

CURRICULUM VITAE

NAME

Han, Hyungchul

ADDRESS

Animal Sciences
College of Agricultural Sciences

Animal Sciences

PHONE

(970) 491-6923

EDUCATION

1998 Ph D, Oklahoma State University

ACADEMIC POSITIONS

1995 - 1998 Graduate Research Assistant, Oklahoma State University.

OTHER POSITIONS

2006 - Present Assistant Professor, Colorado State University.

2005 - 2006 Research Professor, University of Wyoming.

2002 - 2005 Post- Doctoral Fellow, University of Wyoming.

2000 - 2002 Post- Doctoral Fellow, University of Nevada- Reno.

1999 - 2000 Research Scientist, Korea Cancer Center Hospital.

1998 - 1999 Post- Doctoral Fellow, Oklahoma State University.

PUBLISHED WORKS

Refereed Journal Articles

Hahm, S.-w., Park, J., Park, K.-Y., Son, Y.-s., Han, H. (in press). Extracts of *Opuntia humifusa* fruits inhibit the growth of AGS human gastric adenocarcinoma cells. *Preventive Nutrition and Food Science*.

Gordon, B., Hahm, S.-w., Wagner, J. J., Jennings, J., Engle, T. E., Han, H. *Aspergillus oryzae* α -amylase supplementation on rumen volatile fatty acid profile and relative abundance of mRNA associated with nutrient absorption in ruminal and duodenal tissue from beef steers. *Professional Animal Scientist*.

Field, M. E., Anthony, R. V., Engle, T. E., Archibeque, S. L., Keisler, D. H., Han, H. (2015). Duration of maternal undernutrition differentially alters fetal growth and hormone concentrations. *Domestic animal endocrinology*, 51, 1-7.

Han, H., Hornig, K., Byers, S. R., Callan, R. J., Holt, T. N., Field, M. (2013). Evaluation of a point-of-care glucose and -hydroxybutyrate meter operated in various environmental conditions in prepartum and

postpartum sheep. *Am J Vet Res*, 74, 1059-1065.

- (2012). Differential Regulation of Phosphatase and Tensin Homolog (PTEN) in Fetal Liver and Skeletal Muscle of Undernourished Ewes. *Biol Reprod*.
- (2012). Duration of maternal undernutrition differentially alters fetal growth, blood gases, and hormone concentrations. *J Anim Sci*.
- (2012). Evaluation of a dual purpose point of care glucose and beta-hydroxybutyrate meter for use in sheep. *Am J Vet*.
- (2012). Expression of copper transporters and chaperones are affected by life-long, severe copper deficiency and sex in bovine duodenum and liver. *British J Nutrition*.
- (2012). The relationship of pulmonary artery copper concentrations and genes involved in copper homeostasis in cattle, swine, and goats. *Asian-Aust J Anim Sci*, 25(2), 194-199.
- (2010). Expression of copper transporters and chaperones are affected by life-long, severe copper deficiency and sex in bovine duodenum and liver.
- (2008). Acute non-cytopathic bovine viral diarrhea virus infection induces pronounced type I interferon response in pregnant cows and fetuses. *Virus Res*, 132, 49-58.
- (2008). Implications for the type-I interferon pathway in intrauterine growth restriction. *Reprod Sci*, 15, 123a-123a.
- (2008). Maternal undernutrition induces differential cardiac gene expression in pulmonary hypertensive steers at high elevation. *Am J Physiol-Heart C*, 295, H382-H389.
- (2007). Maternal undernutrition during early to mid-gestation in the ewe results in altered growth, adiposity, and glucose tolerance in male offspring. *J Anim Sci*, 85, 1285-1294.
- (2007). Maternal viral infection during pregnancy programs fetal development and induces a differential type 1 interferon response. *Biol Reprod*, 295, 191-191.
- (2006). Increased pulmonary arterial pressure (PAP) and maternal undernutrition induces differential gene expression in right ventricle of steers. *J Anim Sci*, 84, 309-310.
- (2006). Microarray analysis of endometrial and blood cell gene expression during early pregnancy in the cow. *Biol Reprod*, 82, 158-158.

Non-Refereed Journal Articles

- Warner, C. M., Hahm, S. W., Archibeque, S. L., Wagner, J. J., Engle, T. E., Roman-Muniz, I. N., Woerner, D. R., Sponsler, M., Han, H. (2015). A comparison of supplemental calcium soap of palm fatty acids versus tallow in a corn-based finishing diet for feedlot steers. *Journal of animal science and technology*, 57, 25.
- (2011). Duration of maternal under nutrition differentially alters fetal growth, development and umbilical blood gases in twin sheep pregnancies. *British J Nutrition*.
- (2009). Characterization and identification of hepatic mRNA related to copper metabolism and homeostasis in cattle. *Biological Trace Element Research*, 129, 130-136.
- (2009). Persistent fetal infection with bovine viral diarrhea virus differentially affects maternal blood cell signal transduction pathways. *Physiological Genomics*, 36, 129-139.

- Gordon, B. N., Hahm, H. A., Wagner, J. J., Jennings, J. S., Han, H., Engle, T. E. (2014). *Supplementation of Aspergillus oryzae α -amylase on ruminal volatile fatty acid distribution and digestive tract gene expression in beef steers fed a steam-flaked corn based finishing diet.* (E-Suppl 2 ed., vol. 92, pp. 885). J Anim Sci.
- (2011). *Effects of variable maternal undernutrition on uterine and umbilical insulin-like growth factor-I (IGF-I), insulin and ghrelin concentrations in sheep twin pregnancies* (vol. 89). J Anim Sci (Suppl) (Abstr) W136.
- (2011). *Insulin-like growth factor-I (IGFI), IGF binding proteins (IGFBP), and growth hormone receptor (GHR) mRNA concentration in fetal liver and duodenum in response to variable maternal nutrition during gestation* (vol. 89). J Anim Sci (Suppl) (Abstr) W135.
- (2011). *Maternal Nutrient Restriction Increases Umbilical Artery GHRL and Placental GHRL mRNA Concentrations in Ovine Pregnancies.* Biology of Reproduction.
- (2011). *Ractopamine hydrochloride reduces urinary N excretion of both implanted and non-implanted finishing beef cattle.* J Anim Sci.
- (2010). *Duration of maternal undernutrition differently alters the fetal development and growth in twin carrying sheep.* J Anim Sci Late Breaking abstract #6 July 11.
- (2010). *Duration of maternal undernutrition differently alters the fetal development and growth in twin carrying sheep.* Rocky Mountain Reproductive Sciences Symposium April 17.
- (2010). *Duration of maternal undernutrition differently alters umbilical vein and arterial blood chemistry in twin carrying sheep.* Rocky Mountain Reproductive Sciences Symposium April 17.
- (2010). *The relationship of tissue copper concentrations and genes involved in copper homeostasis in the cow, pig, and goat* (Suppl 1 ed., vol. 88). J Anim Sci.

Abstract

- Warner, C. M., Archibeque, S. L., Engle, T. E., Wagner, J. J., Woerner, D. R., Han, H. (2015). *Supplementation of rumen-protected PUFA in corn-fed beef steers.* (Suppl. 2 ed., vol. 91, pp. 236). Journal of Animal Science.
- Gordon, B. N., Hahm, S. W., Wagner, J. J., Jennings, J. S., Han, H., Engle, T. E. (2014). *Examining the impact of Aspergillus oryzae α -amylase supplementation on rumen volatile fatty acid profile and relative abundance of mRNA associated with nutrient absorption in ruminal and duodenal tissue from beef steers.* Plains Nutrition Council.

Book Review

- (2011). *Animal Nutrition to Improve Meat Quality.* Control of Meat Quality (ed Seontea Joo) Research Signpost.
- (2010). *Endocrine actions of interferon-tau in ruminants.* Reproduction in Domestic Ruminants VII Eds, MC Lucy, JL Pate, MF Smith and TE Spencer Society of Reproduction and Fertility Volume 67, pages 325-340 Proceedings of the Eight International Symposium on Reproduction in Domestic Ruminants Anchorage, Alaska,.

Manuscript

- Hahm, S.-W., Hansen, T., Van Campen, H., Han, H. *Up-regulation of Fetal Cardiac Genes following Persistent and Transient Bovine Viral Diarrhea Virus Infection.* Journal of Animal Science.

Warner, C., Archibeque, S. L., Wagner, J. J., Engle, T. E., Roman-Muniz, I. N., Woerner, D. R., Sponsler, M., Han, H. *Supplementation of Rumen-Protected PUFA in Corn-Fed Beef Steers*[†]. Journal of Animal Science and Technology.

Gordon, B., Hahm, S.-W., Wagner, J. J., Jennings, J., Han, H., Engle, T. E. *Supplementation of Aspergillus oryzae α -amylase on ruminal volatile fatty acid distribution and digestive tract gene expression in beef steers fed a steam-flaked corn based finishing diet.*. Canadian Journal of Animal Science.

Field, M., Anthony, R. V., Engle, T. E., Archibeque, S. L., Keisler, D., Han, H. *Duration of maternal undernutrition differentially alters fetal growth, umbilical blood gas, glucose and hormone concentrations.*. Domestic Animal Endocrinology.

Research Report

Han, H. *Regulation of Animal Growth by Hormones and Growth Factors*. USDA NRI.

PAPERS PRESENTED/SYMPOSIA/INVITED LECTURES/PROFESSIONAL MEETINGS/WORKSHOPS

July 13, 2015, "Maternal Undernutrition Increases Acylated Ghrelin Concentrations in the Umbilical Artery and Vein of the Twin Ovine Fetus", American Federation of Animal Science Annual Meeting, American Society of Animal Sciences, (Presenter) Hahm, S.-w., peer-reviewed/refereed.

July 22, 2014, "Upregulation of fetal cardiac genes following persistent and transient bovine viral diarrhoea virus infection", American Society of Animal Science National meeting, American Society of Animal Science, (Presenter) Hahm, S.-w., Kansas City, KS, peer-reviewed/refereed.

July 22, 2014, "Supplementation of Aspergillus oryzae on ruminal volatile fatty acids composition and digestive tract gene expression in beef steers fed flaked corn based finishing diet", American Society of Animal Sciences Annual Meeting, American Society of Animal Sciences, (Presenter) Hahm, S.-w., Kansas City, KS, peer-reviewed/refereed.

July 8, 2013, "Supplementation of Rumen Protected PUFA in Corn Fed Beef Steers", American Society of Animal Sciences Joint Annual Meeting, American Society of Animal Science, (Presenter) Warner, C., Indianapolis, peer-reviewed/refereed.

2012, "Blood glucose and acylated ghrelin in response to duration of maternal undernutrition during gestation in twin sheep pregnancies.", peer-reviewed/refereed.

2012, "Duration of maternal undernutrition differently alters fetal growth and blood parameters in twin sheep pregnancies".

2012, "Fetal Origins of Adult Disease".

2012, "Lamb growth in response to the duration of maternal undernutrition during gestation in twin sheep pregnancies.", peer-reviewed/refereed.

2012, "Local to Global: Specialized Hanwoo production".

2011, "2011 American Society of Animal Science

Annual meeting. Presentation title:
Effects of variable maternal
undernutrition on uterine and umbilical
insulin-like growth factor-I (IGF-I),
insulin and ghrelin concentrations in
sheep twin pregnancies. July, 2011. New
Orleans, LA (Refereed)", peer-reviewed/refereed.

2011, "2011 American Society of Animal Science
Annual meeting. Presentation title:
Insulin-like growth factor-I (IGFI), IGF
binding proteins (IGFBP), and growth
hormone receptor (GHR) mRNA
concentration in fetal liver and
duodenum in response to variable
maternal nutrition during gestation.
July, 2011. New Orleans, LA (Refereed)", peer-reviewed/refereed.

2011, "2011 American Society of Animal Science
Annual meeting. Presentation title:
Maternal Nutrient Restriction Increases
Umbilical Artery GHRL and Placental GHRL
mRNA Concentrations in Ovine
Pregnancies. July, 2011. Portland, OR
(Refereed)", peer-reviewed/refereed.

2011, "2011 American Society of Animal Science
Annual meeting. Presentation title:
Ractopamine hydrochloride reduces
urinary N excretion of both implanted
and non-implanted finishing beef cattle.
July, 2011. New Orleans, LA (Refereed)", peer-reviewed/refereed.

2011, "Early gestational nutrition on fetal
growth and offspring obesity".

2011, "Early gestational nutrition on fetal
growth and offspring obesity".

2011, "Insulin-like growth factor-I (IGF-I),
IGF binding proteins (IGFBP), and growth
hormone receptor (GHR) mRNA expression
in fetal liver and duodenum in response
to variable maternal nutrition during
gestation.", peer-reviewed/refereed.

2011, "Maternal Undernutrition and
Fetal/Neonatal GH/IGF system in sheep".

2010, "2010 USDA-NIFA-NRI Project Investigator
Meeting. Presentation Title: Maternal
undernutrition and GH/IGF system in
sheep. July 15-16, 2010. Denver,
Colorado."

2010, "H. So, E. Domby, T. Engle and H. Han. 2010. The relationship of tissue copper concentrations and genes involved in copper homeostasis in the cow, pig and goat. J. Anim. Sci. 88 (Suppl 2) (Abstr)".

2010, "Hyungchul Han Presentation Title: Duration of maternal undernutrition and fetal growth in sheep. Korea University June 16, 2010."

2010, "Hyungchul Han. Presentation Title: Duration of maternal undernutrition and fetal growth in sheep. Korea Cancer Center Hospital. June 24, 2010."

2010, "Hyungchul Han. Maternal undernutrition and GH/IGF system in sheep. Kyeongsang National University June 15, 2010".

2010, "M Field, RV Anthony, T Engle, S Archibeque and H Han. 2010. Duration of maternal undernutrition differentially alters fetal development and growth in twin sheep pregnancies. Rocky Mountain Reproductive Symposium."

2010, "M Field, RV Anthony, T Engle, S Archibeque and H Han. 2010. Duration of maternal undernutrition differentially alters fetal development and metabolism in twin sheep pregnancies. J. Anim. Sci. 88 (Suppl 2) (Abstr)".

2010, "M Field, RV Anthony, T Engle, S Archibeque and H Han. 2010. Duration of maternal undernutrition differentially alters umbilical blood gasses in twin sheep pregnancies. Rocky Mountain Reproductive Symposium."

COLLABORATIVE & INTEGRATIVE INTERDISCIPLINARY SCHOLARSHIP

2014-2015

Participated in Front Range Pregnancy Consortium.

Front Range Pregnancy Consortium's goal is to have a group of people interested in pregnancy research and discuss about grants, paper, and possible collaboration. This consortium includes people from University of Wyoming, University of Colorado Health Science Center and Colorado State University.

Member of Healthy baby Healthy mother (HBHM) group to discuss/exchanged research interest and to promote in obtaining federally funded research

OTHER ACTIVITIES/ACCOMPLISHMENTS – PUBLICATIONS/SCHOLARLY RECORD

"title: Increased meat tenderness via induced post-mortem muscle tissue breakdown

The present methods and compounds relate to increasing meat tenderness by inducing post-mortem breakdown in muscle tissue. This is achieved by the use of beta-blockers in the pre-mortem period, which results in higher calpastatin levels, and reduced hyperplasia. This is also achieved by the use of agents immediately before slaughter that induce apoptosis in muscle tissue. This is further achieved by administering agents that induce muscle fiber fission.." (Submitted: 2010, Application: 2010, Approved: 2010, Licensed: 2010).

(October 30, 2015). Workshop, "Rocky Mountain Reproductive Consortium," United States.

(July 11, 2015 - July 14, 2015). Professional Meeting, "American Society of Animal Sciences Annual Meeting," American Society of Animal Sciences, Orlando, Florida, United States.

(November 24, 2014 - November 25, 2014). Workshop, "Faculty Retreat," Department of Animal Sciences, Fort Collins, CO, United States.

(October 23, 2014). Search Chair training, Colorado State University, Fort Collins, CO, United States.

(July 20, 2014 - July 24, 2014). Professional Meeting, "American Society of Animal Sciences Annual Meeting," Kansas City, Kansas, United States.

(July 2013). Conference Attendance, American Society of Animal Science, Indianapolis, IN, United States.

TEACHING:

<u>Year</u>	<u>Semester</u>	<u>Course No./Title</u>	<u>Cr. Hrs.</u>	<u>Enrollment</u>
2016	Summer	ANEQ305 - Functional Large Animal Anatomy/Physiology	3	21
2016	Spring	ANEQ305 - Functional Large Animal Anatomy/Physiology	3	65
2015	Summer	ANEQ305 - Functional Large Animal Anatomy/Physiology	3	15
2015	Summer	ANEQ495 - Independent Study	18	3
2015	Spring	ANEQ305 - Functional Large Animal Anatomy/Physiology	3	45
2015	Spring	ANEQ784 - Supervised College Teaching	18	28
2014	Fall	ANEQ305 - Functional Large Animal Anatomy/Physiology	3	56
2014	Summer	ANEQ230 - Farm Animal Anatomy/Physiology	3	17
2014	Spring	ANEQ230 - Farm Animal Anatomy/Physiology	3	58
2013	Fall	ANEQ230 - Farm Animal Anatomy/Physiology	3	68
2013	Fall	ANEQ784 - Supervised college teaching	1	1
2013	Fall	ANEQ784 - Supervised College Teaching	18	21
2013	Summer	ANEQ230 - Farm Animal Anatomy and Physiology	3	14
2013	Summer	ANEQ230 - Farm Animal Anatomy/Physiology	3	14
2013	Spring	ANEQ230 - Farm Animal Anatomy/Physiology	3	79
2013	Spring	ANEQ487 - Internship	18	22
2012	Fall	ANEQ230 - Farm Animal Anatomy/Physiology	3	86
2012	Fall	ANEQ784 - Supervised College Teaching	18	21
2012	Summer	ANEQ230 - Farm Animal Anatomy/Physiology	3	14
2012	Spring	ANEQ230 - Farm Animal Anatomy/Physiology	3	94
2012	Spring	ANEQ384 - Supervised College Teaching	5	28
2011	Fall	ANEQ230 - Farm Animal Anatomy/Physiology	3	63
2011	Fall	ANEQ487 - Internship	18	10
2011	Fall	ANEQ384 - Supervised College Teaching	5	31
2011	Fall	ANEQ784 - Supervised College Teaching	18	22
2011	Summer	ANEQ230 - Farm Animal Anatomy/Physiology	3	15
2011	Spring	ANEQ230 - Farm Animal Anatomy/Physiology	3	73
2010	Fall	ANEQ799 - Dissertation	18	14

2010	Fall	ANEQ230 - Farm Animal Anatomy/Physiology	3	59
2010	Fall	ANEQ487 - Internship	18	5
2010	Fall	ANEQ384 - Supervised College Teaching	5	30
2010	Summer	ANEQ230 - Farm Animal Anatomy/Physiology	3	16
2010	Summer	ANEQ487 - Internship	18	16
2010	Spring	ANEQ799 - Dissertation	18	11
2010	Spring	ANEQ230 - Farm Animal Anatomy/Physiology	3	71
2010	Spring	ANEQ784 - Supervised College Teaching	18	23
2009	Fall	ANEQ799 - Dissertation	18	10
2009	Fall	ANEQ230 - Farm Animal Anatomy/Physiology	3	64
2009	Fall	ANEQ784 - Supervised College Teaching	18	21
2009	Summer	ANEQ230 - Farm Animal Anatomy/Physiology	3	3
2009	Summer	ANEQ487 - Internship	18	32
2009	Spring	ANEQ230 - Farm Animal Anatomy/Physiology	3	65
2009	Spring	ANEQ487 - Internship	18	12
2009	Spring	ANEQ384 - Supervised College Teaching	5	37
2009	Spring	ANEQ784 - Supervised College Teaching	18	20
2008	Fall	ANEQ230 - Farm Animal Anatomy/Physiology	3	84
2008	Fall	ANEQ784 - Supervised College Teaching	18	24
2008	Fall	ANEQ699 - Thesis	18	12
2007	Fall	AGRI192 - Orientation to Agricultural Systems	1	18

Evidence of Teaching Effectiveness (Annual Input)

Written Comments from Students

Fall 2014, ANEQ 305--Functional Large Animal Anatomy/Physiology
Dr. Han,

I wanted to thank you for such an amazing class!! I have to say that so far throughout my college career, I have learned the most from your class, and I enjoyed every moment of it! I'm on a pre-vet track right now, but I sort of chose that path just because of my love of horses, my interest in health related fields, and GPA. Your class is the first real exposure I've have in my schooling to all of these physiological processes, and it has really opened my eyes to how much I actually do love it! I do have to admit that this semester I also started watching Grey's Anatomy and it was wonderful actually analyzing what they were talking about on the show after you had taught the process to us in class. After your class I'm considering med school as well, and definitely looking forward to taking more classes in similar subjects to expand and deepen my knowledge of these physiological systems!!! Thank you for exposing me to all of this new material, it has been utterly amazing this semester and had I not been so sick yesterday, I would have hugged you I'm so happy with everything I have gotten out of your class!! (of course I come down with strep and scarlet fever the week of finals, though it was pretty cool being able to understand everything the doctors were discussing about my white blood cell counts and treatment options, I was able to apply so much of what you taught!)

I also wanted to thank you for taking the time out of your personal schedule to put on review sessions for us, and actually learn our names! It's just one more reason I'm so impressed with professors in the ANEQ department, and it really means a lot to me when professors show how serious they take their role of educating and helping students succeed! You truly go above and beyond taking an individual interest in the success of each of your students!

Happy holidays/Merry Christmas, and I hope you have a relaxing break with your family!

Kathryn Crone

Fall 2014, ANEQ 305–Functional Large Animal Anatomy/Physiology

Hello Dr. Han,

I just wanted to say thank you for the semester in your class it had been one of the classes I personally have learned the most from in college. I also wanted to say thank you for challenging me to do better and I feel I did that and have you to thank for encouraging me. I hope you have a great break and happy holidays!

Sincerely,

Nicholas Sabina

EXTENSION/ENGAGEMENT ACTIVITIES/ACCOMPLISHMENTS

Academic competition

Academic Quadrathlon. Bozeman, MT. Total number of participants: 4. Percent Responsible: 100%. 2012.

COMMITTEES

Committee on Faculty Governance, (2012 - 2014).

(2010).

Committee on Faculty Governance, (2012 - 2014).

(2010).

Graduate Committee, (January 2015 - Present).

Strategic Initiative 1, (January 1, 2015 - February 20, 2015).

Committee on Faculty Governance, (2012 - 2014).

(2010).

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

American Physiological Society. (2009 - Present).

American Society of Animal Science. (1994 - Present).

Colorado Corn Kernels. (January 19, 2016).

Editor, Associate Editor, Journal of Animal Science and Technology. (March 1, 2015 - Present).

Reviewer, Journal Article, Journal of Endocrinology. (January 1, 2015 - Present).

Reviewer, Journal Article, Lipids. (January 1, 2015 - Present).

Member, American Society of Animal Science, New Orleans, LA. (2012 - Present).

Reviewer, Journal Article, Journal of Endocrinology. (2012 - Present).

Nutrition Round Table, Fort Collins, CO. (2012 - Present).

American Society of Animal Science, Montreal. (2011 - Present).
CSU Academic Quadrathlon, Fort Collins, CO. (2011 - Present).
Journal of Endocrinology. (2011 - Present).
Nutrition Round Table, Fort Collins, CO. (2011 - Present).
American Society of Animal Science, Denver, CO. (2010 - Present).
CSU Academic Quadrathlon, Fort Collins, CO. (2010 - Present).
Journal of Animal Sciences. (2010 - Present).
Journal of Endocrinology. (2010 - Present).
Nutrition Round Table, Fort Collins, CO. (2010 - Present).
Member, Alberta Livestock and MEat Agency. (2009 - Present).
Member, American Physiological Society. (2009 - Present).
Journal of Animal Sciences. (2009 - Present).
Member, American Society of Animal Science. (1994 - Present).
Reviewer, Grant Proposal, University of Wyoming. (September 24, 2015 - October 16, 2015).
Reviewer, Conference Paper, American Society of Animal Sciences. (May 21, 2015 - May 26, 2015).
Committee on Faculty Governance. (2012 - 2014).

OTHER ACTIVITIES/ACCOMPLISHMENTS – SERVICE/OUTREACH

(2010).

advisor, CSU Academic Quadrathlon, Phoenix, AZ. (2012 - Present).
