

Michelle Renee Garcia

Texas A&M University-Kingsville
Department of Animal Sciences & Veterinary Technology
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Education

TEXAS A&M UNIVERSITY; *Doctor of Philosophy* *Sept.1997-May 2003*
Degrees: Reproductive Physiology
Advisor: Dr. Gary L. Williams

UNIVERSITY OF MISSOURI-COLUMBIA; *Master of Science* *Jan.1996-Dec.1997*
Degree: Animal Science
Advisor: Dr. W.E. Trout

UNIVERSITY OF MISSOURI-COLUMBIA; *Bachelor of Science* *Sept.1990-Aug.1995*
Major: Animal Science

Professional Experience

TEXAS A&M UNIVERSITY-KINGSVILLE
Department of Animal, Rangeland and Wildlife Sciences
Professor *Jan. 2003-present*
Research interests include leptin, obesity, fertility and pubertal development.

DEL MAR COLLEGE
Biology Instructor *Sept. 2002-Dec. 2002*

Teaching Experience

TEXAS A&M UNIVERSITY-Kingsville *January 2003-Present*
Department of Animal & Wildlife Sciences

Undergraduate Courses Taught
ANSC 1419 Introduction to Animal Science – current semester (Spring 2020)
ANSC 4303 Domestic Animal Anatomy & Physiology
AGRI 1201 Agriculture & Human Sciences as Professions
ANSC 2310 Livestock Management Techniques – current semester (Spring 2020)
ANSC 4301 Growth Physiology
ANSC 3302 Swine Management

Graduate Courses Taught
ANSC 5307 Mammalian Reproductive Physiology
ANSC 5336 Environmental Physiology
ANSC 5338 Monogastric Nutrition
ANSC 5390 Growth Physiology

Advising Experience

TEXAS A&M UNIVERSITY-KINGSVILLE

Graduate Students

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|------------------------------------|-------|
| Graduated | 14 MS |
| Current Graduate Students | 2 MS |
| Graduate Advisory Committee Member | 3 MS |

Undergraduate Students

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|-------------------------------|----|
| Undergraduate Research Intern | 20 |
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Community Related Experience

- 2005 Kleberg County Goat Validation*, committee member
2004 Jr. Livestock Judging Contest; Accountant
2003 Jr. Livestock Judging Contest; Accountant
2003 San Patricio/Aransas Counties Queen's Contest; Judge
2003 Kleberg-Kenedy County Junior Livestock Show Association Scholarship Committee; Member
2001 Bee County 4-H Workshop; Instructor and Representative for the Texas Agricultural Experiment Station
2001 Bee county Farm Bureau Agricultural Field Day for South Texas School Children; Instructor and Representative for the Texas Agricultural Experiment Station
2000 Texas Agricultural Experiment Station Alabama Cattleman Association Workshop; Representative
1999 Texas Beef Workers Workshop; Representative for the Texas Agricultural Experiment Station
1999 Bee County Farm Bureau Agricultural Field Day for South Texas School Children; Instructor and Representative for the Texas Agricultural Experiment Station

Professional Memberships

- 2010-present The American Physiology Society*; Member
2003-present The Endocrine Society; Member
1999-2004 The Honor Society of PHI KAPPA PHI; Member
1998-present Society for the Study of Reproduction; Member
1996-1999,2002-present American Society of Animal Science; Member
2003-present Southern Section American Society of Animal Science, Member
2017-present Subtropical Agriculture and Environments Society, President (2019-2020)

Awards

- 2007 College of Agriculture, Natural Resources and Human Sciences Jr. Research Award*
2008 Dick and Mary Lewis Kleberg College of Agriculture, Natural Resources and Human Sciences Jr. Teaching Award
2011 Texas A&M University AgriLife Vice Chancellor's Award in Excellence
2012 Texas A&M University System Teaching Excellence Award
2014 TAMUK 34th Annual Faculty Lecture Award

Committee Assignments

National:

- 2008-2011 Society for the Study of Reproduction*, Awards Committee; member.
2011-present Society for the Study of Reproduction SSR Program Committee; member

Regional:

- 2004-2008 Southern Section American Society of Animal Science*; Teaching and Education; committee member
2009-2011 Southern Section American Society of Animal Science; Graduate Presentation Competition, Chair
2007-2011 Southern Section American Society of Animal Science; Academic Quadrathlon Committee; *chair* (2010-2011).

2012-2013 Southern Section American Society of Animal Science; Graduate Presentation Competition, Chair.

2014-2018 Southern Section American Society of Animal Science; Physiology Section Committee, member and chair.

2017-2018 Subtropical Agriculture and Environments Society; Animal Science Section Director.

2017-current Subtropical Agriculture and Environments Society; Animal Science Section, Associate Editor.

2018-2019 Subtropical Agriculture and Environments Society; President-Elect

Texas A&M University-Kingsville:

2009-2011 Institutional Animal Care and Use Committee; chair

2011-2012 Faculty Senate President

2013-2016 Biomedical Group Committee, Chair

2017-present TAMUK-TAMU MOA committee, Chair

Publications

Book Chapter:

Ramirez, M.A., A.A. Arellano, F. Xie, E.A. Benavides, R.A. Katchko, L. Ayala, A. Calderon, R.A. Flores, J.M. Escudero, D.H. Keisler, R.L. Stanko, **M.R. Garcia**. 2017. Role of Leptin in the Development of the Corpus Luteum, In: *Leptin: Production, Regulation and Functions*. Nova Science Publishers. pg 74-105.

Refereed Journals:

M.R. Garcia. 2017. Leptin contributes to the development of the corpus luteum. *Cell Develop. Biol.* 6:3, DOI:10.4172/2168-9296.1000190.

Katchko, R.A., J.R. Wiles, E.A. Benavides, M.A. Ramirez, L. Ayala, F. Xie, C.W. O’Gorman, D.H. Keisler, R.L. Stanko, **M.R. Garcia**. 2017. The effect of leptin on luteal angiogenic factors in the developing porcine corpus luteum. *JSM In Vitro Fertil* 2(3): 1020-1026.

Wiles J, CW O’Gorman, R Katchko, E Benavides, DH Keisler, RL Stanko, **MR Garcia**. 2014. The effect of leptin on luteal angiogenic factors during the luteal phase of the estrous cycle. *Animal Reproduction Science*. 148(3-4):121-129.

Garcia, M.R. 2014. *Ovarian Infertility: The Corpus Luteum and Leptin*. 34th Annual Faculty Lecture. TAMUK. April 17, 2014.

Dustin L. Sanders, Fang Xie, Richard E. Mauldin, Jerome C. Hurley, Lowell A. Miller, **Michelle R. Garcia**, Randy W. DeYoung, David B. Long, Tyler A. Campbell. 2011. Efficacy of ERL-4221 as an ovotoxin for feral pigs (*Sus scrofa*). *Wildlife Research*. 38:168-172.

C.W. O’Gorman, Y. Matsumoto, R.L. Stanko, D.H. Keisler, **M.R. Garcia**. 2010. Effects of acute fasting and age on leptin and peroxisome proliferator-activated receptor gamma (PPAR γ) production relative to fat depot in pigs. *J. Anim. Phys. Anim. Nutr.* 2010 94:e266-e276

Campbell, T.A., **M.R. Garcia**, L.A. Miller, M.A. Ramirez, D.B. Long, J-B. Marchand, F. Hill. Immunocontraception in male feral swine treated with a recombinant gonadotropin-releasing hormone vaccine. 2010 *J. Swine Health and Production*. 18(3).

Y. Matsumoto, C. W. O’Gorman, E. Gonzales, D. H. Keisler, R. L. Stanko, **M. R. Garcia**. 2006 Effects of Development, Estrous Cycle, and 17 β -Estradiol on Adipocyte Leptin, ER α , and ER β Gene Expression in Gilts. **J. Anim. Veterin. Advan.** 5:762-770.

Farzad D., R.D. Kristy Garcia, E. Lopez, J. Gonzalez, S. Ino, **M Garcia**, and B. S. Patil. 2006. Citrus juice modulates bone strength in male senescent rat model of osteoporosis. *Nutrition*. 22:559-563.

Deyhim, F., Lopez, E., Gonzalez, J., **Garcia, M.R.**, Patil, B.S. Citrus Juice Modulates Antioxidant Enzymes and Lipid Profiles in Orchidectomized Rats. 2006; *J. of Med. Food* 9:422-426.

- Garcia M. R.**, P. Lopez, R. H. Williams, S. D. Lukefahr, J. C. Laurenz. 2004. Effect of *Quillaja saponaria* extract on passive immunization in a pig model. *J. Anim. Veterin. Advan.* 3 (8):535-541
- Garcia M. R.**, M. Amstalden, D. H. Keisler, N. Raver, A. Gertler, G. L. Williams. 2004. Leptin attenuates the acute effects of centrally administered neuropeptide Y on somatotropin but not gonadotropin secretion in ovariectomized cows. *Domest. Anim. Endocrinol.* 26:189-200.
- M. Amstalden, D. A. Zieba, **M. R. Garcia**, R. L. Stanko, T. H. Welsh Jr. W. H. Hansel. 2004. Evidence that lamprey GnRH-III does not release FSH selectively in cattle. *Reproduction.* 127:35-43.
- Garcia M. R.**, M. Amstalden, C. D. Morrison, D. H. Keisler, and G. L. Williams. 2003. Age at puberty, total fat and conjugated linoleic acid content in carcass, and circulating metabolic hormones in beef heifers fed a diet high in linoleic acid from four months of age. *J. Anim. Sci.*,81:261-268.
- Garcia M. R.**, M. Amstalden, S. W. Williams, C. D. Morrison, D. H. Keisler, and G. L. Williams. Serum leptin and its adipose gene expression during pubertal development, the estrous cycle, and different seasons in cattle. *J. Anim. Sci.*, 2002;80:2158-2167.
- Amstalden M., **M. R. Garcia**, R. L. Stanko, S. E. Nizielski, C. D. Morrison, D. H. Keisler, and G. L. Williams. Central infusion recombinant ovine leptin normalizes plasma insulin and stimulates a novel hypersecretion luteinizing hormone release after short-term fasting in mature beef cows. *Biol. Reprod.* 2002;66:1555-1561.
- Williams GL., M. Amstalden M. Garcia MR. Stanko RL. Nizielski SE. Morrison CD. Keisler DH. Leptin and its role in the central regulation of reproduction in cattle. *Domest. Anim. Endocrinol.* 2002; 23(1-2):339-49.

News Article/Press Release

1. **Dr. Michelle Garcia: TAMUK Researcher Uses Goats to Study Ovarian Infertility Issues. KIII 3 News, 6 pm news**, July 11, 2016.
2. From the Farm and into the Lab. Featuring Adrian Arellano and **Dr. Michelle Garcia. Javelina Today** December 2013 issue.
3. Leptin research honoured at animal science conference. Featuring Adrian Arellano from **Dr. Michelle Garcia** research team. **ASAS Graduate Bulletin.** February 6, 2013. <http://blog.asas.org/GraduateBulletin/?p=2150>
4. **Dr. Michelle Garcia: Development of alternative therapeutic treatments to reduce the disturbing percentage of miscarriage. Emerging Focus on Biomedical Science**, Emergence: Research and Graduate Studies Magazine. TAMUK Office of Marketing and Communications. pg 9-10.

Abstracts Presented at Scientific Conferences:

- M.T. Lowke, N. Bell, M.R. Garcia. Fibroblast growth factor 2 differentially influences leptin gene expression in dispersed adipose tissue cell cultures. 2021. <https://doi.org/10.1096/fasebj.2021.35.S1.05425>
- M.T. Lowke, X. Cortez, M.R.Garcia. *Mature Adipocytes and FGF2 Influence Angiogenic Processes.* FASEB. 2020. <https://doi.org/10.1096/fasebj.2020.34.s1.04652>.
- M.T. Lowke, R.F. Kaiser, N.L. Bell, and M.R.Garcia. *Quebracho tannin influences lipolytic activity in mature porcine adipocytes.* 2020. ASAS-CSAS-WSASAS Virtual Conference. Abstract: PSIX-35.
- G. Platas, M.R. Garcia. *Leptin Influences vascular endothelial cell elongation and subsequent tube formation in adipose tissue.* 2020. ABRCMS Virtual Conference. Cell Biology Undergraduate Junior Winner of the oral presentation competition.
- G. Platas, M.R. Garcia. *Mature adipocytes and leptin influence angiogenic properties.* 2020. Annual McNair Scholars Program and PURS Research Symposium.
- JA Chavarria, M Lowke, **MR Garcia.** *Angiogenic gene regulation in adipose tissue.* April 2018. 11th Annual Javelina Research Symposium.

- M Lowke, JA Chavarria, **MR Garcia**. *Fibroblast growth factor 2 (basic) appears to influence leptin expression in porcine adipocytes*. April 2018. 11th Annual Javelina Research Symposium.
- R Preston, RA Katchko, E.A. Benavides, C.W. O’Gorman, D.H. Keisler, K.C. McCuistion, RL Stanko, **MR Garcia**. *RSpatial and temporal Identification of leptin and OB-Rb in the developing porcine corpus luteum*. Fall 2017. 14th Annual Pathways Student Research Symposium. 3rd PLACE MASTERS POSTER PRESENTATION.
- A Calderon, RA Flores, AA Arellano, L Ayala, V. Garza, RL Stanko, **MR Garcia**. *Regulation of Luteal Leptin and Vessel Formation in the Early Caprine Corpus Luteum*. Fall 2015. 12th Annual Pathways Student Research Symposium.
- AA Arellano, MA Ramirez, A Calderon, L Ayala, RA Flores, RL Stanko, **MR Garcia**. *Leptin rescues corpora luteal development in leptin deficient conditions*. Fall 2015. 12th Annual Pathways Student Research Symposium.
- L Ayala, AA Arellano, RA Flores, A Calderon, EC Taylor, RL Stanko, **MR Garcia**. *Age influences the expression of estrogen receptor isoforms alpha and beta in the choroid plexus of developing gilts*. 2014. ASAS Southern Section (SAAS), Feb 2-4. 46 abstract.
- RA Flores, A Calderon, L Ayala, F Xie, AA Arellano, M Ramirez, E Taylor, KC McCuistion, RL Stanko, **MR Garcia**. *Adiponectin regulates angiogenic factors in the developing corpus luteum*. 2014. Society for the Study of Reproduction. Grand Rapids Michigan (Abstract 214).
- A Calderon, RA Flores, AA Arellano, L Ayala, V. Garza, RL Stanko, **MR Garcia**. *Regulation of leptin in early lutea development*. 2014. Society for the Study of Reproduction. Grand Rapids Michigan (Abstract 213).
- L Ayala, AA Arellano, RA Flores, A Calderon, EC Taylor, RL Stanko, **MR Garcia**. *Age and leptin influence estrogen nuclear receptor isoforms in the choroid plexus of developing gilts*. 2014. Society for the Study of Reproduction. Grand Rapids Michigan (Abstract 223).
- V Garza, RA Flores, A Calderon, L Ayala, F Xie, AA Arellano, KC McCuistion, **MR Garcia**. *Effect of plant Tannins on porcine adipocytes during the reproductive cycle*. 2014. Javelina Research Symposia 2nd PLACE UNDERGRADUATE POSTER PRESENTATION.
- V Longoria, L Cedillo, V Garza, KC McCuistion, **MR Garcia**. *Development of a paraffin embedding technique for porcine adipose tissue*. 2014 Javelina Research Symposia.
- AA Arellano, MA Ramirez, A Calderon, L Ayala, RA Flores, DH Keisler, RL Stanko, MR Garcia. *Leptin is involved in the vascularization of the corpus luteum*. 2013. Javelina Research Symposia 1st PLACE GRADUATE POSTER PRESENTATION
- AA Arellano, MA Ramirez, A Calderon, L Ayala, RA Flores, DH Keisler, RL Stanko, MR Garcia. *Leptin is involved in the vascularization of the corpus luteum*. 2013. ASAS Southern Section (SAAS). 2:abstract. 1st PLACE IN THE UNDERGRADUATE STUDENT ORAL PRESENTATION COMPETITION.
- L Ayala, A Calderon, F Xie, MA Ramirez, A Arellano, MR Garcia, RL Stanko. *Effect of Early Weaning and Diet on Age at Puberty in Bos Indicus Influenced Heifers*. 2013. ASAS Southern Section (SAAS), Feb. 2-5, 35:abstract.
- L Ayala, AA Arellano, A Calderon, RA Flores, EC Taylor, RL Stanko, MR Garcia. 2013. *Estrogen receptor alpha and beta expression in the choroid plexus changes as puberty approaches*. CETARS Symposium. USDA/NIFA HIS Collaborative Grants Annual Meeting, Aug. 10-15, Mayaguez, Puerto Rico.
- AA Arellano, MA Ramirez, A Calderon, L Ayala, RA Flores, DH Keisler, RL Stanko, MR Garcia. *Leptin may play a role in development of the goat corpus luteum*. Javelina Research Symposium. Fall 2013.
- L Ayala, AA Arellano, A Calderon, RA Flores, EC Taylor, RL Stanko. MR Garcia. 2013. *Estrogen receptor alpha and beta expression in the choroid plexus changes as puberty approaches*. Javelina Research Symposium. Fall 2013. 2ND PLACE IN THE POSTER PRESENTATION.
- RA Flores, A Calderon, L Ayala, F Xie, AA Arellano, M Ramirez, EC Taylor, RL Stanko, MR Garcia. 2013. *Characterizing proangiogenic factors in early corpus luteal development in the porcine*. Javelina Research Symposium. Fall 2013.
- RL Stanko, L Ayala, MD Mahan, MA Ramirez, EA Aguirre, A Calderon, AA Arellano, F Xie, and MR Garcia.

2013. Influence of weaning age, diet, and season of birth on age at puberty in *Bos indicus* influenced heifers. CETARS Symposium. USDA/NIFA HIS Collaborative Grants Annual Meeting, Aug. 10-15, Mayaguez, Puerto Rico.

K McCuiston, D Kinkel, S Lukefahr, M Garcia, S Henke, T Machado, R Stanko, Z Lopez, A Coronado. 2013. Improving student success through professional development opportunities. North American College and Teachers of Agriculture (NACTA), Blacksburg, VA. June 24-27, 278:Abstract.

AA Arellano, MA Ramirez, A Calderon, L Ayala, RA Flores, RL Stanko, MR Garcia. Leptin plays a role in the vascularization of the corpus luteum. 2012 Ronal E. McNair Scholars 17th Annual Summer Research Presentation Luncheon (Abstract).

AA Arellano, MA Ramirez, A Calderon, L Ayala, RA Flores, RL Stanko, MR Garcia. Leptin is involved in vascularisation of developing luteal tissue. 2012 Biol. Reprod. 81:180 (Abstract).

MA Ramirez, F Xie, EA Benavides, RA Katchko, L Ayala, DH Keisler, RL Stanko, MR Garcia. Leptin is involved in normal luteal development. 2012. Biol. Reprod. 81: 187 (abstract)

M.A. Ramirez, F. Xie, E.A. Benavides, R.A. Katchko, L. Ayala, D.H. Keisler, R.L. Stanko, M.R. Garcia. *Leptin influences normal formation of the corpus luteum in the caprine species*. 2011. Graduate Oral Competition. Anim. Sci. Southern Section. Abstract 43.

Grants Received

1. 2021 USDA AFRI. PI: Tanner Machado. Co-I: Randy Stanko, Consuelo Donato, **Michelle Garcia**. *Multicultural-Scholars Pre-Vet Experiential Agriculture Learning (M-SPEAL)*. \$200,000. 2021-2023.
2. 2019 TAMUK Title V I-Care Undergraduate Faculty Course Redesign Competition, \$2,500; PI: **Michelle Garcia**.
3. NIH-NIGMS-MBRS-SCORE (SC2), PI: Fang He. **Collaborator: Michelle Garcia**. *Investigation of molecular pathways of TBK1/IK2-associated neurodegeneration*. \$300,000, 2018-2022
4. 2018-2022 USDA-HSI Leaders Grant, \$1,000,000; PI: Kim McCuiston, Co-PI: Tanner Machado, Natasha Bell. Collaborators: **Michelle Garcia**, Steven Lukefahr, Randy Stanko.
5. NIH-NIGMS-MBRS-SCORE (SC2), PI: Chang Sung. **Collaborator: Michelle Garcia**. *Targeted Promoter Demethylation in Ovarian Cancer Cells*. \$300,000, 2018-2022.
6. 2015 STAR ANIMAL HEALTH Inc. PI: David Hewitt, Co-I's: **Michelle Garcia** and Yi Li. **\$11,875**.
7. 2014 TAMUK Graduate Studies Degree Development Proposal; \$5,000; PI: **Michelle Garcia**.
8. 2014 PPOHA Title V grant. TAMUK. \$50,000; PI: **Michelle Garcia**
9. 2013 Kemin Argifoods North America Inc. \$3,656; PI: Tanner Machado, Co-PI's: **Michelle Garcia** and Kim McCuiston.
10. 2014-2018 USDA-HSI Leaders Grant, \$800,000; PI: Kim McCuiston, Co-PI: C Loest. Collaborators: **Michelle Garcia**, Steven Lukefahr, Randy Stanko, Tanner Machado, and Doreen Kinkel.
11. 2013 PPOHA Title V grant. TAMUK. \$15,000; PI: **Michelle Garcia**
12. 2011-2015 NIH-NIGMS-MBRS-SC3, \$363,211; PI: **Michelle Garcia**.
13. 2010. University Research Council. \$10,000. PD: **Michelle Garcia**
14. 2010. University Research Council. \$10,000. PD: Tanner Machado, Co-PI's: **Michelle Garcia** and Kim McCuiston.
15. 2010-2015. USDA-HSI \$290,000. PD: Kim McCuiston, Co-PD's **Michelle Garcia**, Steven Lukefahr, Randy Stanko, Tanner Machado, and Doreen Kinkel.
16. 2009-2011. NIH-BRIDGES. Bridges in the Doctorate in Reproductive Biology. \$620,491. PI: Fuller W. Bazer, CoPI: **Michelle Garcia**, Collaborators: Kenneth Escudero, Randy Stanko, Maribel Gonzalez-Garcia, and Rafael Ballesteros
17. 2007. NIH MBRS-SCORE (Pilot = SC2). \$200,000. PD: **Michelle Garcia**
18. 2006. University Research Council. \$9899. PD: **Michelle Garcia**
19. 2006. University Student Engagement Funds. \$1000. PD: **Michelle Garcia**

20. 2006: USDA APHIS Wildlife Services. \$100,000. PI: Randy W. DeYoung, Co-PI's: **Michelle Garcia**, William Kuvlesky, Bart Ballard.
21. 2005-2007. USDA-HSI. \$300,000. PD: **Michelle Garcia**, Co-PD's Jamie Laurenz and Randy Stanko
22. 2004 USDA/CSREES: \$88,000. PD. Michelle Garcia