

CURRICULUM VITAE

NANCY HUGHES ING

May 11, 2015

Departments of Animal Science and Veterinary Integrative Biosciences
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EDUCATION:

1976-1979	B.S.	University of Florida	Zoology (with Honors)
1980-1984	D.V.M.	University of Florida	Veterinary Medicine
1980-1988	Ph.D.	University of Florida	Biochemistry & Molecular Biology
1988-1992	Post-Doc	Baylor College of Medicine	Cell Biology

PROFESSIONAL APPOINTMENTS:

1986-1988	Research Assistant	Department of Animal Science	University of Missouri
1988-1992	Post-Doctoral Fellow	Department of Cell Biology	Baylor College of Medicine
1992-	Assistant Professor	Department of Animal Science	Texas A&M University
1992-	Joint Appointment	Department of Veterinary Integrative Biosciences	Texas A&M University
1998	Associate Professor	Department of Animal Science	Texas A&M University

HONORS and AWARDS:

1975	Scholarship to attend the Summer Science Research Program of the Florida Foundation for Future Scientists at the University of Florida, American Cancer Society.
1979	Rita McTigue O'Connell Award Gainesville Women's Club
1979	Phi Beta Kappa University of Florida
1980	ERF Award American Medical Association
1980	Graduate Fellowship for Women Entering Non-Traditional Careers University of Florida
2000	Gamma Sigma Delta (Agricultural Honor Society) Texas A&M University
2004	Phi Beta Kappa (Founding Member) Texas A&M University
2005	Phi Zeta (Veterinary Honor Society) Texas A&M University
2012	Dean's Outstanding Achievement Award for Faculty Mentoring College of Agriculture and Life Sciences Texas A&M University

EDITORIAL BOARDS

1997-2001	Biology of Reproduction, journal of the Society for the Study of Reproduction, Member
1998-2002	Domestic Animal Endocrinology, Member
2012 -	Scientifica (Molecular Biology), Member
2012 -	Small Ruminant Research, Associate Editor

MEMBERSHIPS ON UNIVERSITY FACULTIES

Member	Graduate Faculty, Texas A & M University	1993 -
Member	Center for Animal Biotechnology, Institute Biosciences & Technology	1992-
Associate Member	Faculty of Genetics	1993 -1997
Full Member	Faculty of Genetics	1997-
Full Member	Center for Environmental and Rural Health	1997 -
Full Member	Faculty of Reproductive Biology	1999 –
Full Member	Faculty of Biotechnology	2000 –

MEMBERSHIPS in PROFESSIONAL SOCIETIES:

Society for the Study of Reproduction	1986-
The Endocrine Society	1996-
American Registry of Professional Animal Scientists	1996-
American Society of Animal Scientists	1996-
Women in Endocrinology	2002 -
Texas Faculty Association	2007-
American Society for Reproductive Medicine	2009 -
American Heart Association	2012 –

COMPETITIVE GRANTS FOR TEACHING:

Joint Program for Professional & Career Development		1993
“Gene Expression”	\$4,700	Texas A&M University
Honors Curriculum Development Grant		1995
“Animal Biotechnology”	\$2,000	Texas A&M University
Faculty Early Career Development Award		1996 - 2002
for all teaching activities	\$5,000	National Science Foundation
Life Sciences Task Force		2001
“Training Program in Reproductive Biology”	\$180,000	Texas A&M University
(Co-PI with FW Bazer, RC Burghardt, J Piedrahita, SH Safe)		
Science Education Partnership Award		1999 –
“Environmental and Rural Health Education Partnership”	\$638,000	National Institutes of Health
(Co-Investigator with PIs Larry Johnson and John Denton)		
Summer Program for Undergraduate Research		2012 - 14
“Integrated Physiology: a Tool to Enhance Undergraduate Research Experience in Animal Science”	\$5,000 to \$7,500 per year	Texas A&M University
(Co-PI with M Amstalden and TH Welsh, Jr)		

TEACHING-Courses developed are underlined:

Undergraduate Courses

<u>Animal Biotechnology (Honors)-ANSC 489-</u>	An introduction to lab research	(1 cr.)
<u>Molecular Genetics - BICH/GENE 432 -</u>	An introductory molecular biology laboratory	(2 cr.)
<u>Instrumental Analysis – ANSC/FSTC 489/689 –</u>	Laboratory for life science students	(4 cr.)
	(Salmonella detection by PCR week. J. Keeton is coordinator)	
<u>Genetics Seminar-GENE 481-</u>	Emphasizes genetics research and technical writing	(1 cr.)
<u>Companion Animal Science - ANSC 210-</u>	Introduction to the physiology, husbandry, and career opportunities with companion animals	(3 cr.)
<u>Integrated Physiology – ANSC 491 –</u>	An undergraduate research experience spanning physiology, microscopy and molecular biology	(3 cr.)

Graduate Courses

<u>Gene Expression-ANSC/GENE 626 -</u>	An introductory lab course in RNA analysis	(2 cr.)
	(Originally a 1 h lab, expanded with a 1 h lecture in Fall 2003)	
<u>Molecular Endocrinology-ANSC/VTPP 654 -</u>	Mechanisms of hormone action	(3 cr.)
<u>Biotechnology – BIOT 601 –</u>	Lab course for M.S. Biotechnology program	(8 cr.)
<u>Reproductive Therapeutics-ANSC 689-</u>	Current therapies, their bases and future	(1 cr.)
<u>Graduate Seminar-ANSC 681-</u>	Preparation and delivery of scientific presentations	(1 cr.)
<u>Graduate Seminar-GENE 681-</u>	Preparation and delivery of scientific presentations	(1 cr.)

INDEPENDENT STUDY STUDENTS:

High School:	1997 Layla Fry	Anaklectic Program for High School Students
	1998 Beatrice Lopez	Anaklectic Program for High School Students
	1999 Norma Torres	Anaklectic Program for High School Students
	2000 Lacy Vaculin	Internship for Yoe High School
	2001 Kelly DeCock	Summer Research Program for High School Students

Undergraduate:	1993-94	Marianne Harris	(3 credit hours)
		Suzanne Martin	(1 cr.)
		Cody Stone	(2 cr.)
		Shannon Harris	(2 cr.)
	1994-95	Cody Stone	(2 cr.)
		Shannon Harris	(2 cr.)
		Laurie Reaves	(2 cr.)
	1995-96	Karma Outhouse	(2 cr.)
		Rhonda Maiden	(3 cr.)
	1996-97	Shantel Kaster	(4 cr.)
		Michelle Wann	(3 cr.)
		Sandra Piefer	(3 cr.)
		Tamara Vasquez	(4 cr.)
	1998 – 99	Jennifer DeGraauw	(3 cr., Honors)
	1999-2000	Jennifer DeGraauw	(3 cr., Honors)
	2000-01	Shauna Clark	(2 cr.)
		Denise Juroske	(3 cr.)
		Michelle Law	(3 cr.)
	2001-02	Adriana Pzybyszewski	(2 cr.)
	2002-03	Adriana Pzybyszewski	(1 cr.)
		Rebecca Wolfskill	(1 cr.)

INDEPENDENT STUDY STUDENTS:**Undergraduate (continued):**

2003-04	Rebecca Wolfskill	(1 cr.)
	Jesse Cover	(1 cr.)
	Adriana Lee	(Summer ONR/NSF Intern)
2004-05	Deyanira Osoria	(Summer ONR/NSF Intern)
2006	Laura Maskell	(4 cr.)
	Stephanie Gallucci	(4 cr.)
2007	Elizabete Cristina DaSilva	(6 cr.)
	Susan Land	(3 cr., Honors)
2011	Haley Loftis	(2 cr.)
2012	Vanessa Maher	(1 cr.)
	Michelle Gutierrez	(1 cr.)
	Jason Jucker	(1 cr.)
	Darryl Yates	(1 cr.)
	Mary Terrill	(1 cr.)
	Kelsy Bayless	(1 cr.)
	Sydney Libby	(1 cr.)
2013	Sue Sinn	(2 cr.)
	Christine Mesecher	(1 cr.)
	Megan Meier	(1 cr.)
	Taylor Derr	(1 cr.)
	Ramses Gonzalez	(1 cr.)
	Colton Harris	(1 cr.)
	Caitlin Hruzek	(1 cr.)
	Meredith Wilde	(1 cr.)
	Morgan Lyons	(1 cr.)
	Ryan Odders	(3 cr.)
2014	Sarah Thacker	(2 cr.)
	Allyson Heil	(2 cr.)
	Daniel Hanson	(2 cr.)
2015	Maegan Mendoza	(1 cr.)

Graduate:

1993-94	Jeff Carroll	(1 cr.)
	Pepper Chastain	(1 cr.)
	Guillermo Guzman	(2 cr.)
1994-95	Brian Bruner	(1 cr.)
	Audrey Holt	(1 cr.)
1995-96	Jeremy Price	(1 cr.)
1996-97	Nick Flynn	(14 cr.)
	Anu Gupta	(1 cr.)
	Bill Day	(2 cr.)
1997-98	Richard Hutchinson	(4 cr.)
1998-99	Minawar Sattar	(2 cr.)
	Tammy Smith	(2 cr.)
1999-2000	Christine Gray	(2 cr.)
	Jennifer Palie	(2 cr.)
2000-01	Avi Santini	(2 cr.)
	Dianne Mitchell	(2 cr.)
2003-04	Mainul Husain	(2 cr.)
2004-05	Vinod Kumar	(3 cr.)

	Ambily Gopinathan	(2 cr.)
2005-06	Jay Roberts	(2 cr.)
	Sylvia Rabelo	(2 cr.)

INDEPENDENT STUDY STUDENTS:

Graduate (continued):

2005-06	Adriana Lee	(2 cr.)
	Kevin Curley	(2 cr.)

2006-07 Brianne Givens (Summer Intern from Texas A&M Kingsville, funded by the USDA grant entitled "Enhancing the Professional Career Development of South Texas Graduate Students" M. Garcia PI)

2008 – 11	Azure Faucette	(4 cr. h. per semester)
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2013	Shawna Peer	(2 cr.)
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2013	Leticia Vivani	(3 cr.)
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Post-Graduate: 1997 Gary L. Williams 6 months of Sabbatical training

1997-00	Jane Robertson	Post-doctoral fellow (received Lalor Foundation grant)
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2000-01	Lora Lindahl	Post-doctoral fellow
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2001	Gary R. Newton	4 months of Sabbatical training
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2001	Prapti Mahyuddin	1 month post-doc training (Dr. Womack)
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2001	Ikhide Immumorin	1 month post-doc training
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2007	Saeeda Ansari	2 weeks post-doc training in PCR
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GRADUATE STUDENTS - Chair of committee:

Emily Lanier (PREP, M.S.)*	9/9 - 5/94	
Sudeepa Bhattacharyya (GENE, Ph.D.)	9/95 - 8/96	
Keyong Zou (GENE, Ph.D.)*	9/95 - 2/97	
Yuhua Zhang Farnell (GENE, Ph.D.)*	9/97 - 8/02	
Colleen Rump (ANSC, M.S.)	9/98 – 10/98	
Dianne C. Mitchell (GENE, Ph.D.)*	9/00 – 12/02	
Andy Laughlin (PREP, Ph.D.)*	9/01 – 5/10	(CoChair with D. W. Forrest)
Koryn Wunderlich (BIOT, M.S.)*	6/00 - 8/01	
Alyssandra Schaffer (BIOT, M.S.)*	6/00 - 8/01	
Jill McCoy (BIOT, M.S.)*	6/00 - 8/01	
Cara Benjamin (GENE, Ph.D.)*	9/99 – 12/02	(CoChair with J. Piedrahita)
Mainul Husain (GENE, Ph.D.)	1/03 – 6/03	
Vinod Kumar (PREP, M.S.)	8/04 – 12/04	
John Nelson (PREP, Ph.D.)	9/04 - 5/05	
Adriana Lee (GENE, M.S.)*	11/05 – 5/08	
David Stovall (BIOT, M.S.)*	9/07 – 11/08	(CoChair with S. Pillai)
Shavahn Loux (PREP, Ph.D.)*	8/08 – 3/09	
Yu-Hsi Lin (BIOT, M.S.)*	9/08 – 5/10	
Azure N. Faucette (PREP, Ph.D.)*	9/08 - 08/12	(CoChair with D. W. Forrest)
Sarah Schneider (VTPB, Ph.D.)	5/11 – 9/12	(CoChair with J.E. Edwards)
Amy Perry (VTPB, Ph.D.)	9/12 - 7/13	(CoChair with J.E. Edwards)
Stephanie Valasek (ANSC, M.S.)	1/13 -	(CoChair with D. Sigler)
Shawna Peer (ANSC, M.S.)*	5/13 - 5/15	(CoChair with C. Cavinder)
Edward Vasquez (ANSC, M.Ag.)*	4/13 –	
Lise Seiber (ANSC, M.Ag.)	7/13 -	

(* = Graduated)

SUCCESS OF GRADUATES IN SCIENCE

Dr. Yuhua Zhang Farnell – Assistant Professor – Dept. Biochemistry and Molecular Biology at Mississippi State University in Starkville, MS

Dr. Diane Mitchell – Senior Director of the Genomics - Dept. Biomedical Sciences at Texas Tech University Health Science Center in El Paso, TX

Dr. Andy Laughlin – Assistant Professor – Dept. Biology at Lubbock Christian University, Lubbock, TX

Dr. Azure Faucette – Post-doc – Perinatology Research Branch of Wayne State University, Detroit, MI

Yu-Hsi Lin – completed a Ph.D. in the Institute for Applied Cancer Science at M.D. Anderson Cancer Center, Houston, TX and is now a Senior Research Assistant there.

Dr. Shavahn Loux – Post-doc with endowed chair Dr. Barry Ball at University of Kentucky

SERVICE ON GRADUATE COMMITTEES:

<i>Invited, by Ph.D. candidates:</i> Jeff Carroll*	Physiology of Reproduction (PREP)
Wendy Dippel*	“
Tom Spencer*	“
Brian Bruner	“
Shyh-Hwa Liu*	“
Michelle Garcia*	“
Chris Mortensen*	“
Kevin Curley*	“
Jeff Bowen*	Veterinary Integrative Biosciences (VIBS)
Clynn Wilker*	“
William Day*	“
Anu Gupta*	“
Richard Hutchinson*	“
Karen Moore*	“
Christopher Dekaney*	“
Michelle Pine*	“
Dana Massuto*	“
Nick Flynn*	Nutrition
Mee Young Hung*	“
Rong Cui*	“
Minawar Sattar*	Poultry Science
Charles Gregory*	Poultry Science
Steven Holmes*	Entomology
Lee Johnson*	Food Science and Technology
Jeff Koch*	Agricultural Education
Kim Tessane*	Veterinary Physiology & Pharmacology
Mounir Moudini*	Genetics (GENE)
Luke Koong*	Cell Biology at UTMB Galveston
Wen-ko (Ivan) Chou*	Poultry Science

SERVICE ON GRADUATE COMMITTEES (continued):

Invited, by M.S. candidates: Kaia Holmer* Animal Science (ANSC)
 Jordan Shields* Animal Breeding
 Karan Kohli* Biotechnology
 Brigid Knight "
 Makiko Suzuki* Physiology of Reproduction
 Crystal Gilmore* "
 Chen Chen* "
 Tina Bryan* "
 Lisa Soliz "
 Susan Wainwright * Wildlife and Forestry
 Matthew Roe* Poultry Science
 Radhika Koppanur* Nutrition
 Kristen Rolke* Veterinary Physiology & Pharmacology
 Joshua Ege* Design, TAMU Commerce

Invited by M. Ag candidates: Joy Wylie Equine Reproduction

Appointed, Graduate Council: Michelle Brown* Parks and Recreation
 Lori Cagle* Journalism
 Jan Burke* Counseling Psychology
 P. Sundararajan* Mechanical Engineering
 Hwajee Chung* Biology
 Barbara Polnick* Education Administration
 Michelle Fingeret* Psychology
 (* = Graduated)

GRANTS, as Principal Investigator:

Funded by Federal Agencies:

National Institutes of Health National Research Service Award \$100,050 1989-92
 "Characterization of the S-300-II Transcription Factor"

USDA National Research Initiatives Competitive Research Program
 "Mechanisms Regulating Estrogen Receptor Gene Expression & Hormone Responses"
 \$110,000 1995-98
 "Sequences That Stabilize Estrogen Receptor mRNA in Ovine Endometrium & Their
 Application" \$210,000 1998-02
 "Oligonucleotides Modulate Estrogen Receptor Up-Regulation in Sheep Uterus: Makes
 Sense!" \$163,000 2002-04

National Science Foundation Faculty Early CAREER Development Award \$499,466 1996-02
 "Physiological Regulation of Estrogen Receptor Gene Expression by Estrogen"

USDA National Institute of Food and Agriculture \$150,000 2015 – 2018
 "Queen supersedure in honey bees: How do agricultural pesticides impair fertility in
 queens and drones?" (CoPI with Dr. Juliana Rangel-Posada)

Funded by National Organizations (not Federal)

American Quarter Horse Foundation

"Glucocorticoid modulation of the steroidogenic and spermatogenic function of the stallion testis." (coPI with TH Welsh, DW Forrest, TL Blanchard, DD Varner, SP Brinsko) \$39,654 2004-06
 "Harmful Effects of Glucocorticoids on Stallion Reproduction: Gene Expression Studies Leading to a New Clinical Assay for Fertility Prediction" \$37,784 2008-10
 Lalor Foundation \$22,500 1998-99 "Stability Elements of the Ovine Estrogen Receptor in Uterine Endometrium: A Potential Contraceptive Strategy"

GRANTS, as Principal Investigator (continued):

Funded by Organizations Within Texas:

Houston Livestock Show & Rodeo Association \$2,000 per award
 "Steroid Hormone Receptors of the Sheep: Future Applications Toward Increasing Ewe Productivity" 1993
 "Steroid Hormone Receptor Expression in the Sheep Uterus: Steroid Therapy as a Tool for Increasing Ewe Productivity" 1994
 "Novel Genes Induce Uterine Receptivity" 1995
 "Dietary Estrogen and Colon Cancer" 1999
 (Co-PI with N. Turner and J. Lupton)

American Heart Association-Texas Affiliate \$41,000 1995-96
 "Autoregulation of Estrogen Receptor Gene Expression in Liver: Impact on Genes Involved in Lipoprotein Metabolism"

Texas Equine Research Account Advisory Committee \$20,000 2002
 "Regulatory Factors Controlling Spermatogenesis" (Co-PI with L. Johnson)

Texas Equine Research Fund \$8,063 2004
 "Gene Expression in Stallion Testes"

Funded by Organizations Within Texas A&M University:

HATCH Project #RI-8444 1992 – present
 "Steroid Hormone Regulation of Estrogen & Progesterone Receptors in the Ovine Uterus"

Faculty Minigrants:

"Steroid Hormone Regulation of the Uterine Estrogen Receptor" \$700 1993
 "Bovine Adrenal ACTH Receptor mRNA" \$1,000 1994

Interdisciplinary Research Initiatives Grant (with R. Chapkin, J. Lupton & L. Jaeger)
 "Differential Display-Analysis of Colonic Cancer Cells" \$24,998 1995

Research Enhancement Grant (with L. Jaeger) \$30,000 1996
 "Estrogen and Progesterone Receptors in Peri-implantation Porcine Conceptuses"

Center for Environmental and Rural Health (with N. Turner and J. Lupton)
 "Dietary Fiber and Phytoestrogens in Colon Carcinogenesis" \$15,000 1998

GRANTS, as Principal Investigator (continued):**Funded by Organizations Within Texas A&M University:**

Sea Grant (with D. Busbee)	\$80,118	1998-99
"Reporter Genes for Detecting Marine Pollutants with Endocrine Disruptor Activities"		
Link Endowment for Equine Research		
"Testicular Function" (with D. W. Forrest)	\$80,000/year	2001-07
"Gene Expression in Sperm: Window to Testis Function"	\$37,740	2008-10
"Defining a 'Fertile Fingerprint' of RNAs in Stallion Sperm"	\$43,000	2010-13
Catalyst Grant from the Whole Systems Genomics for Improved Human, Animal and Environmental Wellbeing Institute	\$10,000	2011-13
"Molecular Fingerprint of Leiomyomas in Dogs: A Match for Those in Women?"		
Texas AgriLife Research Genomics and Bioinformatics Seed Grant	\$35,000	2011-13
"Defining a Fertile Fingerprint of RNAs in Stallion Sperm"		

GRANTS, as Collaborator or Consultant:**Funded by Federal Agencies**

USDA National Research Initiatives Competitive Grants		
"Behavioral Neurobiology of Sucking-Mediated Anovulation in Cows"		
(G.L.Williams as P.I.)	\$208,000	1994-97
"Uterine Mx Expression in Cyclic, Pregnant and Steroid-Treated Ewes"		
(T.L.Ott as P.I.)	\$190,000	1996-98
"Integrated Function of TGF β , Matrix Proteins, and Integrins in Porcine Implantation"		
(L.A. Jaeger as P.I.)	\$360,000	2005 - 09
National Institutes of Health, "Interferon-Tau Regulates Hormone Receptor Genes"		
(F.W.Bazer as P.I.)	\$238,489	1995-98

REFEREED JOURNAL ARTICLES:

* indicates undergraduate students trained in the Ing laboratory (underlined)

** indicates graduate students trained in the Ing laboratory (underlined)

*** indicates graduate students trained in collaborators' laboratories (underlined)

**** indicates post-doctoral fellows trained in the Ing laboratory (underlined).

- Hansen, P. J., N. H. Ing, R. J. Moffatt, G. A. Baumbach, P. T. K. Saunders, F. W. Bazer, & R. M. Roberts (1987). Biochemical characterization and biosynthesis of the uterine milk proteins of the pregnant sheep uterus. *Biol. Reprod.* 36:405-418.
- Ing, N. H., & R. M. Roberts (1989). The major progesterone-modulated proteins of the sheep uterus are serpins. *J. Biol. Chem.* 264:3372-3379.
- Ing, N. H., H. Francis, J. J. McDonnell, J. F. Amann, & R. M. Roberts (1989). Progesterone induction of the uterine milk proteins: major secretory proteins of sheep endometrium. *Biol. Reprod.* 41:643-654.

4. Kazemi, M., J. F. Amann, D. H. Keisler, **N. H. Ing**, R. M. Roberts, G. Morgan, and F. B. P. Wooding. (1990). A progesterone-modulated, low-molecular-weight protein from the uterus of the sheep is associated with crystalline inclusion bodies in uterine epithelium and embryonic trophectoderm. *Biol. Reprod.* 43:80-96.
5. Allan, G. F., **N. H. Ing**, S. Y. Tsai, G. Srinivasan, N. L. Weigel, E. B. Thompson, M.-J. Tsai, and B. W. O'Malley. (1991). Synergism between steroid response and promoter elements during cell-free transcription. *J. Biol. Chem.* 266:5905-5910.
6. Wang, L.-H., **N. H. Ing**, S. Y. Tsai, B. W. O'Malley, and M.-J. Tsai. (1991). The COUP-TF compose a family of functionally related transcription factors. *Gene Expression.* 1:207-216.
7. **Ing, N. H.**, J. M. Beekman, S. Y. Tsai, M.-J. Tsai, and B. W. O'Malley. (1992). Members of the steroid hormone receptor superfamily interact with TFIIB (S300-II). *J. Biol. Chem.* 267:17617-17623.
8. **Ing, N. H.**, J.M. Beekman, D. J. Kessler, M. Murphy, K. Jayaraman, J. G. Zendegui, B. W. O'Malley, M. E. Hogan and M.-J. Tsai. (1993). In vivo transcription of a progesterone-responsive gene is specifically inhibited by a triplex-forming oligonucleotide. *Nuc. Acids Res.* 21:2789-2796.
9. Spencer, T. E.***, **N. H. Ing**, T. L. Ott, J. S. Mayes, W. C. Becker, G. H. Watson, M. A. Mirando and F. W. Bazer. (1995). Intrauterine injection of ovine interferon-t (IFN-t) alters oestrogen receptor and oxytocin receptor expression in the endometrium of cyclic ewes. *J. Mol. Endocrinol.* 15:203-220.
10. **Ing, N. H.**, T. E. Spencer*** and F. W. Bazer. (1996). Estrogen enhances expression of the estrogen receptor gene in endometrium by a posttranscriptional mechanism. *Biol. Reprod.* 54:591-599.
11. **Ing, N. H.**, and Tornesi, B. T. (1997). Estradiol up-regulates estrogen receptor and progesterone receptor gene expression in specific uterine cells. *Biol. Reprod.* 56:1205-1215.
12. Zou, K.** and **N. H. Ing** (1997). Oestradiol up-regulates oestrogen receptor and cyclophilin mRNA concentrations in endometrium, but down-regulates them in liver. *J. Steroid Biochem. Mol. Biol.* 64: 231-237.
13. Robertson, J. A.****, S. Bhattacharyya** and **N. H. Ing** (1998) Tamoxifen acts as an oestrogen agonist in endometrium of the ewe. *J. Steroid Biochem. Mol. Biol.* 67:285-92.
14. Gupta, A.***, **N. H. Ing**, F. W. Bazer, L. S. Bustamante, and L. A. Jaeger (1998) Beta transforming growth factors (TGFβs) at the porcine conceptus-maternal interface. Part I:

- Expression of TGF β 1, TGF β 2 and TGF β 3 messenger ribonucleic acids. *Biol Reprod.* 59:905-10.
15. Adams, S. H.***, V. Esser, N. F. Brown, **N. H. Ing**, L. Johnson, D. W. Foster, and J. D. McGarry (1998) Expression and possible role of muscle-type carnitine palmitoyltransferase I during sperm development in the rat. *Biol. Reprod.* 59: 1399-1405.
 16. **Ing, N. H.**, and T. L. Ott (1999) Estradiol up-regulates estrogen receptor messenger RNA by increasing its stability. *Biol. Reprod.* 60:134-9.
 17. Flynn, N. E.***, C. J. Meininger, K. Kelly, **N. H. Ing**, S. M. Morris and G. Wu (1999) Glucocorticoids mediate the enhanced expression of intestinal type II arginase and argininosuccinate lyase in postweaning pigs. *J. Nutrition* 129: 799-803.
 18. Hutchinson, R. W.***, **N. H. Ing**, and R. C. Burghardt (1998) Induction of c-fos and cytochrome c oxidase subunits I and II by gossypol acetic acid in rat liver cells. *Cell Biol. Toxicol.* 14:391-9.
 19. Miller, S.***, D. Kennedy, J. Thomson, F. Han, R. Smith, **N. H. Ing**, J. Piedrahita and D. Busbee (2000) A rapid and sensitive reporter gene system using green fluorescent protein expression to detect chemicals with estrogenic activity. *Toxicol. Sci* 55(1):69-77.
 20. Scott, C. J., A. M. Pereira, J. A. Rawson, D. M. Simmons, W. G. Rossmanith, N. H. Ing and I. J. Clarke (2000) The distribution of progesterone receptor immunoreactivity and mRNA in the preoptic area and hypothalamus of the ewe: up-regulation of PR mRNA in the mediobasal hypothalamus by estrogen. *J. Neuroendocrinol.* 10:565-75.
 21. Scott, C. J., A. J. Tilbrook, D. M. Simmons, J. A. Rawson, S. Chu, P. J. Fuller, **N. H. Ing** and I. J. Clarke (2000) The distribution of cell containing estrogen receptor-alpha and -beta mRNA in the preoptic area and hypothalamus of the sheep: comparison of males and females. *Endocrinology* 141:2951-62. (Impact Factor 5.2)
 22. Robertson, J. A.****, Y. Zhang and **N. H. Ing** (2001) ICI182780 acts as a partial agonist and antagonist of estradiol effects in the sheep uterus. *J. Steroid Biochem. Mol. Biol.* 77:281-7.
 23. Wilker, C. E.***, **N. H. Ing**, T. H. Welsh Jr. and L. Johnson (2001) Syngeneic testicular grafts produce testosterone and express Sertoli cell genes characteristic of intact testes. *Advances in Reproduction* V: 113-31.
 24. Robertson, J. A.****, Y. Zhang** , L.S. Lindahl**** and **N. H. Ing** (2002) Estradiol up-regulates estrogen receptor messenger ribonucleic acid in endometrial carcinoma (Ishikawa) cells by stabilizing the message. *J. Mol. Endocrinol.* 29:125-35.

25. Farnell, Y. Z.** and **N. H. Ing** (2003) The effects of estradiol and selective estrogen receptor modulators on gene expression and messenger RNA stability in immortalized sheep endometrial stromal cells and human endometrial adenocarcinoma cells. *J. Steroid Biochem. Mol. Biol.* 84: 453 - 461.
26. Farnell, Y. Z.** and **N. H. Ing** (2003) Endometrial effects of selective estrogen receptor modulators on estrogen-responsive gene expression. *J. Steroid Biochem. Mol. Biol.* 84: 513 - 526.
27. Farnell, Y. Z.** and **N. H. Ing** (2003) Myometrial effects of selective estrogen receptor modulators on estrogen-responsive gene expression. *J. Steroid Biochem. Mol. Biol.* 84: 527 - 536.
28. Farnell, Y. Z.** and **N. H. Ing** (2003) Estradiol and a selective estrogen receptor affect steroid hormone receptor messenger RNA levels and turnover in explant cultures of sheep endometrium. *In Vitro Cell Dev. Biol.* 38: 595-600.
29. Mitchell, D. C.** and **N. H. Ing** (2003) Estradiol stabilizes estrogen receptor mRNA in sheep endometrium via discrete sequence elements in its 3' untranslated region. *Mol. Endocrinol.* 17: 562-574. (Impact Factor 5.3)
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3. Bazer, F. W., T. E. Spencer, T. L. Ott, and **N. H. Ing**. (1995). Regulation of endometrial responsiveness to estrogen and progesterone. In: Dey, S.K. (ed) "Molecular and Cellular Aspects of Periimplantation Processes." New York, Springer-Verlag. pp.27-47.
4. **Ing, N. H.** (1996). Making use of complementary DNA libraries to study growth mechanisms. *J. Anim. Sci.*, 74 (Suppl. 2):1-14.
5. **Ing, N. H.** (1999). Steroid hormone receptors. In: Knobil, E. & Neill, J.D. (eds.) "Encyclopedia of Reproduction." San Diego, CA; Academic Press 4:654-61.
6. **Ing, N. H.** and J. A. Robertson (1999). Regulation of hormone receptor gene expression. In: Carson, D. (ed) "Embryo Implantation: Molecular, Cellular, and Clinical Aspects." New York, Springer-Verlag pp. 287-98.
7. Johnson, L., **N. H. Ing**, T. H. Welsh, D. D. Varner, W. L. Scrutchfield and M. T. Martin (2000) "Efficiency of spermatogenesis in animals and humans" *J. Anim. Sci.* 77: 1-47.
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12. A. Pereira, D. Simmons, **N. H. Ing**, J. Rawson, and I. Clarke (1997) "Distribution of estrogen receptor and progesterone receptor immunoreactivity and mRNA in sheep hypothalamus" *Soc. Neuroscience.*
13. R. W. Hutchinson***, R. Barhoumi, **N. H. Ing**, J. M. Miles, and R. C. Burghardt (1998) "Mechanistic analysis of attenuation of gossypol cytotoxicity by cyclic AMP" *Soc. Toxicol.*
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41. M. Bedenbaugh***, M. D'Oliviera, R. C. Cardoso***, C. Korthanke***, S. M. V. Sharpton, **N. H. Ing**, G. L. Williams, M. Amstalden (2014) ESR1 expression in kisspeptin neurons during reproductive neuroendocrine maturation in ewe lambs. *International Congress of Neuroendocrinology.*
42. M. Bedenbaugh***, M. D'Oliviera, R. C. Cardoso***, C. Korthanke***, S.M.V. Sharpton, N.H. Ing, A. Caraty, G. L. Williams, M. Amstalden (2015) ESR1 expression in kisspeptin neurons during reproductive neuroendocrine maturation in ewe lambs. *Endocrine Rev.* FRI-435

UNDERGRADUATE RESEARCH ABSTRACTS PUBLISHED AT TEXAS A&M UNIVERSITY

1. Maier, V.*, M. Gutierrez*, J. Jucker*, D. Yates*, M. Terrill*, M. Amstalden, T. H. Welsh, Jr., **N. H. Ing** (2012) Peri-pubertal changes in structure, gene expression, and testosterone production in goat testes.
2. Mesecher, C.*, M. Meier*, T. Derr*, R. Gonzalez*, C. Harris*, C. Hruzek*, M. Wilde*, T. H. Welsh, Jr, M. Amstalden, **N. H. Ing** (2013) Physiological, cellular and molecular effects of zeranol on growth of wethers II: expression of four growth-related genes.
3. Harris, C.*, C. Hruzek*, M. Wilde*, C. Mesecher*, R. Gonzalez*, T. Derr*, **N. H. Ing**, M. Amstalden, T. H. Welsh, Jr. (2013) Physiological, cellular and molecular effects of zeranol on growth of wethers III: serum concentrations of insulin and insulin-like growth factor.
4. Wilde, M.*, R. Gonzalez*, T. Derr*, C. Harris*, M. Meier*, C. Hruzek*, C. Mesecher*, **N. H. Ing**, T. H. Welsh, Jr., M. Amstalden (2013) Physiological, cellular and molecular effects of zeranol on growth of wethers I: histomorphological analysis of the adenohypophyseal gland.
5. Hanson, D.*, A. Heil*, J. Hwang***, R. Valdez***, C. A. Cavinder, M. M. Vogelsang, **N. H. Ing** (2014) Dexamethasone acutely down-regulates genes that drive steroidogenesis in stallion testes.

BOOK REVIEW:

Ing, N. H. (2009) Companion Animals: Their Biology, Care, Health, and Management. JAVMA 234:762.

THESES:

- "The Ovine Uterine Milk Proteins: Structure, Function, and Biosynthesis."
Nancy Hughes Ing University of Florida 1988
- "Regulation of Estradiol-Responsive Genes by Selective Estrogen Receptor Modulators in Uterine Cells."
Yuhua Zhang Farnell Texas A&M University 2002
- "Spermatogenesis in the Equine Testes: Gene Expression in Immature, Mature and Cryptorchid Stallions and in Tissue Slices Cultured In Vitro"
Andy Michael Laughlin Texas A&M University 2010
- "Changes in Gene Expression of Goat Developing Testes and Sperm During Breeding and Non-breeding Seasons"
Azure Nicole Faucette Texas A&M University 2012

INVITED LECTURES at International and National Meetings:

- American Society of Animal Science Growth Symposium “*Current Concepts of Animal Growth*”
 “Making Use of cDNA Libraries to Study Growth” Minneapolis, MN 1994
 Sero Symposium entitled Molecular and Cellular Aspects of Periimplantation Processes,
 “Regulation of Hormone Receptor Gene Expression” Newport Beach, CA 1997
 International Symposia on Equine Reproduction
 " Effect of dexamethasone on serum and testicular concentrations of testosterone in stallions." Kerkrade Netherlands 2006
 " Dexamethasone acutely alters gene expression in stallion testes resulting in impaired steroidogenesis " Lexington, KY 2010
 “Dexamethasone treatment of stallions impairs testosterone biosynthesis at a late step: Glutathione S-transferase A3 isomerization of delta-5 androstenedione.” Hamilton, New Zealand 2014
 Project Director’s Conference for 1890 Land Grant and Hispanic Serving Institutions
 USDA National Institute of Food and Agriculture (Dr. GR Newton presented)
 “Gene expression changes in developing goat testes and in sperm during breeding and non-breeding seasons: A novel male fertility test?” Arlington, VA 2010
 Advances in Leiomyoma Research: 3rd NIH International Congress. “The dog as a novel animal model for leiomyoma research” Bethesda, MD 2010

INVITED LECTURES at Other Universities:

- Department of Cell Biology, keynote speaker for Graduate Student symposium
 “Transition from Training to Faculty” Baylor College of Medicine, Houston 1993
 Career Forum, hosted by the Department of Animal Science Graduate Students
 “Training for a Career in a University” University of Missouri, Columbia 1996
 Reproductive Biology Forum, hosted by the Department of Obstetrics and Gynecology
 “A New Mechanism for Estrogen Action” UT Medical Branch, Galveston 1997
 Biology Seminar Series at University of Missouri-Kansas City 1999
 “Estradiol Acts Posttranscriptionally to Stabilize Estrogen Receptor mRNA”
 Reproduction and Development Seminar Series Baylor College of Medicine
 “Messenger RNA Stability: A New Mechanism of Estrogen Action” 2000
 Information Exchange Seminar Series at the Institute of Biosciences, Texas A&M System
 “How Estrogen Up-regulates Estrogen Receptor: an example of powerful post-transcriptional gene regulation by hormones” 2006
 Biology Seminar series at University at Buffalo, State University of NY
 “How Estrogen Up-regulates Estrogen Receptor: an example of powerful post-transcriptional gene regulation by hormones” 2007
 Reproductive Biology at Colorado State University
 “Steroid Hormones Regulate Gene Expression in Reproductive Tissues by Post-transcriptional Mechanisms” 2011
 Biochemistry and Molecular Biology at University of Texas Medical Branch
 “Steroid Hormones Regulate Gene Expression in Reproductive Tissues by Post-transcriptional Mechanisms” 2014

INVITED LECTURES at Texas A&M University:

- Department of Animal Science Seminar Series
 Department of Medical Pharmacology Seminar Series
 Faculty of Genetics Seminar Series
 Reproductive Biology Forum
 RNA Club
 Center for Environmental and Rural Health – Annual meeting and external review

Reproductive Biology Retreat

TECHNOLOGY TRANSFER:

Patent D-5486 "Novel Triplex Forming Oligonucleotides and Methods for Their Use",
 Baylor College of Medicine and Triplex Pharmaceuticals
 (with M.-J. Tsai, M.E. Hogan, and B.W. O'Malley)
 Disclosure of Invention – TAMUS-2304 "Use of Uridine-Rich mRNA Sequence Elements as
 Drugs or Targets for Intervention of Endocrine Responses"

SERVICE IN REVIEWING GRANTS:

INTERNATIONAL GRANT REVIEW

Qatar National Research Foundation	- Ad-hoc Reviewer	1999 -
United Kingdom Horserace Betting Levy Board	- Ad-hoc Reviewer	2001 -
United Kingdom Breast Cancer Campaign	- Ad-hoc Reviewer	2004 -
The Georgian National Science Foundation	- Ad-hoc Reviewer	2009 -
Korea Research Foundation	- Ad-hoc Reviewer	2009 -

FEDERAL GRANT REVIEW

USDA Cooperative State Research, Education, and Extension Service		
National Research Initiative Competitive Grant Program:		
"Enhancing Reproductive Efficiency"	- Ad-hoc Reviewer	1995 - 2006
	- Grant Review Panel Member	1 time
Small Business Innovation Research Program		
"Animal Production and Protection"	-Ad-hoc Reviewer	2002 -
National Science Foundation – Biology Directorate		
	- Ad-hoc Reviewer	1998 –
	- Grant Review Panel Member	3 times
National Institutes of Health ZRG1 Endocrinology, Metabolism, Nutrition and Reproductive Sciences D (02) Study Section		
		1 time

STATE AND LOCAL GRANT REVIEW

USDA Animal Health Grants		
External reviewer	Oregon State University	1994
Internal review - Panel Member	Texas A&M University	1995, 1999, 2001
Veterinary Graduate Student Grants - Panel Member	Texas A&M University	1995
Missouri Life Sciences Research Board – Ad-hoc Reviewer		2005 –
Kansas Life Science Institute– Ad-hoc Reviewer		2009 –

SERVICE IN REVIEWING MANUSCRIPTS (23 journals):

Biology of Reproduction (appointed to the Editorial Board in 1997)	1992 -
Domestic Animal Endocrinology (appointed to the Editorial Board in 1999)	1994 -
Journal of Biological Chemistry	1999 –
Journal of Animal Science	1999 –
Reproduction	2002 -
Reproduction, Fertility, and Development	2002 –
Molecular and Cellular Endocrinology	2002 –
Reproductive Biology and Endocrinology (Registered Reviewer in 2007)	2003 –
Molecular Reproduction and Development	2003 –

Maturitas

2003 –

SERVICE IN REVIEWING MANUSCRIPTS (continued):

Endocrinology	2003 –
American Journal of Reproductive Immunology	2003 -
Cellular & Molecular Life Sciences	2003 –
European Journal of Histochemistry	2004 –
Asian Journal of Andrology	2004 –
Theriogenology	2004 -
Molecular Endocrinology	2007 -
Reproductive Biology	2007 -
Acta Theriologica	2008 –
Cellular Oncology	2010 –
Fertility and Sterility	2010 –
African Journal of Agricultural Research	2012 -
Small Ruminant Research	2013 –
Journal of dairy Science	2014 -

SERVICE ON COMMITTEES of National and State Organizations:

Society for the Study of Reproduction	
Chair of the Trainee Activities Committee of the Local Arrangements Committee for the Society for the Study of Reproduction meeting in 1998 at Texas A&M University	1997- 98
Publications Committee	2002 - 05
Membership Committee	2005 - 10
Member of the Intercollegiate Texas Academic Forum for Women’s Health	1995- 98

SERVICE ON COMMITTEES at Texas A&M University:

Interdisciplinary Faculty of Genetics:	
Member of the Graduate Curriculum Committee	1994 - 1997
Member of the Undergraduate Curriculum Committee	1997 – 2002
Member of the Executive Committee	2002 - 2005
Interdisciplinary Faculty of Reproductive Biology:	
Member of the Executive Committee	1999 – 2004
Chair of the Seminar Committee	1999 – 2002
Member of the Nominating Committee	1999 – 2003
Graduate Programs Committee	2003- 2006
Interdisciplinary Faculty of Biotechnology	
Executive Committee	2000 – 2004
Admissions Committee	2004 - present
Women’s Faculty Network Steering Committee:	
COALS representative	1999 – 2002
Vice President	2000
Interim President	2001
Treasurer	
Faculty Senate – Elected College of Agriculture Representative	2004 – 2007
Personnel and Welfare Committee	
Research Committee	
Elections Committee	
Texas A&M University Polo Club	
Horse Care Advisor	2002– present
U.S. Polo Association Delegate	2002 – 2004
Chair of the Baylor-Texas A&M Graduate Student Day committee	1996 - 1998

University Radiation Safety Committee	1999 – 2001
Women’s Spirit Award Selection Committee	2001

SERVICE ON COMMITTEES in the College of Agriculture and Life Sciences:

Member of the Search Committee for Poultry Science faculty position	1997- 1998
Student Research Competition Committee at Texas Agriculture Conference	2003– present
Committee Chair	2008 – 2010
Tenure and Promotion Committee	2011 - 2013

SERVICE IN MENTORING WOMEN FACULTY

Women Faculty Network Mentor for Dr. Cecelia Tamborindoguy (Entomology)	2008 -
Agriculture Women Excited to Share Opinions, Mentoring and Experiences (AWESOME)	
Founder and Organizer of Events	2009– present
NSF ADVANCE Center for Women Faculty Minigrants	\$2,000 2011 – 12
	\$2,000 2012 - 14
(100% matching funds requested and obtained from COALS - \$4,000 total)	
“An AWESOME ADVANCE – Networking and Mentoring for Faculty in the College of Agriculture and Life Sciences” (Principal Investigator)	
AWESOME LISTSERV Owner and Manager	2011 -
American Society for Reproductive Medicine mentor for Dr. Fatima Habeebu-Adejobi at Lagos University Teaching Hospital, Nigeria	2011 -

SERVICE ON COMMITTEES in the Animal Science Department:

Chair of the Organizational Committee for the January Minisymposium of the Physiology of Reproduction section of the Department of Animal Science	1994, 1997
Member of the Search Committees for Animal Science faculty positions	2000, 2005, 2006
Nutrition & Physiology Laboratory Committee of the Animal Science Department	2000 – 2001
Equipment Advisory Committee of the Department of Animal Science	2003 - present

SERVICE WITH STUDENT ORGANIZATIONS

Horse Care Advisor for the Texas A&M Polo Club	2002-2004
Faculty Advisor for the Building Aggie Recreational Canines (BARK9) Club (Founding Advisor)	2008-2010
Faculty Advisor for Aggies for Animal Rescue Club	2009 - present

OUTREACH PROGRAMS:

Science Pen-Pal for 5th-7th graders to advise on 3 to 4 projects per year, sponsored by the National Science Foundation and the Boston Museum of Science	1992 - 1999
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Presenter of Workshops for high school students and science teachers at the annual Science, Technology and YOUth Program at Texas A&M University	1993 – 1999
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Partnerships in Environmental Education and Rural Health (L. Johnson PI – continuous funding from various sources including NIH and NSF)

Lecture to students at Texas Middle Schools, “Dangers of Common Drugs”	2000 – 2001
Workshops for Middle School Science teachers	2000 – 2002
Design and update the Cells-R-Us exercise	2000 - present
http://peer.tamu.edu/curriculum_modules/Cell_Biology/CellBiol/membranes/activity2.htm	
Streaming video interview “Science Careers”	

Duke Talent Identification Program "Introduction to Veterinary Medicine" at Texas A&M Univ.
"Molecular Biology in Veterinary Medicine" Lecture/lab for high school students 2007 -09