

# Curriculum Vitae

## Robert Edwin Ward, Ph.D.

Assistant Professor  
Department of Nutrition and Food Sciences  
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### Education

**Ph.D.** Food Science and Technology, University of California, Davis. 2005.  
Dissertation: *Mining Milk for Nutritional Bioactivity: Fermentability of Milk Oligosaccharides by Human Microflora*. Advisor: Dr. J. Bruce German

**Master of Science**, Food Science and Technology, University of California, Davis. 2002.  
Thesis: *Esterases in Barley and Malt*. Advisor: Dr. Charlie Bamforth

**Bachelor of Arts**, English Literature and Art History, University of Vermont, May 1991.

### Positions

*Assistant Professor*, Utah State University, 9/15/05-present  
Appointment: Research (50%), Teaching (45%) and Service (5%)  
Teaching: Food Analysis (4 cr.), Metabolomics (1 cr.), Graduate Seminar (1 cr).

*Visiting Scientist*, Nestle Research Center, Vers-Chez-les-Blanc, Switzerland, October, 2002.

*Lecturer*, Food Science and Technology, University of California, Davis, 8/03-9/03, 8/04-9/04.

### Honors and Awards

2005 NIH Training Grant in Biomolecular Technology  
2004 UC Davis Biotechnology Training Grant (sponsored by Monsanto)  
2004 Gerber Endowment in Pediatric Nutrition  
2004 Institute of Food Technologists Graduate Fellowship.  
2004 3<sup>rd</sup> Place, Institute of Food Technologists Student Product Development Competition  
2004 2<sup>nd</sup> Place, Institute of Food Technologists College Bowl Competition  
2003, 2004 Western Area Champion, IFT College Bowl Competition  
2002, 2003 Jastro-Shields Research Award, Food Science and Technology, UC Davis  
2002 UC Davis Food Science & Technology: Frozen Food Memorial  
2001 Recognition Award, *Chaine des Rotisseurs*.  
2000 Master Brewer's Association of the Americas scholarship

2000 American Society of Brewing Chemists travel grant  
2000 UC Davis Food Science & Technology: B.S. and Alta Schweigert Award

## **Publications**

### **Peer Reviewed Journal Articles**

Gao, Z., Yin, J., Zhang, J., **Ward, R.**, Martin, R., Lefevre, M., Cefalu, W.T and Ye, J. 2009. Butyrate improves insulin sensitivity and increases energy expenditure in mice diabetes *Diabetes* (in press).

The Bovine Genome Sequencing and Analysis Consortium. 2009 The Genome Sequence of Taurine Cattle: A window to ruminant biology and evolution *Science* 324(5926):522-8.

**Ward, R.E.** 2009 Isolation of human milk oligosaccharides using solid-phase extraction. *Open Glycoscience* 2:9-15.

Martini, S., Thurgood, J.E., Brothersen, C., **Ward, R.** and McMahon, D.J. 2009 Fortification of reduced-fat cheddar cheese with omega-3 fatty acids: effect on off-flavor generation *Journal of Dairy Science* 92(5):1876-84.

**Ward, R.E.**, Ninonuevo, M.N., Mills, D.A., Lebrilla, C.B., and German, J.B. 2007 *In vitro* fermentability of human milk oligosaccharides by several strains of bifidobacteria. *Molecular Nutrition and Food Research* 51(11):1398-405.

Thurgood, J., **Ward, R.E.**, and Martini, S. 2007 Oxidation kinetics of soybean oil/anhydrous milk fat blends: a differential scanning calorimetry study *Food Research International* 40:1030-1037.

German, J.B., Schanbacher, F.L., Lönnerdal, B., Medrano, J.F., McGuire, M.A., McManaman, J.L., Rocke, D.M., Smith, T.P., Neville, M.C., Donnelly, P., Lange, M. and **Ward, R.E.** 2006 International milk genomics consortium. *Trends in Food Science & Technology* 17(12):656-661.

Ninonuevo, M.R., Park, Y., Yin, H., Zhang, J., **Ward, R.E.**, Clowers, B.H., German, J.B., Freeman, S.L., Killeen, K., Grimm, R., and Lebrilla, C.B. 2006 A strategy for annotating the human milk glycome. *Journal of Agricultural Food Chemistry* 54(20):7471-7480.

**Ward, R.E.**, M. Ninonuevo, D.A. Mills, C.B. Lebrilla, J.B. German. 2006 *In vitro* fermentation of breast milk oligosaccharides by *Bifidobacterium infantis* and *Lactobacillus gasseri*. *Applied and Environmental Microbiology* 72(6):4497-4499.

Ninonuevo, M., An, H., Yin, H., Killeen, K., Grimm, R., **Ward, R.**, German, B., and Lebrilla, C. 2005 Nanoliquid chromatography-mass spectrometry of oligosaccharides employing graphitized carbon chromatography on microchip with a high-accuracy mass analyzer. *Electrophoresis* 26:3641-9.

**Ward, R.E.**, Watzke, H.J., Jimenez-Flores, R. and German, J.B. 2004 Bioguided nanoprocessing: A Paradigm Change in Food Processing. *Food Technology* 58:44-48.

**Ward, R.E.**, German, J.B. 2004 Understanding milk's bioactive components: a goal for the genomics toolbox. *Journal of Nutrition* 134:962S-7S.

German, J.B., Morgan, C.J., and **Ward, R.E.** 2003 Milk: a model for nutrition in the 21<sup>st</sup> century. *Australian Journal of Dairy Technology* 58:49-54.

Astaire, J.C., **Ward, R.E.**, German, J.B., Jimenez-Flores, R. 2003 Concentration of polar MFGM lipids from buttermilk by microfiltration and supercritical fluid extraction. *Journal of Dairy Science* 86:2297-307.

**Ward, R.E.**, German, J.B. 2003. Zoonutrients and health. *Food Technology* 56:30-36.

German, J.B., Dillard, C.J., **Ward, R.E.** 2002 Bioactive components in milk. *Current Opinion in Clinical Nutrition and Metabolic Care* 5(6):653-8.

**Ward, R.E.**, and Bamforth, C.W. 2002. Esterases in barley and malt. *Cereal Chemistry* 79:681-686.

### **Book Chapters**

Carpenter, C.E. and **Ward, R.E.** 2009 Mineral Analysis in Food Analysis (Susanne Neilsen, ed). Aspen Publishers, (New York, NY) (In preparation).

German, J.B., Dillard, C.J., Hillyard, S.L., Lange, M.C., Smilowitz, J.T., **Ward, R.E.** and Zivkovic, A.M. 2005 Metabolomics: bringing nutrigenomics to practice in individualized health assessment in Nutritional Genomics: Discovering the Path to Personalized Nutrition (J. Kaput and R.L. Rodriguez, eds) Wiley, New Jersey.

**Ward, R.E.**, German, J.B., and Corredig, M. 2005 Composition, applications, fractionation, technological and nutritional significance of milk fat globule membrane material, in Advanced Dairy Chemistry-2. Lipids (P.F. Fox and P.L.H. McSweeney, eds) Kluwer Academic/Plenum Publishers, New York.

### **Research Funding**

#### **Current Funding**

Ward, R.E. Agricultural Experiment Station Functional Characterization of the native structure of milk fat. \$18,000	2006-2009 Utah Utah State University
Broadbent, J., Ward, R.E. and Steele, J. Dairy Management Inc. Effect of fat removal on cheese microenvironment and starter culture metabolism in Cheddar cheese. \$220,667	2007-2010
Provenza, F., Reeve, J.R., Villalba, J., Wiedmeier, R. Cornforth, D., Martini, S. and Ward, R.E. Creating plant mixtures that enhance the health of soils, plants, herbivores and people. United States Department of Agriculture \$400,000	2009-2012 Managed Ecosystems
Martini, S., Ward, R.E. and Cornforth, D. National Cattleman's Beef Association Development of a beef flavor lexicon: finding relationships between beef flavor attributes, meat quality, and consumer acceptance \$54,000	2009-2010
Wengreen, H. and Ward, R.E. General Mills Dietary fish intake, red blood cell fatty acid composition, and risk of cognitive decline and dementia among participants of the Cache County Study on Memory, Health and Aging. \$60,000	2009-2010
<b>Completed Grants</b>	
Ward, R.E. New Faculty Research Grant Isolation of MUC1 from bovine milk for use as a fermentation substrate by bifidobacteria. \$15,000	2005-2006 Utah State University
Ward, R.E., Hintze, K.J., and Nemere, I. Center for Advanced Biosystems Inhibitory effect of milk fat fractions on the occurrence of dimethylhydrazine induced Aberrant Crypt Foci (ACF) in rats \$30,000	2007-2009 Utah State University

**Service**

### **Department Service**

Selection Committee for Lecturer position

Ghandi Scholarship Committee

Advisor, Institute of Food Technologists Student Product Development Competition

Assistant Coach, College Bowl Team

Judge, Product Development Competition, Future Farmer's of America USU visit, May 2006, 2007, 2008

### **University Service**

Reviewer for Utah Agricultural Experiment Station Projects (2006, 2007)

Host for Biotechnology Summer Academy Students (2008)

### **National/International Service**

#### **Grant Review**

Advanced Food & Materials Network (AFMNET) (2007)

California State University Agricultural Research Initiative (ARI) (2007)

National Research Council Assessment of Research Doctorate Programs (2006)

#### **Ad Hoc Manuscript Review**

Journal of Food and Agriculture (2005)

Applied and Environmental Microbiology (2007)

Journal of the Science of Food and Agriculture (2009)

International Journal of Food Science and Technology (2009)

#### **Judge**

Mark Bieber Poster Competition, Nutrition Division, Institute of Food Technologists National Meeting (2006-2008).

### **Professional involvement**

**Associate Member**, Center for Advanced Nutrition, Utah State University

**Member-at-large**, Nutrition Division, Institute of Food Technologists

**Member**, Metabolomics Society

**Member**, International Milk Genomics Consortium

### **Certifications**

Certified Master Brewer, Institute and Guild of Brewing.

National Registry of Food Safety Professionals *Certified Food Safety Manager*

CPR, American Heart Association, Wilderness First Aid.