

**Todd Klaenhammer, Ph.D.**  
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**William Neal Reynolds Distinguished Professor, Emeritus**  
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**a. Professional Preparation** (*List undergrad & grad educ & postdoc training in same order & format as below*)

University of Minnesota, Minneapolis, MN	BS	1973	Microbiology
University of Minnesota, St. Paul, MN	MS	1975	Food Science/Biochem.
University of Minnesota, St. Paul, MN	PhD	1978	Food Science/Genetics

**b. Appointments** (*List academic & professional appts in reverse chronological order*)

2002 – 2014 - Distinguished University Professor, FBNS, Microbiology, and Genetics  
 1992 – 2014 - William Neal Reynolds Distinguished Professor, CALS  
 1993 – 2014 - Director of the Southeast Dairy Foods Research Center  
 1993 – 1994 - NCSU Alumni Distinguished Professor  
 1988 – 1992 - Professor, Departments of Food Science & Microbiology  
 1983—1988 - Associate Professor, Departments of Food Science & Microbiology,  
 1978 –1983 - Assistant Professor, Departments of Food Science & Microbiology,

**c. Professional Scholarly Activities** (*Examples below in reverse chronological order*)

2009-2014 Co-chief editor for the Annual Reviews of Food Science and Technology  
 2003 – 2007 Committee on Scientific Programs, National Academy of Science  
 2004-2006 IFT Marcel Loncin Research Prize Jury  
 2003-2006 German/US Frontiers of Science, Co-Chairman, National Academy of Sciences  
 2000 – 2004 Chief Science Advisor, Einstein Institute for Science, Health and the Courts and NIEHS, In Food/Agricultural Biotechnology  
 2000 IFT Task Force on Food Biotechnology: Expert Panel  
 1999 National Academy of Sciences, National Research Council, Committee on National Security Implications of Advances in Biotechnology: Threats to Plants and Animals

**d. Honors and awards** (*In reverse chronological order*)

Harris Award for contributions to Food Science, Ohio State University, March 2012  
Eli Metchnikoff Award in Biotechnology, International Dairy Federation, 2010  
Fellow, American Association for the Advancement of Science, 2009  
Oliver Max Gardner Award, the University of North Carolina System, May 8, 2009  
Julius Bauermann Lectureship Award, Philadelphia Section of the Institute of Food Technologists, 2008  
Nicolas Appert Award, Institute of Food Technology, 2007  
Alexander Quarles Holladay Medal of Excellence, North Carolina State University, 2007  
William C. Haines Dairy Science Research Award, 2006  
William C. Frazier Memorial Award. University of Wisconsin, Madison. May 29, 2002  
Elected member in the National Academy of Sciences, May 1, 2001.  
Fellow, American Academy of Microbiology - 2001  
Outstanding Achievement Award of the University of Minnesota, June 7, 2001  
Fellow, Institute of Food Technologists 2000  
Research and Development Award Institute of Food Technologists, 1998  
Borden Award. American Dairy Science Association, 1996  
Gamma Sigma Delta Certificate of Merit, NCSU, 1995  
Alumni University Research Award. North Carolina State Univ. Alumni Association, 1990  
Dairy Research Foundation Award. American Dairy Science Association, 1990  
Nordica International Research Award. American Cultured Dairy Products Institute, 1989  
Samuel Cate Prescott Research Award. Institute of Food Technologists, 1989  
Sigma Xi Research Award. NC State University, 1986  
Certificate of Distinguished Scholarly Achievement. NC State University, 1986  
Pfizer Award, American Dairy Science Association, 1984

**e. Collaborators & Grants** (*In reverse chronological order*)

Klaenhammer, T. R. Functional genomics on *Lactobacillus acidophilus* NCFM. Danisco USA, Inc., January 1, 2006 –April 30, 2015. \$512,252  
Klaenhammer, T.R. Identification of Probiotic Features in *Lactobacillus acidophilus* affected by Dairy Delivery. 12/1/2006 – 11/31/2009. SDFRC \$274,328  
Klaenhammer, T.R., O’Flaherty, S.. Influence of lactic acid bacteria, milk, yogurt and milk components on gene expression in human intestinal epithelia cells. 2008-2011; SFDR \$285,781  
Aroian, R, and T.R. Klaenhammer. 2012-2014. Bill and Melinda Gates Foundation. Number: OPP1067992. Engineering food-grade bacteria for treatment of hookworms and other STHs. \$1,000,000 (NCSU portion \$130,000 for 2012 & 2013)  
Klaenhammer, T.R. Microbial screening for gram-positive lactic acid bacteria from human and animal samples. Industrial Sponsor, September 1, 2010 – August 31, 2014. \$557,848  
Klaenhammer, T.R. Microbial screening for gram-positive lactic acid bacteria from human and animal samples. Procter & Gamble. \$557,848. 6/24/2010 to 6/29/2014.  
Mohamadzadeh, M., and T.R. Klaenhammer. 2011-2013. NIH RFA-A1-10-003 – Novel multivalent vaccine for anthrax and botulinum. NCSU @ \$327,8000 10/1/2011 – 9/30/2014.

## f). Publications (no page limit)

- Pfeiler, E.A., M. A. Azcarate-Peril, and T. R. Klaenhammer. 2007. Characterization of a two component regulatory system implicated in the bile tolerance of *Lactobacillus acidophilus* NCFM. *J. Bacteriol.* 189:4624-4634
- Callanan, M.J., W.M. Russell, T. R. Klaenhammer. 2007. Modification of *Lactobacillus*  $\beta$ -glucuronidase activity by random mutagenesis. *Gene* 389:122-127.
- Dobson, A.E., R.B. Sanozky-Dawes, and T.R. Klaenhammer. 2007. Identification of an operon and inducing peptide involved in the production of lactacin B by *Lactobacillus acidophilus*. *J Appl Microbiol.* 103:1766-78.
- Klaenhammer, T.R., Pfeiler, E. and Duong, T. 2007. Genomics and Proteomics of Food-Borne Microorganisms. In Doyle, Beuchat, and Montville (eds.). Food Microbiology: Fundamentals and Frontiers, 3rd edition. ASM Press, Washington, DC, pp 935-951.
- Klaenhammer, T.R. Probiotics and Prebiotics. 2007. In Doyle, Beuchat, and Montville (eds.). Food Microbiology: Fundamentals and Frontiers, 3rd edition. ASM Press, Washington, DC, pp 891-907.
- Durmaz, E. and T.R. Klaenhammer. 2007. Abortive phage resistance mechanism *AbiZ* speeds the lysis clock to cause premature lysis of phage infected *Lactococcus Lacts*. *J. Bacteriol.* 189:1417-1425.
- Klaenhammer, T.R., M. Andrea. Azcarate-Peril, E. Altermann, and R. Barrangou. 2007. Influence of the dairy environment on gene expression and substrate utilization in lactic acid bacteria. *J. Nutrition.* 137(3):748S-750S.
- Pfeiler, E.A., and T.R. Klaenhammer. 2007. The genomics of lactic acid bacteria. *Trends in Microbiology.* 15:546-553.
- Sturino, J.M. and T.R. Klaenhammer. 2007. Inhibition of bacteriophage replication in *Streptococcus thermophilus* by subunity poisoning of primase. *Microbiology* 153:3295-3302.
- Klaenhammer, T.R., E. Altermann, E. Pfeiler, B.L. Buck, T. Duong, Y.J. Goh, R. Tallon, S. O'Flaherty, R. Barrangou, and M.A. Azcarate-Peril. 2008. Functional Genomics of Probiotic *Lactobacilli*. *J. Clinical Gastroenterology* 42 Suppl 3 Pt 2:S160-2
- Carroll IM, Andrus JM, Bruno-Barcena JM, Klaenhammer TR, Hassan HM, Threadgill DS. 2007. The Anti-inflammatory Properties of *Lactobacillus gasseri* Expressing Manganese Superoxide Dismutase (MnSOD) Using the Interleukin 10-Deficient Mouse Model of Colitis. *Am J Physiol Gastrointest Liver Physiol.* 293:G729-38.
- Duong, T. and T.R. Klaenhammer. 2008. Functional genomics of lactic acid bacteria. In, Therapeutic Microbiology: Probiotics and Other Strategies. J. Versalovic and M. Wilson, Eds. Pp 193-204. ASM Press, Washington, DC.
- Durmaz, E., Miller, M.J., Azcarate-Peril, M. A., Toon, S. P. and T. R. Klaenhammer. 2008. Genome sequence and characteristics of *Lrm1*, a prophage from industrial *Lactobacillus rhamnosus* strain M1. *Appl. Environ. Microbiol.* 74: 4601- 4609.
- Mohamadzadeh, M., T. Duong, T. Hoover, and T.R. Klaenhammer. 2008. Targeting mucosal dendritic cells with microbial antigens from probiotic lactic acid bacteria. *Expert Reviews Vaccines.* 7:163-174.
- Azcarate-Peril MA, Altermann E, Goh YJ, Tallon R, Sanozky-Dawes RB, Pfeiler

- EA, O'Flaherty S, Buck BL, Dobson A, Duong T, Miller MJ, Barrangou R, Klaenhammer TR. 2008. Analysis of the genome sequence of *Lactobacillus gasseri* ATCC 33323 reveals the molecular basis of an autochthonous intestinal organism. *Appl Environ Microbiol.* 74:4610-4625.
- Callanan, Michael J and Klaenhammer, Todd R (September 2008) Bacteriophages in Industry. In: *ENCYCLOPEDIA OF LIFE SCIENCES*. John Wiley & Sons, Ltd: Chichester <http://www.els.net/> [DOI: 10.1002/9780470015902.a0000776.pub2]
- Goh, Y. J., and T.R. Klaenhammer. 2008. Genomic features of *Lactobacillus* species *Frontiers of Bioscience* 14: 1362-1386.
- Sergey R. Konstantinov, Hauke Smidt, Willem M. de Vos, Sven C.M. Bruijns, Satwinder Kaur Singh, Florence Valence, Daniel Molle, Sylvie Lortal, Eric Altermann, Todd R. Klaenhammer and Yvette van Kooyk □ 2008. S layer protein A of *Lactobacillus acidophilus* NCFM regulates immature dendritic cells and T-cells functions. *PNAS* 105:19474-19479.
- Ventura, M., S. O'Flaherty, M.J. Claesson, F. Turroni, T.R. Klaenhammer, D. van Sinderen and P.W. O'Toole. 2009. Genome-scale analyses of health-promoting bacteria: probiogenomics. *Nat. Rev. Microbiol.* 7:61-71.
- Mohamadzadeh, M., T. Duong, S. J. Sandwick, T. Hoover and T. R. Klaenhammer. 2009. Dendritic cell targeting of *Bacillus anthracis* protective antigen expressed by *Lactobacillus acidophilus* protects mice from lethal challenge. *Proc. Nat. Acad. Sci. USA.* 106:4331-4336
- Mohamadzadeh, M. and T.R. Klaenhammer. 2008. Specific *Lactobacillus* species differentially activate toll-like receptors and downstream signals in dendritic cells. *Expert Reviews.* 7:61-71.
- Andrea Azcarate-Peril, M., Richard Tallon and Todd R. Klaenhammer. 2009. Temporal gene expression and probiotic attributes of *Lactobacillus acidophilus* during growth in milk. *J.Dairy Science* 92: 870-886.
- Buck, B.L., A.Azcarate-Peril, and T.R. Klaenhammer. 2009. Role of autoinducer-2 on the adhesion ability of *Lactobacillus acidophilus*. *J. Appl. Microbiology.* *J. Appl.Microbiol.* 2009 Mar 13. [Epub ahead of print] PMID: 19302300
- Schroeter, J. and T.R. Klaenhammer. Genomics of Lactic Acid Bacteria – Mini Review. 2009. *FEMS Microbiology Letters* 292: 1-6.
- O'Flaherty, S., Y. J. Goh and T. R. Klaenhammer. 2009. Genomics of Probiotic Bacteria. Chapter 26 in *Prebiotics and Probiotics Science and Technology*. Springer-Verlag Berlin/Heidelberg.
- Goh, Y.J. M. Andrea Azcárate-Peril, Sarah O'Flaherty, Evelyn Durmaz, Florence Valence, Daniel Mollé, Sylvie Lortal, and Todd R. Klaenhammer. 2009. Development of a upp-based Counterselective Gene Replacement System for Study of the S-layer protein SlpX in *Lactobacillus acidophilus* NCFM. *Appl. Environ. Microbiol.* 75:3093-3105.
- Azcarate-Peril, M.A. and T.R. Klaenhammer. 2009. *The Genomics of Lactic Acid Bacteria: The post genomics challenge – from sequence to function*. Wiley-Blackwell
- Engelbrekton, A., Korzenik, J.R., Pittler, A., Sanders, M.E., Klaenhammer, T.R., Leyer, G. and Kitts, C. 2009. Probiotics to minimize the disruption of faecal microbiota in healthy subjects undergoing antibiotic therapy. *J. Med. Microbiol.* 58:663-670.

- Pfeiler, E. and T.R. Klaenhammer. 2009. Role of transporter proteins in bile tolerance of *Lactobacillus acidophilus*. *Appl. Environ. Microbiol.* 75:6013-6016.
- Mohamadzadeh M, Durmaz E, Zadeh M, Pakanati KC, Gramarossa M, Cohran V, Klaenhammer TR. 2010. Targeted expression of anthrax protective antigen by *Lactobacillus gasseri* as an anthrax vaccine. *Future Microbiol.* 5(8):1289-96.
- Goh, Y. J. and Todd R. Klaenhammer. 2010. Functional roles of aggregation-promoting- like factor in stress tolerance and adherence of *Lactobacillus acidophilus* NCFM. *Appl. Environ. Micro. Appl Environ Microbiol.* 76:5005-12
- Azcarate-Peril, M.A. and T.R. Klaenhammer. 2010. The Genomics of Lactic Acid Bacteria: The post genomics challenge – from sequence to function. In, *Biotechnology of Lactic Acid Bacteria*, Mozzi, F., Raya, R.R., and dVignolo, G.M (Eds). Wiley-Blackwell, pp. 35-56.
- Douglas, G. and Todd R. Klaenhammer. 2010. Genomic evolution of domesticated microorganisms. *Ann. Rev. Food Sci. & Technol.* 1: 397-414.
- O'Flaherty, Sarah and Todd R. Klaenhammer. 2010. Functional and phenotypic characterization of a protein from *Lactobacillus acidophilus* involved in cell morphology, stress tolerance and adherence to intestinal cells. *Microbiology* 156 3360-3367.
- Duong, T., M.J. Miller, R. Barrangou, M.A. Azcarate-Peril, and T.R. Klaenhammer. 2011. Construction of vectors for inducible and constitutive gene expression in *Lactobacillus*. *Microbial Biotechnology* 4:357-367.
- Douglas, G. L., Y. J. Goh, and T. R. Klaenhammer. 2011. Integrative food-grade expression system for lactic acid bacteria. Chapter 22. In Jim Williams (ed.), *Methods in Molecular Biology Series, Strain engineering: Methods and Protocols*, Humana Press, New York. Vol 765: 373-87.
- Damelin, L.H., D. Mavri-Damelin, T.R. Klaenhammer and C.T. Tiemessen. 2010. Plasmid transduction using bacteriophage phi-adh for expression of CC chemokines by *Lactobacillus gasseri* ADH. *Appl. Environ. Microbiol.* 76:3878-3885.
- O'Flaherty, S. and T.R. Klaenhammer. 2010. The role and potential of probiotic bacteria in the gut, and the communication between gut microflora and gut/host. *International Dairy Journal* 20: 262-268.
- Altermann, E. and Todd R. Klaenhammer. 2011. Group-specific comparison of four lactobacilli isolated from human sources using differential blast analysis *Genes & Nutrition vol 6, issue 3, August 2011*  
<http://www.springer.com/biomed/human+genetics/journal/12263>
- O'Flaherty, S. and T.R. Klaenhammer. 2011. The impact of omic technologies on the study of food microbes. *Ann. Rev Food Sci. & Technol.* 2:353-372.
- Mohamadzadeh, M, E. A. Pfeiler, J.B. Brown, M. Zadeh, M. Gramarossa, E. Managlia, P. Bere, B. Sarraj, M. W. Khan, K Chaitanya, M. J. Ansari, S. O'Flaherty, T. Barrett, and T.R. Klaenhammer. 2011. Regulation of induced colonic inflammation by *Lactobacillus acidophilus* deficient in lipoteichoic acid. *Proc. Nat. Acad. Sci.* 108, Supp. 1: 4623-4631.
- Saber, R., M. Zadeh, K.C. Pakanati, T. Klaenhammer, and M. Mohamadzadeh. 2011. Regulation of downstream signals by *Lactobacillus acidophilus* deficient in lipoteichoic acids. *Immunotherapy* 3: 337-347.
- Gordon, J. and Klaenhammer, T. 2011. A rendezvous with our microbes. *PNAS* 108: 4513-4515.

- Klaenhammer, T. R. and W.M. deVos. 2011. An incredible scientific journey. pp 1-11. Thirty Years of Research on Lactic Acid Bacteria. Celebrating the 10th Symposium on LAB. Edited and Published by Max Bingham 24 Media Labs, Postbus 28180, 3003 KD Rotterdam, The Netherlands.
- Baugher, J. and T.R. Klaenhammer. 2011. *Invited review: Application of omics tools to understanding probiotic functionality*. J. Dairy Sci. 94 :4753–4765.
- Douglas, G.L. and T.R. Klaenhammer. 2011. Directed chromosomal integration and expression of the reporter gene *gusA3* in *Lactobacillus acidophilus* NCFM. Appl. Environ. Microbiol. 77:7365-7371.
- Stoeker L, Nordone S, Gunderson S, Zhang L, Kajikawa A, Lavoy A, Miller M, K Klaenhammer TR, Dean GA. 2011. Assessment of *Lactobacillus gasseri* as a Candidate Oral Vaccine Vector. Clin Vaccine Immunol. 2011 Nov;18(11):1834-44
- Kajikawa A, Nordone SK, Zhang L, Stoeker LL, LaVoy AS, Klaenhammer TR, Dean GA. 2011. Dissimilar properties of two recombinant *Lactobacillus acidophilus* strains displaying *Salmonella* FliC with different anchoring motifs. Appl Environ Microbiol. 2011 Sep;77(18):6587-96.
- Guarner F, Ellen Sanders M, Gibson G, Klaenhammer T, Cabana M, Scott K, Reid G, Delzenne NM, Fahey GC, Hill C. 2011. Probiotic and prebiotic claims in Europe: seeking a clear roadmap. Br J Nutr. 2011 Dec;106(11):1765-7. Epub 2011 Jun 21.
- Andersen JM, Barrangou R, Abou Hachem M, Lahtinen S, Goh YJ, Svensson B, Klaenhammer TR. 2011. Transcriptional and functional analysis of galactooligosaccharide uptake by *lacS* in *Lactobacillus acidophilus*. Proc Natl Acad Sci U S A. 108(43):17785-90.
- Khazaie, K., M.Khan, P. Bere, F. Gounari, K. Dinnis, N. Blatner, J. Owen, T. Klaenhammer and M. Mohamadzadeh. 2012. Abating colon cancer polyposis by *Lactobacillus acidophilus* deficient in lipoteichoic acid. PNAS 109 (26) 10462-10467
- O'Flaherty S, Klaenhammer TR. 2012. Influence of Exposure Time on Gene Expression by Human Intestinal Epithelial Cells Exposed to *Lactobacillus acidophilus*. Appl Environ Microbiol. 78(14):5028-32
- Zadeh M, Khan MW, Goh YJ, Selle K, Owen JL, Klaenhammer TR, Mohamadzadeh M. 2012. Induction of Intestinal Pro-inflammatory Immune Responses by Lipoteichoic Acid. Journal of Inflammation 9:7 .
- Khan MW, Zadeh M, Bere P, Gounaris E, Owen J, Klaenhammer T, Mohamadzadeh M. 2012. Immunotherapy. 2012 Feb;4(2):151-61. doi: 10.2217/imt.11.163.
- Andersen, J.M, R. Barrangou, M.A.Hachem, S. J. Lahtinen, Y-J. Goh, B. Svensson, and T.R. Klaenhammer. 2012. Transcriptional analysis of prebiotic uptake and catabolism by *Lactobacillus acidophilus* NCFM. PLOS One 7(9):1-12; e44409.
- Klaenhammer, T.R., M. Kleerebezem, M. V. Kopp and M. Rescigno. 2012. The impact of probiotics and prebiotics on the immune system. Nature Reviews Immunology 12:728 – 734.
- Kolling, G.L., M. Wu, C.A. Warren, E. Durmaz, T.R. Klaenhammer, and R. L. Guerrant. 2012. Lactic acid production by *Streptococcus thermophilus* alters *Clostridium difficile* infection and in vitro toxin A production. Gut Microbes 3:523-529.
- Selle, K.M., W. M. Russell, and T.R. Klaenhammer. 2014. *Lactobacillus acidophilus*. Encyclopedia for Food Microbiology. In press.

- Kajikawa A, Zhang L, Long J, Nordone S, Stoeker L, LaVoy A, Bumgardner S, Klaenhammer T, Dean G. 2012 Construction and immunological evaluation of dual cell surface display of HIV-1 gag and Salmonella enterica serovar Typhimurium FliC in *Lactobacillus acidophilus* for vaccine delivery. *Clin Vaccine Immunol.* 2012 Sep;19(9):1374-81. doi: 10.1128/CVI.00049-12. Epub 2012 Jul 3.
- Carroll IM, Ringel-Kulka T, Siddle JP, Klaenhammer TR, Ringel Y. 2012 . Characterization of the fecal microbiota using high-throughput sequencing reveals a stable microbial community during storage. *PLoS One.* 2012;7(10):e46953. doi: 10.1371/journal.pone.0046953. Epub 2012 Oct 5.
- Rodrigues da Cunha L, Fortes Ferreira CL, Durmaz E, Goh YJ, Sanozky-Dawes R, Klaenhammer T. 2012. Characterization of *Lactobacillus gasseri* isolates from a breast-fed infant. *Gut Microbes.* 2012 Jan-Feb;3(1):15-24. doi: 10.4161/gmic.19489.
- Bienenstock, J., G. Gibson, T.R. Klaenhammer, W. A. Walker, and A.S. Neish. 2013. New insights into probiotic mechanisms – a harvest from functional and metagenomics studies. *Gut Microbes* 4: 94-100.
- Douglas, G.L., Erika Pfeiler, Tri Duong, Todd R. Klaenhammer. 2013. Genomics and Proteomics of Food-Borne Microorganisms. *In* Doyle, Beuchat, and Montville (eds.). Food Microbiology: Fundamentals and Frontiers, 4th edition. ASM Press, Washington, DC, pp.975-996.
- Pfeiler, E.A. and T.R. Klaenhammer. 2013. Probiotics & prebiotics. *In* Doyle, Beuchat, and Montville (eds.). Food Microbiology: Fundamentals and Frontiers, 4th edition. ASM Press, Washington, DC, pp.949-974.
- Abou Hachem M., Fredslund, F., Andersen, J. M., Larsen, R.J, Majumder, A., Ejby, M., Van Zanten, G., Lahtinen, S. J., Barrangou, B., Klaenhammer, T., Jacobsen, S., Coutinho, P.M., Lo Leggio, L., Svensson, B. 2012. Raffinose family oligosaccharide utilisation by probiotic bacteria: insight into substrate recognition, molecular architecture and diversity of GH36  $\alpha$ -galactosidases. *Biocatal. Biotransform.* 30, 316-325 (2012).
- Abou Hachem, M., M. S. Møller, J. M. Andersen, F. Fredslund, A. Majumder, H. Nakai, L. Lo Leggio, Y. J. Goh, R. Barrangou, T. R. Klaenhammer, and B. Svensson. 2013. A snapshot into the metabolism of isomalto-oligosaccharides in probiotic bacteria. *J. Appl. Glycosci.* 60:95-100.
- Johnson, B., K. Selle, Y. J. Goh, S. O’Flaherty, and T. R. Klaenhammer. 2013. Identification of surface-layer associated proteins (SLAPs) in *Lactobacillus acidophilus* NCFM. *Microbiology.* 159:2269-2282.
- Andersen JM, Barrangou R, Hachem MA, Lahtinen SJ, Goh YJ, Svensson B, Klaenhammer TR. 2013. Transcriptional analysis of oligosaccharide utilization by *Bifidobacterium lactis* BI-04. *BMC Genomics.* May 10;14:312. doi: 10.1186/1471-2164-14-312.
- Goh, Y. J. and T. R. Klaenhammer. A functional glycogen biosynthesis pathway in *Lactobacillus acidophilus*: expression and analysis of the *glg* operon. *Mol. Microbiol.* 89:1187-1200.
- Call, E. K. and T. R. Klaenhammer. 2013. Relevance and application of sortase and sortase dependent proteins in lactic acid bacteria. *Front. Microbiol.* 4:73.
- Selle, K. and T. R. Klaenhammer. 2013. Genomic and phenotypic evidence for probiotic influences of *Lactobacillus gasseri* on human health. *FEMS Microbiol. Rev.* 37:915-935.
- Abou Hachem, M., J. M. Andersen, R. Barrangou, M. S. Møller, F. Fredslund, A. Majumder, M. Ejby, S. J. Lahtinen, S. Jacobsen, L. Lo Leggio, Y. J. Goh, T. R.

- Klaenhammer, and B. Svensson. 2013. Recent insight into oligosaccharide uptake and metabolism in probiotic bacteria. *Biocatal. Biotransfor.* 31:226-235.
- Selle, K., Y. J. Goh, S. O'Flaherty, and T. R. Klaenhammer. 2014. Development of an efficient integration mutagenesis system in *Lactobacillus gasseri*. *Gut Microbes.* 5(3):326-32. doi: 10.4161/gmic.29101. Epub 2014 May 16.
- Johnson, B.J. and T.R. Klaenhammer. 2014. Impact of genomics on the field of probiotic research: Historical perspectives to modern paradigms. *Antonie van Leeuwenhoek*, 80<sup>th</sup> anniversary issue. 106(1):141-56. doi: 10.1007/s10482-014-0171-y. Epub 2014 Apr 20.
- Sanders, M.E., Todd R. Klaenhammer, Arthur C. Ouwehand, Bruno Pot, Eric Johansen, James T. Heimbach, Maria L. Marco, Julia Tennil, R. Paul Ross, Charles Franz, Nicolas Pag'e, R. David Pridmore, Greg Leyer, Seppo Salminen, Duane Charbonneau, E. Call, and Irene Lenoir-Wijnkoop. 2014. Effects of genetic, processing, or product formulation changes on efficacy and safety of probiotics. *N.Y. Acad. Sci.* 1309 (2014) 1–18 C\_ 2014 New York Academy of Sciences.
- Goh YJ, Klaenhammer TR.** 2014. Genetic Mechanisms of Prebiotic Oligosaccharide Metabolism in Probiotic Microbes. *Annu Rev Food Sci Technol.* 2014 Dec 19. [Epub ahead of print]
- Call E, **Goh YJ, Selle K, Klaenhammer TR, O'Flaherty S.** *Microbiology.* 2014 Sortase-deficient lactobacilli: effect on immunomodulation and gut retention. Dec 12. pii: mic.0.000007. doi: 10.1099/mic.0.000007. [Epub ahead of print]
- Goh YJ, **Klaenhammer TR.** 2014. Insights into glycogen metabolism in *Lactobacillus acidophilus*: impact on carbohydrate metabolism, stress tolerance and gut retention. *Microb Cell Fact.* 2014 Nov 20;13:94. doi: 10.1186/s12934-014-0094-3.
- Barrangou R, **Klaenhammer TR.** 2014. Microbiology: Bacteria get vaccinated. *Nature.* 11;513(7517):175-6. doi: 10.1038/513175a