

Emma H. Wall
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(802) 318-1731

EDUCATION AND TRAINING

Postdoctoral Associate Department of Medicine, University of Vermont *September 2009 – February 2013*
Supervisor: Cory Teuscher, Ph.D.

Postdoctoral Associate Department of Animal Science, University of Vermont *November 2008 – September 2010*
Supervisor: Thomas B. McFadden, Ph.D.

Doctor of Philosophy Department of Animal Science, University of Vermont *November 2008*
Dissertation: Local regulation of milk yield, mammary function, and gene expression in lactating dairy cows.

Master of Science Department of Animal Science, University of Vermont *December 2004*
Thesis: Evidence that prolactin signaling mediates the effects of short-day photoperiod and increased milking frequency on mammary development in the transition dairy cow.

Bachelor of Science Department of Animal Science, University of Vermont *May 2001*

PROFESSIONAL EXPERIENCE

Employment

Deputy Director of Research and Development *February 2013 – present*
Pancosma North America
Ruminant specialist; manage research collaborations involving ruminants and calves; experimental design; product development for the use of phytonutrients as feed additives for ruminants and calves.

Scientific Consultant *March 2009 - present*
Full Circle Science, Burlington, VT.
Owner/founder of a scientific consulting firm. Services provided include experimental design, data analysis and interpretation, and communication of results including oral presentations, peer-reviewed journal publications, and popular press articles.

Herd Manager *June 2001-September 2002*
Town Farm Dairy, Simsbury, CT.
Managed a small herd of Jersey cows. Management duties included buying and selling of animals, management of all staff (including exchange students from Hungary and Brazil), animal breeding and health, record-keeping, milking chores, and field work.

Research Experience

Postdoctoral Research *September 2009 - present*
Department of Medicine, University of Vermont
Research focus: Research administration; manuscript and grant writing and editing; genetic regulation of the response to sex hormones.

Postdoctoral Research *November 2008 – September 2010*
Department of Animal Science, University of Vermont
Research focus: Identification of genes involved in local and hormonal regulation of mammary development and function.

Graduate Research Project *Fall 2002-Fall 2008*
Department of Animal Science, University of Vermont.
Studies on the cellular and molecular mechanisms that regulate mammary growth, development and function during pregnancy and lactation.

Memberships and Professional Affiliations

Member, Golden Key International Honour Society *Fall 2007-Fall 2008*
International collegiate honour society that recognizes the top 15% of undergraduate and graduate students. Membership into the Society is by invitation only, based on the objective criteria of academic achievements.

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Member, Dean's Board of Advisors

Fall 2005-Spring 2008

College of Agriculture and Life Sciences, University of Vermont

Served on the board to advise and assist the Dean of the College, and the Provost and President of the University, on opportunities for enhancement of the College.

Graduate Student Representative

Fall 2003-Spring 2007

Department of Animal Science, University of Vermont

Reported to the Chair of the Graduate Committee and voiced concerns/issues of the graduate students. Organized regular meetings to discuss the program, and invited speakers from other departments come and talk to graduate students. Created and organized graduate student retreats program (two retreats per year), in order to encourage interaction and collaborations of students with each other and with other programs in the department.

Member, American Dairy Science Association (ADSA)

Fall 2002-present

Member, Dean's Student Advisory Council

Fall 2000, Spring 2001

College of Agriculture and Life Sciences, University of Vermont

Served on the Student Advisory Council to assist the Dean of the College in decision-making. Provided ideas and feedback from a student's point of view.

Student/Member, Cooperative for Real Education in Agricultural Management (CREAM)

Fall 1998, Spring 1999

Department of Animal Science, University of Vermont

Managed a herd of 30 registered Holstein cows with 15 other students. Made business decisions, milked and cared for cows, learned management concepts and teambuilding.

Professional Development

Lactation and Mammary Gland Biology (LAMGB) Retreat

October 2003, October 2005

Middlebury, VT (2003) and Bolton, VT (2005)

Attended Scientific conferences on mammary gland biology (topics presented included mammary physiology, mammary development and function, and breast cancer research). Participated in discussions on current topics including research trends, challenges in the field, functional genomics, and integration of genomic research and bioinformatics. Networked with visiting researchers from the United States, Canada, New Zealand, and France.

Trainee, Center for Teaching and Learning WebCT Workshops

Summer 2005

University of Vermont

Enrolled in a two-day training workshop on the use of WebCT, a web-based learning, discussion, and class administration software to support the development and delivery of course websites.

ADSA-PSA-ASAS joint annual meeting

June 2003, July 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012

Phoenix, AZ (2003, 2012), St. Louis, MO (2004), Cincinnati, OH (2005), Minneapolis, MN (2006), San Antonio, TX (2007), Indianapolis, IN (2008), and Montreal, Canada (2009), Denver, Colorado (2010), New Orleans, Louisiana (2011).

Attended American Dairy Science Association-Poultry Science Association-American Society of Animal Science joint annual meetings. Networked with Animal Scientists from around the world, presented graduate research in oral seminars.

19th Annual Vermont Cancer Center Symposium

September 2004

Burlington, VT

Attended two-day cancer conference, viewed oral and poster presentations on the cellular and molecular mechanisms behind the development, progression, and treatment of breast cancer.

PUBLICATIONS

Refereed publications

In preparation

Wall, E. H., S. C. Hewitt, L. K. Case, T. Vu, K. S. Korach, C. Teuscher, and C-Y Lin 2013. Genetic control of ductal morphology, estrogen-induced outgrowth, and gene expression in mouse mammary gland. *Endocrinology* (*in preparation*).

Published

Wall, E. H., J. P. Bond, and T. B. McFadden. 2013. Milk yield responses to changes in milking frequency during early lactation are associated with coordinated and persistent changes in mammary gene expression. *BMC Genomics*. 2(1):296.

Wall, E. H., S. C. Hewitt, L. Liu, R. del Rio, L. K. Case, C. Lin, K. S. Korach, and C. Teuscher. 2013. Genetic control of estrogen-regulated transcriptional and cellular responses in mouse uterus. *FASEB Journal*. 27(5): 1874-1886.

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- Wright, J. B., **E. H. Wall**, and T. B. McFadden. 2013. Effects of increased milking frequency during early lactation on milk yield and udder health of primiparous Holstein heifers. *J. Anim. Sci.* 91(1):195-202.
- Del Rio, R., R. D. McAllister, N. D. Meeker, **E. H. Wall**, J. P. Bond, K. Tung, and C. Teuscher. 2012. Identification of *Orb3*, a locus controlling dominant resistance to autoimmune orchitis, as kinesin family member 1c. *PLoS Genetics* 8(12):e1003140.
- Wall, E. H.** and T. B. McFadden. 2012. A local affair: how the mammary gland adapts to changes in milking frequency. *J. Anim. Sci.* 90: 1695-1707.
- Wall, E. H.**, J. P. Bond, and T. B. McFadden. 2012. The acute milk yield response to frequent milking during early lactation is mediated by genes transiently regulated by milk removal. *Physiol. Genomics.* 44: 25-34.
- Del Rio, R., R. Noubade, N. Saligrama, **E. H. Wall**, D. N. Krementsov, M. E. Poynter, J. F. Zachary, R. L. Thurmond, and C. Teuscher. 2012. Histamine H4 Receptor Optimizes T Regulatory Cell Frequency and Facilitates Anti-Inflammatory Responses within the Central Nervous System. *J Immunol.* Jan 15;188(2):541-7.
- Blankenhorn. E. P., R. Butterfield, L. K. Case, **E. H. Wall**, R. Del Rio, S. A. Diehl, D. N. Krementsov, N. Saligrama, and C. Teuscher. 2011. Genetics of experimental allergic encephalomyelitis supports the role of T helper cells in multiple sclerosis pathogenesis. *Ann Neurol.* Dec;70(6):887-96.
- Wall, E. H.** and T. B. McFadden. 2010. The effects of milk removal or four-times daily milking on mammary expression of genes involved in the insulin-like growth factor-I axis. *J. Dairy Sci.* 93(9):4062-4070
- Wall, E. H.** and T. B. McFadden. 2008. Use it or lose it: enhancing milk production efficiency by frequent milking of dairy cows. *J. Anim. Sci.* 86 (Suppl. 1):27-36.
- Wall, E. H.** and T. B. McFadden. 2007. Optimal timing and duration of unilateral frequent milking during early lactation of dairy cows. *J. Dairy Sci.* 90(11):5042-5048.
- Wall, E. H.** and T. B. McFadden. 2007. The milk production response to frequent milking during early lactation of dairy cows is locally regulated. *J. Dairy Sci.* 90(2):716-720.
- Wall, E. H.**, H. M. Crawford, S. E. Ellis, G. E. Dahl and T. B. McFadden. 2006. Mammary response to prolactin or frequent milking during early lactation of dairy cows. *J. Dairy Sci.* 89(12):4640-4648.
- Wall, E. H.** and T. B. McFadden. 2005. The 60-day dry period: method or madness? Proceedings of the DIGAL International Dairy Conference, Delicias, Mexico, September 8-10 (presented by T. B. McFadden).
- Wall, E. H.**, T. L. Auchtung-Montgomery, G. E. Dahl and T. B. McFadden. 2005. *Short communication:* Short-day photoperiod during the dry period decreases expression of suppressors of cytokine signaling in mammary gland of dairy cows. *J. Dairy Sci.* 88(9):3145-8.
- Zhao, F. Q., T. B. McFadden, **E. H. Wall**, B. Dong and Y. C. Zheng. 2005. Cloning and expression of bovine sodium/glucose cotransporter SGLT2. *J. Dairy Sci.* 88(8):2738-48.
- Wall, E. H.**, T. L. Auchtung, G. E. Dahl, S. E. Ellis and T. B. McFadden. 2005. Exposure to short day photoperiod during the dry period enhances mammary growth in dairy cows. *J. Dairy Sci.* 2005 88(6):1994-2003.
- Zhao, F. Q., Y. C. Zheng, **E. H. Wall** and T. B. McFadden. 2005. Cloning and expression of bovine sodium/glucose cotransporters. *J. Dairy Sci.* 88(1):182-94.
- Zhao F. Q., P. J. Miller, **E. H. Wall**, Y. C. Zheng, B. Dong, M. C. Neville and T. B. McFadden. 2004. Bovine glucose transporter GLUT8: cloning, expression, and developmental regulation in mammary gland. *Biochim. Biophys. Acta.* 1680(2):103-13.

Popular Press Articles

- Wall, E. H.** 2013. Novel sites targeted to improve efficiency. *Feedstuffs.* June 3:1-2
- Wall, E. H.** 2012. Research perspectives: Navigating success in the seas of change. *Eastern Dairy Business.* October:30-31
- Wall, E. H.** 2012. Research perspectives: Welfare of the modern dairy cow. *Eastern Dairy Business.* May:10-11
- Wall, E. H.** 2012. Focus on gut health growing. *Feedstuffs.* March 19:1-2

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- Wall, E. H. 2011. Essential oils enhancing poultry performance. *World Poultry*. October:38-39
- Wall, E. H. 2011. Fat toad farm: sweet success. *Countryside and Smallstock Journal*. Septempr/October:74
- Wall, E. H. 2011. A pinch of herbs and spices may pay off. *Hoard's Dairyman*. August:500
- Wall, E. H. 2011. Essential oils promote calf health and performance. *Eastern Dairy Business*. June:30
- Wall, E. H. 2011. Encapsulation protects feed additive efficacy. *Feedstuffs*. Jan 3:1-2
- Wall, E. H. 2010. Old problem, new looks: Johne's disease is major research focus. *Eastern Dairy Business*. July 26th (online)
- Wall, E. H. 2010. A pinch of herbs and spices for your cows. *Hoard's Dairyman*. July:472
- Wall, E. H. 2010. Essential oils for ruminants. *Countryside and Smallstock Journal*. July/August:67
- Wall, E. H. 2010. Making all the right moves:Ath-Mor Holsteins. *Country Folks*. April:2
- Wall, E. H. and T. B. McFadden. 2008. Another vote for increased frequency. *Midwest Dairy Business*. March:8-9.
- Wall, E. H. and T. B. McFadden. 2007. Frequent milking of fresh cows is a small investment with a big payoff. *Northeast Dairy Business*. December:28-30.

Book Chapters

- Wall, E. H. and T. B. McFadden. 2012. Milk Removal: The Key to Maintaining Milk Production and a Tool to Enhance Efficiency. *in Milk Production - An up-to-date Overview of Animal Nutrition, Management, and Health*. Chapter 12: 235-256.
- Wall, E. H. and T. B. McFadden. 2012. Regulation of Mammary Development as It Relates to Changes in Milk Production Efficiency. *in Milk Production - An up-to-date Overview of Animal Nutrition, Management, and Health*. Chapter 13: 257-288.

Abstracts and presentations

- Wall, E. H., J. P. Bond, and T. B. McFadden. 2011. Lactational imprinting: The mechanism underlying the mammary response to changes in milking frequency?. *J. Dairy Sci.* 94 (Suppl. 1):2
- Wall, E. H., J. P. Bond, and T. B. McFadden. 2010. The effect of milk accumulation on gene expression in bovine mammary gland. *J. Dairy Sci.* 93 (Suppl. 1):481
- Wright, J.M., E.H. Wall and T.B. McFadden. 2009. Effects of unilateral frequent milking of dairy heifers during early lactation. *J. Dairy Sci.* 92 (Suppl. 1): 507.
- Wall, E. H., J. P. Bond, and T. B. McFadden. 2008. The acute response to milk removal and the long-term response to frequent milking treatment involve distinct mechanisms. *J. Dairy Sci.* 91 (Suppl. 1):377.
- Wall, E. H., J. P. Bond, and T. B. McFadden. 2008. The persistent milk yield response to frequent milking during early lactation is associated with persistent changes in mammary gene expression. *J. Dairy Sci.* 91 (Suppl. 1):518.
- Wall, E. H. and T. B. McFadden. 2007. Effects of altered timing and duration of unilateral frequent milking during early lactation of dairy cows. *J. Dairy Sci.* 90 (Suppl. 1):606.
- Kissell, A. C., E. H. Wall, and T. B. McFadden. Short-interval unilateral frequent milking during early lactation of dairy cows results in acute and persistent increases in milk yield. 2007. *J. Dairy Sci.* 90 (Suppl. 1):240
- Wall, E. H., T. B. McFadden. 2006. Effects of frequent milking during early lactation on milk yield in dairy cows are locally regulated. *J. Dairy Sci.* 89 (Suppl. 1):427.
- Dahl, G. E., E. H. Wall and T. B. McFadden. 2006. Effects of short day photoperiod on mammary growth of dry cows: Altered prolactin and IGF signaling. *J. Dairy Sci.* 89 (Suppl. 1):256

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Oral presentation

University of Vermont Graduate Research Day

“Effects of frequent milking during early lactation on milk yield in dairy cows are locally regulated”

March 2006

Poster presentation

State House, Montpelier VT at the Vermont Agricultural Legislative Reception

“Enhancing milk production efficiency of dairy cows”

March 2006

Oral presentation

University of Vermont Graduate Research Day

“Exposure to short day photoperiod during the dry period enhances mammary growth in dairy cows”

April 2005

Wall, E. H., T. L. Auchtung, G. E. Dahl and T. B. McFadden. 2004. Exposure to short day photoperiod enhances mammary growth during the dry period of dairy cows. *J. Dairy Sci.* 82(Suppl. 1):94. (3rd place in National ADSA/ASAS Graduate Student Paper Contest).

Wall, E. H., H. M. Crawford, G. E. Dahl and T. B. McFadden. 2004. Expression of prolactin responsive genes following experimental manipulation of the prolactin axis during early lactation in dairy cows. *J. Dairy Sci.* 82(Suppl. 1):424.

Crawford, H.M., T. L. Auchtung, **E. H. Wall,** T. B. McFadden, and G. E. Dahl. 2004. Evidence that prolactin (PRL) mediates effects of milking frequency in early lactation. *J. Dairy Sci.* 82(Suppl. 1):424.

Wall, E. H., R. Thomason, D. Maynard, E. Brunst and T. B. McFadden. 2003. Abnormal udder conformation in pubertal heifers induced into lactation. *J. Dairy Sci.* 81(Suppl. 1):11. (1st place in Northeast ADSA/ASAS Graduate Student Paper Contest).

Poster presentation

Miner Institute, NY at Vermont Bovine Practitioners Meeting on “Applied Lactation Physiology”

“Abnormal udder conformation in pubertal heifers induced into lactation”

November 2003

SCHOLARSHIPS AND AWARDS

New achiever alumni award (University of Vermont)

The New Achiever Alumni Award recognizes and honors individuals who earned an undergraduate or graduate degree in the last 15 years from a program currently or formerly affiliated with the College of Agriculture and Life Sciences. This award is intended to honor those who have achieved excellence in one or more of the following areas: 1) a record of professional achievement, such as job advancements, publications, and/or entrepreneurial efforts, which show promise for future success; 2) demonstrated leadership in a chosen endeavor or interest, such as service on committees, boards or other professional associations; 3) contributions toward the betterment of society through involvement in worthy causes, community service, and/or humanitarian undertakings; and/or 4) demonstrated support of and/or service to the University and/or College.

May 2013

H. Allen Tucker Graduate Student Travel Scholarship

\$500 and certificate awarded for travel to Indianapolis, IN for ADSA-ASAS joint annual meeting and the triennial Biology of Lactation Workshop

July 2008

North American Colleges and Teachers of Agriculture (NACTA)

Graduate teaching award of merit

Spring 2005

Graduate Student Enhancement Fund

\$200 awarded for travel to St. Louis, MO for ADSA-PSA-ASAS joint annual meeting

July 2004, July 2008

3rd Place National ADSA/ASAS Graduate Student Paper Contest

Awarded 3rd place in graduate student paper competition (awarded \$200)

July 2004

George Walker Graduate Education Travel Scholarship

\$600 awarded for travel to the University of Illinois to pursue collaborative research

October 2003

1st Place Northeast ADSA/ASAS Graduate Student Paper Contest

June 2003

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Awarded 1st place in graduate student paper competition (awarded \$500)