critical oocyte mRNA during oocyte maturation; and (3) identify the effects of abnormal oocyte mRNA abundance on activation of the embryonic genome and subsequent differentiation of trophectoderm cells which are precursor cells of the placenta.

INVITED TALKS

1. **Warnick Lecture**, Disruptions in oocyte maturation and the oocyte-embryo transition during in vitro production of embryos (2023) *Department of Animal Sciences,* University of Florida, Gainsville, FL
2. **Alumnus Speaker,** The Journey: Reproductive Physiology in Champaign, Philadelphia, and Lincoln (2021) *Illinois Symposium on Reproductive Sciences*, University of Illinois, Champaign, IL
3. **Seminar Speaker,** Chronic Systemic Inflammation due to Diet-Induced Obesity causes Ovarian Oxidative Stress and Impairs Oocyte Quality, (2020) *Department of Biological Sciences,* Wichita State University, Wichita, KS
4. **Pre-Congress Speaker,** Obesity and Gamete Quality and Interplay between the Microbiome, Obesity, and the Oocyte, (2018) Pre-Congress Course: Germ Cell Environment and its Impact on Gamete Quality, *American Society of Reproductive Medicine Annual Meeting*, Denver, CO
5. **Invited Speaker**, Chronic Inflammation and Gut Microbiome Effects on Gamete Quality, (2018) Metabolic Stress and Female Fertility Session, *Society for the Study of Reproduction,* New Orleans, LA
6. **Guest Lecturer**, Fertility, Infertility, and Developmental Programming: What Role of Maternal Microbiomes? (2018) *Northwestern University Reproductive Technologies,* Chicago, IL
7. **Session Speaker**, Maternal Obesity, the Gut Microbiota, and Oocyte mRNAs: Potential Impact on the Developing Embryo and Fetus, (2017) *4th World Congress of Reproductive Biology*, Naha Okinawa, Japan
8. **Seminar Speaker**, Negative Impact of Female Obesity on Fertility and Offspring Health: What Role Do Gut Microbes and Oocyte mRNAs Play? (2017) *Center for Research on Reproduction and Women's Health,* University of Pennsylvania, Philadelphia, PA
9. **Wise and Helen Burroughs Lectureship Speaker**, Negative Impact of Female Obesity on Fertility and Offspring Health: What Role Do Gut Microbes and Oocyte mRNAs Play? (2017) *Modern Views in Nutrition Series,* Iowa State University, Ames, IA
10. **Seminar Speaker**, Obesity-Impaired Fertility: Role of Inflammation on Oocyte Quality and Early Embryonic and Fetal Development, (2017) *Division of Diabetes, Endocrinology, and Metabolism, Dept. of Internal Medicine*, University of Nebraska Medical Center, Omaha NE
11. **Session Speaker**, Obesity and the Development of Bad Eggs: Role of Inflammation and an Altered Gut Microbiome, (2016) *Southeast Lipid Research Conference*, Lexington, KY
12. **Grand Rounds**, Bad Eggs: Role of Obesity-Induced Inflammation and an Altered Gut Microbiome, (2016) *Dept. Ob/GYN,* University of Nebraska Medical Center, Omaha, NE
13. **SEMINAR SPEAKER,** Influence of Ovarian Environment on Oocyte Growth and Maturation: Lessons Learned from Cows and Mice (2014) *Department of Animal Science,* University of Nebraska-Lincoln
14. **Seminar Speaker**, Influence of Ovarian Environment on Oocyte Growth and Maturation: Lessons Learned from Cows and Mice, (2012) *Iowa State Animal Science Department*, Ames, IA

15. **Speaker**, Genomic and Environmental Determinants of Female Fertility and Fetal Development, (2012) *External Advisory Committee,* Department of Animal Science University of Nebraska-Lincoln, Lincoln, NE
16. **Speaker**, Strategies to Improve Heifer Selection and Heifer Development, (2012) *Ag Builders of Nebraska Annual Meeting,* US Meat Animal Research Center, Clay Center, NE
17. **Speaker**, Effect of an Obese Phenotype on Transcriptional and Post-Transcriptional Regulation of Oocyte mRNA Abundance, (2011) *Gilbert Greenwald Symposium,* University of Kansas Medical Center, Kansas City, KS
18. **Grand Rounds Speaker**, PCOS, the Obese Phenotype, and the Regulation of Oocyte Quality, (2011) *Dept. Ob/GYN, University of Nebraska Medical Center*, Omaha, NE
19. **Physiology Symposium Speaker**, The Oocyte Molecular Phenotype: Influence of the Follicular Environment and Body Condition, (2010) *American Society of Animal Science Midwest Animal Science Meeting*, Des Moines, IA
20. **Seminar Speaker**, Impact of the Maternal Metabolic Profile on Ovarian Function and Embryonic Development, (2010) *Omaha VA Medical Center*, Omaha, NE
21. **Speaker**, Effect of Obesity on Ovarian Function, Oocyte Quality, and, Embryonic Development, (2010) *JS Davis Reproductive Physiology Group*, Dept Ob/GYN University of Nebraska Medical Center, Omaha, NE
22. **Seminar Speaker**, Effect of Obesity on Ovarian Function, Oocyte Quality, and Embryonic Development, (2010) *Nebraska Gateway to Nutrigenomics*, UNL, Lincoln, NE
23. **Seminar Speaker**, Importance of Good Oocyte-Granulosa Cell Communication for Optimal Oocyte Quality, (2009) *University of Wyoming Department of Animal Science*, Laramie, WY
24. **Symposium Speaker**, Expression Profile of MTOC-Associated Genes and Growth Factors in the Ovary, (2008) *11th Annual Nebraska Physiological Society Meeting*, Omaha, NE
25. **Seminar Speaker**, Expression of NIMA-Related Kinases in the Ovary: Do They Influence Oocyte Quality, (2008) *The Fels Institute, Temple University School of Medicine*, Philadelphia, PA
26. **DC Johnson Seminar Series Speaker**, Regulation of Oocyte Gene Expression: Implications for Oocyte Quality and Embryonic Development (2007) *University of Kansas Medical Center*, Kansas City, KS
27. **Seminar Speaker**, The Effect of Disrupted Insulin Signaling on Reproductive Capacity: A Tale of Mice and (Wo)Men, (2006) *US Meat Animal Research Center*, Clay Center, NE

GRANTS

Extramural Funding -Ongoing

1. PENDING, WOOD JR (PI) USDA-NIFA-AFRI –Epitranscriptomic Regulation of Oocyte Maturation and Embryo Development, Objective: Determine how disruption of RNA methylation by oxidative stress affects attainment of developmental milestones during oocyte maturation and embryo development, $649,999
2. PENDING, WOOD JR (PI) NIH- R35GM158360-01, -P*ost-Transcriptional Modifications that Regulate Maternal mRNA Metabolism,* Objective: Determine how m6A modifications differentially regulate the metabolism of oocyte-generated and newly transcribed embryonic mRNAs, $1,856,751
3. 07.2024-06.2027, CUPP AS (PI, WOOD JR CO-I) USDA-AFRI, -*Androgen Excess Ovarian Microenvironment on Bovine Folliculogenesis*, Objective: Determine the effect of excess androgens on ovarian fibrosis and reduced granulosa cell proliferation as well as the ability of VEGF and AR inhibitors to reverse the effects of androgens, $650,000
4. 06.2024-05.2026, Ermisch AE (PI, Wood Mentor) USDA-AFRI, *Regulation of mRNA Methylation during Bovine Oocyte In Vitro Maturation,* Objective: Uncover the mechanisms regulating mRNA methylation during bovine oocyte in vitro maturation and how these normal processes may be dysregulated due to oxidative stress, $225,000.
5. 10.2023-09.2026, Fissore R and Wood JR (co-PIs) Gates Foundation INV-058104, *SSR and Frontiers in Reproduction Grant to Advance Research in Female Contraception Basic Research*.

Objective: This project will focus on improving human health by developing contraceptive technology in low- and middle-income countries. Our approach includes ongoing support, mentoring, and long-term follow-up, to ensure steady growth of trained professionals and research capacity with positive global impact. $1,015,308

6. 09.2023-08.2027, Cupp AS (PI, Wood JR co-I) NIH-USDA Dual Purpose for Dual Benefit (subcontract from UNMC) Metabolic and Mitochondrial Signals during Ovulation. Objective: Determine the metabolic factors that affect transition of follicular cells into luteal cells and changes in metabolic function. $233,332 (UNL subaward)
7. 06.2023-05.2027, Natarajan S (PI, Wood co-I), USDA-NIFA-AFRI Foundational Grant #2022-09465, *Bioactive Components of Macadamia Nut Protects Against Maternal Obesity-induced Complications*, Objective: Understanding the potential of dietary macadamia nut supplementation to mitigate the effects of maternal obesity on the placenta. $638,000

Extramural Funding -Completed

1. 06.2017-05.2022, DAVIS JS (PI, WOOD CO-I) NIH-R01 Dual Purpose with Dual Benefit: Research in Biomedicine and Agriculture using Agriculturally Important Domestic Animal Species, *Metabolic Regulators of Corpus Luteum Function*. Objective: this proposal will test the hypothesis that ovarian lipid droplets provide a metabolic or hormone-sensitive organelle which can provide cellular energy and/or store and mobilize substrate for progesterone synthesis. $219,741.
2. 05.2019-12.2020, SNIDER AP (LEAD PI, WOOD MENTOR) USDA-NIFA-AFRI Post-Doctoral Fellowship, *Inflammatory Ovarian Microenvironment Alters Granulosa Cell Functions*. $164,950.
3. 05.2019-04.2021, PLEWES ML (LEAD PI, WOOD MENTOR) USDA-NIFA-AFRI Post-Doctoral Fellowship, *Hormonal Regulation of Mitochondria and Luteal Function*. $165,000.
4. 04.2017-03.2020 DAVIS JS (PI, WOOD CO-I) USDA-NIFA-AFRI Foundational Grant (2016-10013), *Lipid Metabolism and Steroidogenesis* Objective: Determine the role and regulation of lipid droplets on luteal cell steroidogenesis. $63,883.
5. 08.2017-04.2020 DAVIS JS (PI, WOOD CO-I) NIH-NICHD-NIH-R01 Investigator Initiated Grant, *Metabolic Events Controlling Ovarian Steroidogenesis* Objective: test the hypothesis that lipid droplets are a metabolic and hormone sensitive organelle which can provide cellular energy and/or store and mobilize substrate for progesterone synthesis. $92,277.
6. 10.2015-9.2017, ROMEREIM (LEAD PI, WOOD MENTOR), USDA-NIFA-AFRI Postdoctoral Fellowship: *Mechanisms Underlying a High-Androgen Environment and Associated Infertility in Cattle*. $141,940.
7. 10.2013-09.2016, CUPP AS AND WOOD JR (MULTIPLE PI), USDA-NIFA-AFRI Foundational Grant (2013-67015-20965), *Causes and consequences of androgen excess on oocyte quality.* Objective: Define gonadotropin-dependent or gonadotropin-independent mechanisms causing divergent follicular fluid A4 accumulation in LGE vs. HGE cows. $499,994.
8. 01.2013 – 12.2015, CIOBANU D (PI, WOOD COLLABORATOR), NIFA Integrated AFRI- Translational Genomics for Improved Fertility of Animals: *Translational Genomics for Improving Sow Reproductive Longevity,* Objective: Determine genetic x diet interactions that result in earlier onset of gilt puberty and its predictive value of reproductive longevity of the sow.
9. 10.2010 – 09.2012, JOHNSON R (PI, WOOD CO-I), NE Pork Producers Association: *Using High-Fiber Diets to Limit Energy Intake in Developing Gilts: Effects on Puberty, Reproduction, Culling Rates, Lifetime Productivity and Progeny Health and Growth*

UNL Competitive Grants -Ongoing

1. 10.2023-09.2027, WOOD JR (PI), USDA Hatch Multi-State Enhanced Strengthening Grant: *Epitranscriptomic Regulation of Bovine Developmental Milestones,* Objective: Determine how RNA methylation affects the stability, translation, and degradation of mRNAs during oocyte maturation and cell differentiation during pre-implantation embryo development. $200,000

2. 10.2023-09.2027, NATARAJAN S (PI, WOOD JR, CO-I), USDA Hatch Multi-State Enhanced Strengthening Grant: *Dietary Palmitoleate Protects against Maternal Obesity-Induced Complications,* Objective: Understanding the potential of dietary macadamia nut supplementation to mitigate the effects of maternal obesity on the placenta. $200,000
3. 07.2023-06.2024, WOOD JR (PI) ARD Revision Award for an NIH-R01 Investigator Initiated Grant, 1R01HD112629 -*Dynamics of mRNA Metabolism in Oocytes and Embryos*, Objective: Identify mechanisms that regulate mRNA stability vs. translation and/or degradation during the maternal-zygotic transition which is a key milestone in embryo development. $29,980

UNL Competitive Grants -Completed

1. 07.2021-06.2023, WOOD JR (PI) University of Nebraska Collaboration Initiative Grant, *Maternal Diabetes and Mitochondrial Dysfunction in Fetal Heart*. Objective: Demonstrate that reduced miR-133a expression in oocytes and cardiomyocytes, due to maternal DM, results in delays in mitochondrial maturation during fetal heart development and structural defects of the fetal heart. $150,000.
2. 10.2017-9.2022, WOOD JR (PI), USDA Hatch Multi-State Enhanced Strengthening Grant: *Effects of Gut Microbiome on Oocyte Quality and Reproductive Performance Beef Cows*, Objective: Establish a mechanistic relationship between the composition of the bovine gut microbiome, ovarian inflammation and oxidative stress, and reduced oocyte quality which could result in either loss or altered embryo development. $325,536
3. 10.2016-9.2021, CUPP AS (PI, WOOD CO-I), USDA Hatch Multi-State Enhanced Strengthening Grant: Effect of Excess Androgen on Metabolic, Immune, and Reproductive Function in Beef Cows, Objective: determine how excess androgen in cows may affect metabolic reproductive function and how to select and/or manage for reproductive success. $450,000.
4. 01.2020-01.2021, WOOD JR (PI), Office of Research and Economic Development, Univ Nebraska-Lincoln: *Role of Diet and the Gut Microbiome on Ovary Inflammation and Oocyte Quality*. Objective: determine obesity dependent changes in lipopolysaccharide (LPS) leak from the gut on the abundance of mRNAs in oocytes and altered metabolism in cumulus granulosa cells. $50,000
5. 07.2017-06.2019, WOOD JR (PI), Univ. Nebraska Foundation, Food for Health Formed/Forming Team Grant: *Maternal Obesity-Dependent Mechanism that Increase Offspring Predisposition for Metabolic Dysfunction*. Objective: Identify novel signaling pathways and downstream targets that are differentially activated and/or expressed in the placenta and gut microbiome of the obese dam which direct lasting effects on the function of post-natal skeletal muscle, pancreas, and liver. $150,000.
6. 04.2016-02.2018 CUPP AS (PI, WOOD CO-I), Univ. Nebraska Foundation, Food for Health Team Strengthening Grant: *The Interaction of Prenatal Programming and Gene Variants on Altered Metabolic, Immune, and Reproductive Function Resulting in Reduced SHBG*. Objective: Determine if high-protein supplemented diets during prenatal period cause altered lipid accumulation, organ development/function, and inflammation resulting in reduced SHBG and excess androgens which may further contribute to metabolic dysfunction in offspring. $300,000.
7. 04.2016-02.2018 DAVIS JS (PI, WOOD CO-I), Univ. Nebraska Foundation, Food for Health Team Strengthening Grant: *Post-transcriptional mRNA Regulation Impacts Production of Inflammatory Molecules and Fertility*. Objective: Demonstrate that lipid mediators stimulate intracellular signaling mechanisms that regulate AU-rich element (ARE)-containing mRNA and induce the expression of cytokines that disrupt ovarian function. $300,000.
8. 9.2013-8.2018, CUPP AS (PI, WOOD CO-I), USDA/Animal Health Grant: *Effects of Alterations in the Steroidogenic Pathway on Folliculogenesis and Fertility in the Beef Cow.* $90,000.
9. 3.2016-02.2017, WOOD JR (PI), Univ. Nebraska Foundation, Food for Health Planning Grant: *Adaptive Programming of Childhood Diseases and Disorders.* Objective: develop a team of scientist that will determine the mechanistic relationship between maternal obesity and fetal programming of metabolic, neural, and reproductive systems. $18,578

10. 8.2015-1.2017, WOOD JR (PI), UNL Office of Research Biomedical Research Seed Grant Program: *Developmental Programming of Sarcopenic Obesity*. Objective: Determine if maternal obesity causes sarcopenic obesity in offspring due to reduced satellite cell and muscle fiber density as well as motor neuron development. $50,000
11. 10.2012 – 09.2017, WOOD JR (PI), NIFA Multi-State Research Project in Animal Reproduction (NE1227): *Ovarian Influences on Embryonic Survival in Ruminants*. Objective: Identify genetic, morphological and physiological attributes of the ovary considered to improve fertility in ruminants, $100,000.
12. 10.2014-09.2016; CUPP AS AND CUSHMAN RA (CO-LEAD PIS, WOOD COLLABORATOR), IANR ARD & US MARC Collaborative Research Funding: *Strategies to Improve Heifer Longevity*. Objective: Determine the relationship between antral follicle count, reproductive longevity, and age at puberty in beef cattle. $80,000.
13. 01.2013-12.2013; WOOD JR (PI); Office of Research Faculty Seed Grant: *Impact of Increased Maternal RNAs on Embryonic Development*. Objective: Determine how Bnc1-dependent increases in maternal rRNAs and mRNAs in the oocyte impacts selective degradation of the accumulated RNAs during embryonic development, $10,000.
14. 1.2011-12.2011, OTHMAN S (PI, WOOD CO-I), Interdisciplinary Research Award: *Magnetic Resonance Elastography for Noninvasive Diagnosis and Staging of Fatty Liver Disease*, Objective: Determine the effect of diet and genetics on the mechanical properties and hormonal profile of the liver, $20,000.
15. 4.2010-3.2012, WOOD JR (PI), IANR Strategic Investments Seed Grant: *Effect of Metabolic Hormone Signaling on Developmental Programming of the Embryo*, Objective: Determine the impact of increased adiposity on the expression of germ layer and progenitor cell markers in the developing embryo, $59,968.
16. 1.2010-12.2010, WOOD JR (PI), Research Council Faculty Seed Grant: *IGF-1 Regulation of Epigenetic Programming during Germ Layer Differentiation*, Objective: Determine the role of IGF-1, which is elevated in obese individuals, on epigenetic modifications at the promoters of genes involved in germ layer and progenitor cell differentiation, $10,000.
17. 6.2007-5.2008, WOOD JR (PI), Office of Research and Economic Development Layman Funds: *Insulin Signaling and the Regulation of Oocyte Quality*, Objective: Establish an *in vitro* culture system for ovarian follicles that will mimic the *in vivo* processes of gene expression and maturation of the oocyte. The effect of insulin on oocyte gene expression in the *in vitro* culture system is also being examined, $10,000.
18. 1.2008-12.2008, WOOD JR (PI), Research Council Faculty Seed Grant: *Estrogen Regulation of Nek2 in Breast Cancer Cells*, Objective: Define an E_2-dependent gene expression profile for Nek2 and identify elements in the Nek2 promoter which confer this E_2-responsiveness, $10,000.
19. 1.2007 –12.2007, WOOD JR (PI), Research Council Faculty Seed Grant: *Regulation of Female Reproductive Capacity by Metabolic Hormones*, Objective: Examine the impact of metabolic hormones including insulin and leptin on follicle and oocyte growth and maturation, $10,000.
20. 4.2002-12.2004, WOOD JR (JR-PI), Andrew W. Mellon Foundation Junior Investigator Award: *Regulation of Folliculogenesis by Wnt Signaling Proteins*, Objective: Define the mechanism of Wnt-dependent modulation of granulosa cell steroidogenesis and identify the role of the Wnt signaling pathway on follicle growth and development.

PEER-REVIEW MANUSCRIPTS (2,446 CITATIONS; H-INDEX, 23)

In Review

1. Przygrokzka E, Binderwala F, Powers R, McFee RM, Cupp AS, Wood JR, and Davis JS (2024) Central role for glycolysis and fatty acids in LH-responsive progesterone synthesis. *bioRxiv*, PMID: 38405789

Published

1. Ermisch AF and Wood JR (2024) Regulation of Oocyte mRNA Metabolism: A Key Determinant of Oocyte Developmental Competence. *Adv Anat Embryol Cell Biol*, 238: 23-46, PMID: 39030353
2. Plewes MR, Talbott HA, Schott MB, Wood JR, Cupp AS, Davis JS (2024) Unraveling the role of lipid droplets and perilipin 2 in bovine luteal cells. *FASEB J* 38:e23710, PMID: 38822676
3. Sahoo PK, Krishnamoorthy C, Wood JR, Hanson C, Anderson-Berry A, Mott JL, and Natarajan SK (2024) Palmitate induces integrated stress response and lipoapoptosis in trophoblasts. *Cell Death and Disease,* 15:31, PMID: 38212315
4. Snider AP, Spuri-Gomes R, Summers AF, Tenley SC, Abedal-Majed MA, McFee RM, Wood JR, Davis JS, and Cupp AS (2023) Identification of lipids and cytokines in plasma and follicular fluid before and after FSH stimulation as potential markers for follicular maturation in cattle. *Animals,* 13:3289, PMID: 37894013
5. Monaco CF, Plewes MR, Przygrodzka E, George JW, Qiu F, Xiao P, Wood JR, Cupp AS, Davis JS (2023) Basic fibroblast growth factor (FGF2) induces proliferation and collagen production by fibroblasts derived from the bovine corpus luteum *Biol Reprod* 109: 367-380, PMID: 37283496
6. Plewes MR, Przygrodka E, Monaco CF, Snider AP, Keane JA, Burns PD, Wood JR, Cupp AS, Davis JS (2023) Prostaglandin F2a regulates mitochondrial dynamics and mitophagy in the bovine corpus luteum. *Life Sci Alliance* 6: e202301968, PMID: 37188480
7. Ermisch AF, Bidne KL, Kurz SG, Bochantin KA, and Wood JR (2023) Ovarian inflammation mediated by TLR-4 increased transcripts of maternal effect genes and decreased embryo development. *Biol Reprod* 108(3): 423-436, PMID: 36461933
8. Abedal-Majed MA, Springman SA, Sutton CM, Snider AP, Bell BE, Hart M, Kurz SG, Bergman J, Summers AF, McFee RM, Davis JS, Wood JR, and Cupp AS (2022) VEGFA165 can rescue excess steroid secretion, inflammatory markers, and follicle arrest in the ovarian cortex of high A4 cows. *Biol Reprod,* 106: 118-131, PMID: 34726240
9. Przygrodzka E, Monaco CF, Plewes MR, Li G, Wood JR, Cupp AS, and Davis JS (2021) Protein kinase A and 5' AMP-activated protein kinase signaling pathways exert opposite effects on induction of autophogy in luteal cells. *Front Cell Dev Biol*, 9:723563, PMID: 34820368
10. McFee RM, Romereim SM, Snider AP, Summers AF, Pohlmeier WE, Kurz SG, Cushman RA, Davis JS, Wood JR, and Cupp AS (2021). A high androgen microenviroment inhibits granulosa cell proliferation and alters cell identity. *Mol Cell Endocrinol,* 531:111288, PMID: 33905753
11. Snider AP, Romereim SM, McFee R, Summers AF, Pohlmeier WE, Kurz SG, Davis JS, Wood JR, and Cupp AS (2021) Transcriptomic data of bovine ovarian granulosa cells of control and High A4 cows. Data in Brief, 37:107217, PMID: 34189206, PMCID: PMC8220326
12. Nafziger S, Tenley S, Summers AF, Abedal-Majed MA, Hart M, Bergman J, Kurz SG, Davis JS, Wood JR, Cupp AS (2021). Attainment and maintenance of pubertal cyclicity may predict reproductive longevity in beef heifers. *Biol Reprod* 104:1360-1372, PMID 33709137
13. Bidne KL, Rister AL, McCain AR, Hitt BD, Dodds ED, and Wood JR. (2021) Maternal obesity alters placental lysophosphatidylcholine, lipid storage, and the expression of genes associated with lipid metabolism. *Biol Reprod* 104: 197-210, PMID: 33048132, PMCID: PMC7946805 *Editor's choice, Cover Image*
14. Talbott HA, Plewes MR, Krause C, Xiaoying H, Zhang P, Rizzo WB, Wood JR, Cupp AS, and Davis JS. (2020) Formation and characterization of lipid droplets of the bovine corpus luteum. *Scientific Reports* 10: 11287, PMID 32647143, PMCID: PMC7347867
15. Dumesic DA, Wood JR, Abbott DH, and JF Strauss III. (2020) A primate perspective on oocytes and transgenerational PCOS. *Reprod Biomed Online*, 40:765-767, PMID: 32312513, PMCID: PMC7847722
16. Plewes MR, Krause C, Talbott HA, Przygrodzka E, Wood JR, Cupp AS, and Davis JS. (2020) Trafficking of cholesterol from lipid droplets to mitochondria in bovine luteal cells: acute control of progesterone synthesis. *FASEB J*, 34: 10731-10750, PMID 32077149, PMCID: PMC7347867

17. Plewes MR, Hou X, Talbott H, Zhang P, Wood JR, Cupp AS, and Davis JS. (2020) Luteinizing hormone regulates the phosphorylation and localization of the mitochondrial effector dynamin like 1 (DRP1) and steroidogenesis in the bovine corpus luteum. *FASEB J,* 32:5299-5316, PMID: 32077149
18. Abedal-Majed MA, Kurz SG, Springman SA, McNeel AK, Freetly HC, Largen V, Magamage M, Sargent KM, Wood JR, Cushman RA, Cupp AS (2019) Vascular endothelial growth factor A isoforms modulate follicle development independent of diet in peri-pubertal heifers through diverse signal transduction pathways. *Biol Reprod* 102: 680-692, PMID: 31723977
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ABSTRACTS -NATIONAL MEETINGS

1. Ermisch AF and Wood JR (2024) Comparison of N^6-methyladenosine modification of mRNA during the bovine and murine oocyte to embryo transition. *50th Annual Meeting of the International Embryo Transfer Society*, Denver, CO
2. Ermisch AF and Wood JR (2023) N^6-methyladenosine dynamics and differential methylation of maternal and zygotic mRNAs during the early stages of the maternal to zygotic transition. *56th Annual Meeting of the Society for the Study of Reproduction*, Ottawa, Canada, **Pre-doctoral Platform Competition Talk**
3. Rose PA, Bidne KL, Ermisch AF, Ferrer C, and Wood JR (2022) Dams with increased adiposity have reduced circulating estrogen, decreased trophectoderm expansion, and decreased placenta weight. *55th Annual Meeting of the Society for the Study of Reproduction*, Spokane, WA, **Oral presentation**
4. Ermisch AF and Wood JR (2022) A novel combined fluorescence in situ hybridization and immunofluorescence technique allows for identification of mRNA and protein interactions in a single oocyte or embryo. *55th Annual Meeting of the Society for the Study of Reproduction*, Spokane, WA
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12. Keane JA, Nafziger SR, Bergman JW, Kurz SG, Snider AP, Bochantin KA, Wood JR, Cushman RA, Summers AF, and Cupp AS (2020) Environmental parameters may increase likelihood of beef heifers classified with earlier or later pubertal attainment. *53rd Annual Meeting of the Society for the Study of Reproduction*, Virtual
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14. Bidne KL, Rister AL, McCain AR, Dodds ED, and Wood JR. (2019) Western diet consumption alters lipid profiles in dam circulation and placenta. *Triennial Perinatal Biology Symposium*, Snowmass, CO
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23. Neilson MA, Spuri-Gomes R, Romereim SM, Summers AF, Abedal-Majed MA, Tenley SC, Kurz SG, Bergman J, Davis JS, Wood JR, and Cupp AS (2018) Altered Blood Plasma and Follicular Fluid Lipid Profiles Suggest Possible Discrepancies in Cell Signaling and Metabolism in Cows with Androgen Excess. *51st Annual Meeting of the Society for the Study of Reproduction*, New Orleans, LA
24. Snider AP, Romereim SM, Summers AF, Pohlmeier WE, McFee RM, Spuri-Gomes R, Kurz SG, Davis JS, Wood JR, and Cupp AS (2018) Exposure to Excess Androgen in the Ovarian Microenvironment of High A4 Cows Results in Altered Function of Granulosa Cells which may Explain Changes in Cyclicity and Response to Male Exposure. *51st Annual Meeting of the Society for the Study of Reproduction*, New Orleans, LA
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41. Abedal-Majed MA, Magamage M, Vinton R, Cushman RA, McNeel AK, Freetly HC, Wood JR, and Cupp AS (2015) Vascular endothelial growth factor A 165 (VEGFA165), angiogenic isoform, promotes while VEGFA165b antagonizes VEGFA165 stimulated follicular progression in bovine ovarian cortical pieces cultured from pre-pubertal heifers. *Society for the Study of Reproduction 48th Annual Meeting*, San Juan, Puerto Rico
42. Romereim SM, Summers AF, Pohlmeier WE, McFee RM, Spuri-Gomes R, Kurz SG, McNeel AK, Cushman RA, Davis JS, Wood JR, and Cupp AS (2015) Granulosa cell cycle regulation and steroidogenesis in a high androstenedione follicular microenvironment. *Society for the Study of Reproduction 48th Annual Meeting*, San Juan, Puerto Rico
43. Spuri-Gomes R, Tenley SC, Kurz SG, Wood JR, and Cupp AS (2015) Cows with intrafollicular androgen excess have lower sex hormone binding globulin and appear to be chronic or sporadic anovulatory. *Society for the Study of Reproduction 48th Annual Meeting*, San Juan, Puerto Rico
44. Summers AF, Pohlmeier WE, Sargent KM, Kurz SG, McFee RM, McNeel AK, Cushman RA, Wood JR, and Cupp AS (2014) Granulosa Cell Gene Expression Profiling in Cows with Divergent

Follicular Fluid Concentrations of Androgens. *Society for the Study of Reproduction 47th Annual Meeting*, Grand Rapids, MI

45. Xie F, Pohlmeier WE, Rifer JL, and Wood JR (2014) Diet-Induced Obesity Increases Basonuclin1, Growth Differentiation Factor 9 and Developmental Pluripotency-Associated Protein 3 mRNAs in Growing Oocytes and Alters Ovarian AKT, ERK and STAT3 Signaling. *Society for the Study of Reproduction 47th Annual Meeting*, Grand Rapids, MI
46. McFee RM, Kurz SG, Summers AF, Pohlmeier WE, Wood JR, Cushman RA, and Cupp AS (2013) Granulosa cells activate different signal transduction pathways dependent on follicle health status and ability to convert androstenedione to estrogen resulting in different steroidogenic profiles for beef cattle follicles. *Society for the Study of Reproduction 46th Annual Meeting*, Montreal, Quebec, Canada
47. Summers AF, Pohlmeier WE, Brauer VM, Sargent KM, McFee RM, Cushman RA, Wood JR, and Cupp AS (2013) A bovine model for polycystic ovary syndrome. *Society for the Study of Reproduction 46th Annual Meeting*, Montreal, Quebec, Canada
48. Pohlmeier WE, Xie F, Lu N, Smith JE, Wood JR (2013) Progressive obesity alters the steroidogenic response to ovulatory stimulation and increases the abundance of RNAs stored in the MII-arrested oocyte. *Society for the Study of Reproduction 46th Annual Meeting*, Montreal, Quebec, Canada
49. Xie F, Pohlmeier WE, Lu N, Smith JE, McKnite AM, Ciobanu DC, and Wood JR (2013) Genetic background determines the effect of a high fat diet on body weight, ovulation rates, ovarian steroidogenesis, and mRNA abundance of maternal effect genes in ovulated MII-arrested oocytes. *Society for the Study of Reproduction 46th Annual Meeting*, Montreal, Quebec, Canada
50. Khalilzad-Sharghi V, Pohlmeier WE, Tart JK, Greiss RS, Wood JR, and Othman SF (2012) MRE and QPCR indicate Changes in Liver Phenotypes upon Consumption of a High Fat Diet. *Biomedical Engineering Society Annual Meeting*, Atlanta, GA
51. Summers AF, Pohlmeier WE, McFee RM, Brauer VM, Kurz S, Cushman RA, Wood JR, and Cupp AS (2012) VEGF164B mRNA Abundance has a Positive Relationship to AMH, BCL2 and the Ratio of E2:A4 in Mural Granulosa Cells of Estrogen Active and Inactive Follicles Prior to Ovulation. *Society for the Study of Reproduction 44th Annual Meeting*, State College, PA
52. Norwood KA, Brandt AK, and Wood JR (2012) Maternal Obesity Induces Placenta Oxidative Stress and Alters the Differentiation of Mesodermal Cells to the Myogenic versus Adipogenic Lineage. *Society for the Study of Reproduction 44th Annual Meeting*, State College, PA, **Oral presentation, Lalor Merit Award**
53. Wood JR, Yang Z, and Smith JE (2011) Genes involved in the immediate early response and epithelial mesenchymal transition are regulated by adipocytokines in the female reproductive tract, *Society for the Study of Reproduction 43rd Annual Meeting*, Portland, OR
54. Summers A, Cushman R, Smith JE, Lammers B, McFee R, Pohlmeier W, Brauer V, Sargent K, Lu N, Cupp AS, Wood JR (2011) Females with reduced fertility have excess androstenedione in follicular fluid, altered theca gene expression and increased VEGFA164b, maternal effect, and microRNA processing mRNA levels in cumulus-oocyte complexes, *Society for the Study of Reproduction 43rd Annual Meeting*, Portland, OR
55. Mack EM, Smith JE, Kerl JG, and Wood JR (2010) Synergistic Activation of Akt by IGF-1 and cAMP is Correlated with Altered Expression of Paracrine Factors that Regulate Follicle Progression and Ovulation in Murine Granulosa Cells, *Society for the Study of Reproduction 42nd Annual Meeting*, Milwaukee, WI
56. Wood JR (2010) The Oocyte Molecular Phenotype: Influence of the Follicular Environment and Body Condition. *Midwest Animal Science Annual Meeting,* **Invited Speaker**
57. Cushman RA, Wood JR, Echternkamp SE, and Cupp AS (2009) Influence of exogenous progestin on ovarian function in beef cows. *Midwest Animal Science Annual Meeting (J. Animal Science)* 87 (Supp 1) 239.

58. Smith JE, Yang Z, Yaw T, and Wood JR (2009) IGF-1 Dependent Changes in Histone H3 Modifications are Associated with Akt Signaling and the Expression of Cell Survival Genes, *Biol Reprod* 81 (1 Supplement) 144, **Oral presentation**
59. Slattery R, Clopton D, Wood JR, Cushman R, and Cupp A (2009) Vascular endothelial growth factor (VEGF) mRNA isoforms are altered in bovine granulosa cells (GC) by circulating progestin concentrations (P_4) and may indicate follicle status and ooctye competence *Midwest Animal Science Annual Meeting (J. Animal Science)* 87 (Supp 1) 85
60. Zhang Z, Jaimez R, Shen X, Gude D, Tang H, Wood JR, Goldberg E, and Strauss JF 3rd (2008) Autoregulation of SPAG16 expression, a single gene encoding an axoneme structural protein and a transcription factor that activates the axoneme protein promoter, *First World Congress on Reproductive Biology*, Kona, HI
61. Cockerill KA, Kerl JG, and Wood JR (2008) Expression of the mitotic kinases Nek2 and Nek4 is coordinately regulated in the ovary during estrus, *Society for the Study of Reproduction 41st Annual Meeting*, Kona, HI
62. Ogawa M, Wood JR, Bartolomei MS, and Strauss JF 3rd (2006) Epigenetic factors contribute to the regulation of MMP-1 gene expression in amnion fibroblasts, *Society for Gynecological Investigation 2006 Annual Meeting*, Toronto, Canada
63. Wood JR, Dumesic DA, Abbott DH, Walker DL, and Strauss JF 3rd (2005) Distinct differences in gene expression in polycystic ovary syndrome (PCOS) oocytes, *Society for Gynecological Investigation 2005 Annual Meeting,* Los Angeles, CA, **Oral Presentation, President's Presenter Award**
64. Wood JR, Ho C, McAllister JM, Dunaif A, and Strauss JF 3rd (2003) GATA-6, a regulator of Cyp11A and Cyp17 promoter activity, is a PCOS candidate gene, *Society for the Study of Reproduction 36th Annual Meeting*, Cincinnati, OH
65. Christenson LK, Wood JR, and Sterneck E (2003) Thecal hypertrophy and enhanced Cyp17 expression in the CCAAT/Enhancer-binding protein β knockout mouse ovary implicate this granulosa cell transcription factor in the regulation of theca cells, *Society for the Study of Reproduction 36th Annual Meeting*, Cincinnati, OH
66. Wood JR, Nelson-Degrave VL, Jansen E, Mosselman S, McAllister JM, and Strauss JF 3rd (2003) Insights into the metabolic side effects of valproic acid revealed from cDNA microarray analysis, *The Endocrine Society's 85th Annual Meeting*, Philadelphia, PA
67. Wood JR, McAllister JM, Dunaif A, Urbanek M, Spielman R, and Strauss JF 3rd (2002) Microarray analysis identifies genes with altered expression in PCOS theca, muscle, and adipocyte cells, *The Endocrine Society's 84th Annual Meeting*, San Francisco, CA, **Oral presentation**

TEACHING ACTIVITIES (0.1 FTE)

COURSES

ASCI 896 -Scientific and Agricultural Ethics: Graduate students -2 credit hours, Spring 2024-present; Course Instructor
Description: The objective of this course is to teach students to become responsible researchers with an emphasis on issues in animal agriculture. Topics of discussion will include research conduct and misconduct, criteria for authorship and intellectual property, conflict of interest, the use of animals for food and research, genetic manipulation of animals and crops, food safety, and environmental impacts of agriculture including on wildlife. Students will learn how to navigate through complex ethical issues and communicate data driven knowledge to a diverse array of audiences.

ASCI 443/843 -Physiology of Animal Cells and Tissues: Undergraduate/Graduate students -3 credit hours; Spring 2016-present; Course Instructor
Description*:* The focus of this course is the molecular, cellular, and tissue dependent functions of neurons, skeletal and smooth muscle, vasculature, and immune cells. Cellular regulation of important physiological

processes including blood flow, gas exchange, inorganic solute homeostasis, acid-base balance, water balance, appetite control, and thermal regulation will also be studied. At the completion of the course, students should understand cellular and molecular processes that integrate physiological systems in order to ensure homeostasis of the animal.

ASCI 896 -Contemporary Topics in Reproductive Biology: Graduate students -3 credit hours; Fall - even years (2020-present); Course Instructor
Description: Current reproductive biology issues and research literature. Physiological, molecular and cellular processes in reproduction. Formulate hypotheses in existing and emerging areas of reproductive biology, including central nervous system control of reproduction, gametogenesis, stem cell biology, ovarian physiology, embryogenesis, uterine function, placental biology, fetal development, infertility and reproductive immunity.

ASCI 905 -Animal Biological Systems Seminar (Physiology Specialization): Graduate Students -1 credit hour; Fall (2009-present); Course Coordinator
Description: Schedule graduate student research or topical seminars. Coordinate invitation of external speakers (1-2 each semester)

ASCI 395D and ASCI 499H -Experiential Learning (Research) and Honors Thesis Research: Undergraduate students; Spring/Summer/Fall (2012-2022); Course Coordinator
Description: Facilitate the identification of faculty with whom students can obtain lab experience (ASCI 395D) or complete undergraduate thesis research (ASCI 499H). Coordinate contracts for the research credits and document grading for each student via their individual instructors

ASCI 845/VMED645 -Animal Physiology I: Graduate/Veterinary Medicine students -4 credit hours; Fall 2007-2013; Course Instructor
Description: The focus of this course is the normal physiology of blood, bone, neurosensory, neuromuscular, endocrine, and male and female reproductive systems. We examine the molecular, cellular, and tissue dependent functions of each system using human, domestic livestock, and companion animal species as models. At the completion of the course students should understand the function of each system as well as how multiple systems are integrated to perform essential physiological functions. This course provides a knowledge base for subsequent study of abnormal structure and function in pathology courses and clinical medicine.

ASCI 846/VMED646 -Animal Physiology II: Graduate/Veterinary Medicine students -4 credit hours; Spring 2008-2014; Course Instructor
Description: The focus of this course is the normal physiology of the digestive (non-ruminant and ruminant), cardiovascular, respiratory, and renal systems. We examine the molecular, cellular, and tissue dependent functions of each system using human, domestic livestock, and companion animal species as models. At the completion of this course students should understand the function of each system as well as how multiple systems are integrated to perform essential physiological functions. This course will provide a knowledge base for subsequent study of abnormal structure and function in pathology courses and clinical medicine.

GRADUATE AND UNDERGRADUATE STUDENT TRAINING

Graduate Training

STUDENT	PREVIOUS DEGREE	DEGREE	GRADUATION
1. Petra Rose	BS -Univ Nebraska-Lincoln	MS	Current
Thesis: *Maternal Obesity Effects on Trophectoderm Development and Trophoblast Differentiation*			
2. Alison Ermisch	BS -Cal Poly Obispo	PhD	Current
Dissertation: *Effects of Inflammation on Post-Transcriptional Regulation of Oocyte mRNAs and Early Embryonic Development*			

Awards: Arthaud Graduate Student Competition (10/2020, 1st PhD), SSR Trainee Travel Award (12/2020), Widaman Distinguished Graduate Student Fellowship (12/2022), UNL Fling Fellowship, UNL Office of Graduate Studies (08/2023), Margrave Agricultural Fellowship, IANR Ag Research Division (12/2023)

3. Katie Bidne MS -Iowa State PhD May 2021

Dissertation: *Impact of Parental Obesity on Lipid Metabolism and Transport in the Placenta; Pedagogy of Veterinary Medicine Student Learning and Retention* (co-advise with Renee McFee)

Awards: SSR Lalor Merit Award (07/2020), Milton Mohr Teaching Fellowship (12/2018), John Hallman Award (1/2019), Holling Family Award for Teaching Excellence (5/2019), Dean's Fellowship, UNL Office of Graduate Studies (5/2019), Molecular Mechanism of Disease Fellowship (7/2019), NIH-USDA Young Investigator Travel Award-ASAS Perinatal Biology Symposium (8/2019)

Current: Post-doctoral Fellow, University of Colorado, Anschutz campus

4. Kerri Bochantin BS –Univ Kentucky MS May 2020

Thesis: *Evaluating the Effects of Pro-Inflammatory Cytokines on Ovarian Somatic Cell Function and Immune Response in Cattle*

Awards: USDA Merit Award, Society for the Study of Reproduction (7/2019)

Current: PhD candidate, North Dakota State University

5. Kaitlyn Malone BS –Wichita State MAS Dec 2019

Research Project: *Development of a Mouse Syncytiotrophoblast Primary Cell Culture System*

Current: UNMC Nursing Program

6. Kelsey Timme BS –Univ. Nebraska MS May 2019

Thesis: *Inflammation and oxidative stress mechanisms that regulate mRNAs during oocyte maturation and early embryonic development*

Awards: IANR Larrick Travel Award (7/2018)

Current job: Research Lab Manager (Keating), Iowa State University

7. Andrea McCain BS –Univ. Nebraska MS May 2019

Thesis*: Effect of diet-induced obesity and satiety suppressed obesity on fetal growth and the placental transcriptome*

Awards: IANR Larrick Travel Award (7/2017)

Current job: Technician, IACP, University of Nebraska Lincoln

8. Fang Xie MS- Texas A&M-Kingsville PhD August 2016

Dissertation: *Transcriptional and Post-Transcriptional Regulation of Oocyte and Embryo Messenger RNA in Mouse Models of Diet-Induced Obesity*

Awards: Molecular Mechanisms of Disease Poster Award (4/2013), SSR Larry Ewing Travel Award (7/2013), IANR Whitmore Travel Award (7/2013)

Current job: Post-doctoral Fellow at University of California San Francisco (A. Rajkovic)

9. Renee McFee MS –Kansas St. PhD Dec 2015
DVM -Kansas St.

Dissertation: *Role of VEGFA on folliculogenesis and assessment of student learning in Animal Physiology* (co-advise with Andrea S. Cupp)

Current job: Coordinator and instructor, ISU-UNL Professional Program in Veterinary Medicine

10. Rebecca Vraspir BS –Univ. Wyoming MS Aug. 2014

Thesis: *Beef heifer reproductive performance: the effect of pubertal status and number of estrous cycles prior to the breeding season on pregnancy rates; the effect of long-term progestin-based synchronization and fixed-timed AI on pregnancy rates*
(co-advise with Rick Funston)

11. Kristin A. Norwood BS-Nebraska-Lincoln MS May 2013

Thesis: *Maternal obesity alters fetal development due to impaired placental function and has lasting effects on adult offspring*

Awards: J.M. Fellowship (8/2011), NGN Poster Award (5/2012), SSR Lalor Merit Award (8/2012), IANR Whitmore Travel Award (8/2012), Arthaud Travel Award (8/2012), SSR Larry Ewing Travel Award

(8/2012)
Current job: Research lab manager at UNL (Ramer-Tait Lab), Lincoln NE

12. Stetson P. Weber BS-BYU-Idaho MS May 2012
MAg-Colorado State
Thesis: *Utilization of Corn Residue, Winter Range, or Dry Lot in Beef Heifer Development Systems* (co-advise w/ Rick Funston)
Awards: IANR Whitmore Travel Award (6/2011)

13. Zhufeng Yang BS, MS - China MS May 2011
Thesis: *Regulation of immediate early and epithelial-mesenchymal transition gene expression by adipocytokines in the female reproductive tract*
Current job: Research technician at University of Texas Southwest, Dallas, TX

14. Elizabeth M. Mack BS-Iowa State MS Dec 2010
Thesis: *Obesity, metabolic hormone signaling, and granulosa cell gene expression*
Awards: IANR Whitmore Travel Award (6/2010) and SSR Larry Ewing Travel Award (6/2010)
Current job: Research Lab Manager Pioneers Intl, Des Moines, IA

M.S. Committees Served: Brooke Rudloff (current), MacKenzie Stohlmann (current), Dorothy Elsken (December 2022), Jing Shao (August 2021), Jessica Keane (May 2021), Sarah Nafziger (May 2019), Alicia Lansford (May 2018), Mariah Hart (2018), Sarah Tenley (August 2016), Renata Spuri-Gomes (August 2016), Amy Voss (December 2013), Amy Desaulniers (August 2013), Kevin Sargent (May 2012), Ningxia Lu (December 2010), Racheal Slattery (October 2009), Vanessa Heagle (July 2009), Ezequias Castillo Lopez (July 2009), Ashley Beatie (May 2008)

PhD Committees Served: Corrine Monaco (Spring 2024), Prakash Sahoo (Summer 2023), Alana Rister (Fall 2019), Ezra Mutai (Spring 2019), Shelby Springman (2019), Amy Desaulniers (2018), Mohamed Abedal-Majed (Animal Science, December 2017), Kevin Sargent (Animal Science, December 2016), Meshail Okla (Human Nutrition, May 2016), Ezequias Castillo Lopez (Animal Science, December 2012), Adam Summers (Animal Science, December 2012),

Undergraduate Research

STUDENT	DEGREE	FUNDING
1. Jade Paxton	BS -Veterinary and Biomedical Science May 2024	
Research Topic: *Changes in Gene Expression in the Ovary, Oocyte, and Developing Placenta*		
2. Petra Rose	BS-Veterinary and Biomedical Science Dec 2022	ARD Grant $2,500
Research Topic: *Effect of Maternal Hyperglycemia and Inflammation on Placenta and Fetal Heart Development*		
3. Miranda Wordekemper	BS-Animal Science May 2018	UCARE $2,400
Research Topic: *Regulation of Steroidogenesis in COV434 cells by Wnt signaling factors*		
4. Heidi Miller	BS-Animal Science May 2018	UCARE $2,400 ARD Honors $2,500
Research Topic: *Increased exposure to TNFa and oxidative stress alters transcription and stability of oocyte mRNAs.*		
5. Chris Lindeman	BS –Microbiology May 2017	UCARE $2,400 ARD Honors $2,500
Research Topic*: mRNA Abundance Causing a Reduction in the Quality of Oocyte Development as a Result of Obesity; Maternal Obesity Effects on Fetal Development of Skeletal Muscle and Motor Neurons*		
6. Jenna Rifer	BS-Veterinary and Biomedical Science May 2016	UCARE $2,400 ARD Honors $2,500

Research Topic: *Impact of Diet-Induced Obesity on Oocyte Quality after the Ovulatory LH Surge; Mechanisms regulating bovine theca cell steroidogenesis by 17b-estradiol and cyclic adenosine monophosphate*

7. Kelsey Timme — BS- Animal Science, May 2016 — UCARE $2,400

Research Topic: *Consequence of Transcription Factor Overexpression on Oocyte Maturation and Competence for Embryonic Development*

8. Hilary Wolf — BS-Animal Science, May 2014 — UCARE $2,400

Research Topic: *Regulation of PPARG Expression in the Developing Mouse Embryo and the Isolated Neural Tube*

9. Amanda Brandt — BS-Animal Science, May 2013 (w/ honors) — UCARE $1000, $2,400, ARD Honors $2,500

Research Topic: *Effect of Increased Adiposity on Male and Female Reproductive Tract Phenotypes*

10. Sara Schonewill — BS-Biology, August 2011 — UCARE $1000

Research Topic: *Effect of Increased Adiposity on Granulosa Cell Gene Expression*

11. Kristin Norwood — BS-Animal Science, May 2010 — UCARE $2,000

Research Topic: *Microtubule Organization and the Development of Transzonal Projection in Granulosa Cells*

12. Taylor Yaw — BS-Animal Science, May 2010 (grad. 1 year early) — UCARE $1,000, $2,400

Research Topic: *Effect of IGF-1 on early embryonic development*

13. Emily Tschida — BS-Animal Science, May 2009 (w/ honors) — UCARE $1,000

Honors Thesis: *Gene Expression in Cows with Induced Persistant Follicles*

14. Lindsey Hofman — BS-Veterinary Biomedical Science, May 2009 (w/ honors) — UCARE $1,000, ARD $2,500

Honors Thesis: *The Role of Hormones in Oocyte-Granulosa Cell Communication*

15. Kathryn Cockerill — BS-Animal Science, Biochemistry, May 2008 (w/ honors) — UCARE $1,000, ARD $2,500

Honors Thesis: *Hormone Levels and Gene Expression in the Mouse Ovary* (presented data at international Society for the Study of Reproduction meeting)

PROFESSIONAL DEVELOPMENT

- Northwestern University: (Fall 2018), visited the Francesca Duncan lab to learn follicle encapsulation techniques to establish 3-dimensional cultures.
- Teaching Learning and Improvement Council (Summer 2018), Objective- learn how to incorporate web-based technology including Canvas to effectively instruct students and improve retention of information.
- UNL ARISE Learning by Design Course (Fall 2016): Objective: improve instruction through intentional design of Undergraduate and Graduate Advanced Physiology courses.
- National Foundation for Fertility (Summer 2014): visited the Rebecca Krisher lab to learn oocyte and embryo culturing techniques.

SERVICE

Professional Memberships

Society for the Study of Reproduction

American Society of Animal Science
International Embryo Transfer Society
Gamma Sigma Delta
USDA-NIFA NE1727 Multi-State Research Group

Grant Reviewer
NIH (Ad Hoc)
Pennsylvania Department of Health Review (Ad Hoc)
USDA NIFA
United Kingdom Medical Research Council (Ad Hoc)

Journal – Ad Hoc Reviewer
Reproduction, American Journal of Physiology: Endocrinology and Metabolism, Animal Reproduction Science, Placenta, Physiological Genomics, Biology of Reproduction, Reproductive Biology and Endocrinology, Fertility and Sterility, Current Diabetes Review, Biomed Research International, Endocrine-Related Cancer, Molecular Reproduction and Development, Human Reproduction, Journal of Assisted Reproduction and Genetics, Reproduction Fertility and Development, Molecular Cellular Endocrinology, Scientific Reports

University of Nebraska-Lincoln Committees
- Faculty Senate, (2021-2023)
- Academic Rights and Responsibilities Committee Member, 2020 – 2023
- Academic Affairs: Committee to Develop Neurodiversity Program, (leader), 2019- present
- Office of Research and Economic Development, Scientific Research Oversight Committee (2019-present)
- Center for Science, Mathematics, and Computer Education, Women in Science Conference panelist (leader), 2011-2019

Institute of Agriculture and Natural Resource
- Women Supporting Women Steering Committee (2021-present)
- Hatch Project Review -Yu (2018)
- Hatch Project Review -Natarajan (2017)
- Hatch Project Review -Chung (2016)
- Hatch Project Review -Reisberg (2015)
- Hatch Project Review -Yates (2015)
- Fetal Programming and Dietary miRNAs (NPOD) Faculty Search Committee (2015)
- Food Science Technology Department Faculty Search Committee (2011)
- Dinsdale Family Faculty Award Selection Committee (2012-2013)
- Teaching and Learning Improvement Council Chair (2016-2018)
- Teaching and Learning Improvement Council Member (2014-2016)

Animal Science Department
- Promotion and Tenure Committee (2022-present)
- Graduate Committee Chair (2020- 2023); Member (2010 – 2020)
- Undergraduate Scholarship Committee Member (2006-present)
- Safety Committee Chair (2011-2021); Member (2009-2010)
- Departmental Mission Statement Committee (2013)
- Animal Science Graduate Student Association Advisor (2008-2010)
- Social Committee Member (2006-2009)
- Marvel Baker Department Head Search Advisory Committee Member (2007-2009, 2016)

- Stress Physiologist Search Committee Member (2013)
- Veterinary Teaching Lab Coordinator Search Committee Chair (2008, 2010)
- Meat Science-Processing Search Committee Member (2010)
- ABE Business Center Grant Search Advisory Committee Member (2008-2009)
- Molecular Geneticist Search Committee Member (2008)
- Small Animal Facility Search Committee Member (2008)

References

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