

## Mary Ellen Sanders, PhD

Mary Ellen Sanders LLC  
Consulting in the Science of Probiotics  
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## Curriculum Vitae

Since 1990, Mary Ellen Sanders, PhD has consulted internationally with food and supplement companies in the field of probiotics. She works with companies to evaluate the state of probiotic science, provides guidance on understanding the strengths and limitations of available evidence on probiotic strains, and advises on probiotic product label claims. Through numerous written, oral and video pieces she also strives to provide objective, evidence-based information on probiotics for consumers and professionals. Key publications are found [here](#).

Dr. Sanders was the founding president of the [International Scientific Association for Probiotics and Prebiotics](#) (ISAPP) and served as the organization's executive director/executive science officer for 16 years. She played an integral role in their annual meetings, led teams of authors to produce many [peer-reviewed publications](#) covering ISAPP activities, developed evidence-based content (webinars, infographics, videos, continuing education, among others) for communicating about probiotics, prebiotics and fermented foods, and interfaced with scientific organizations on ISAPP's behalf. She is an author on the 5 consensus statements published by ISAPP, providing concise, science-based definitions and characterizing the 'biotics' field – probiotics, prebiotics, synbiotics and postbiotics – and fermented foods.

Dr. Sanders received her B.S. in Food Science at University of California - Davis, and her M.S. and Ph.D. in Food Science with an emphasis in microbiology at North Carolina State University in Raleigh.

## ACTIVITIES

- Founding president of the International Scientific Association of Probiotics and Prebiotics (ISAPP) (2002-2006)
- Executive science officer of ISAPP (2006-2023)
- Chair of the United States Pharmacopeia's Probiotics Expert Panel (2017-2023)
- Co-Chair of World Gastroenterology Organisation Committee preparing practice guidelines for the use of probiotics and prebiotics for GI indications (2017, 2023). [WGO Practice Guideline - Probiotics and Prebiotics](#)
- Member of the ISAPP consensus panels on definition and scope of [probiotics \(2014\)](#), [prebiotics \(2017\)](#), [synbiotics \(2020\)](#), [fermented foods \(2021\)](#) and [postbiotics \(2021\)](#). Combined article accesses are over one million.
- Led an ISAPP collaboration exploring the role of live dietary microbes and health. This project coordinated a team of academic and industry scientist resulting in publication of a hypothesis paper ([Marco et al. 2020](#)) and two papers ([Marco et al. 2022](#) and [Hill et al. 2023](#)) investigating the NHANES database for associations of live microbe consumption with health.

- Co-authored (along with Profs. Bob Hutkins and Hannah Holscher) a 2.0 credit self-study continuing education course for dietitians titled, [Evidence-based use of probiotics, prebiotics and fermented foods for digestive health](#). Published March 9, 2021.
- Consultant with major universities on randomized clinical probiotic trials sponsored by NIH, USDA, foundations and industry.
- Served on several corporate scientific advisory boards and the Advisory Board for Nebraska Food for Health Center.
- Served on several panels to determine GRAS status of probiotic strains.
- Member of the Institute for the Advancement of Nutrition Sciences (IAFNS - formerly ILSI-North America) Gut Microbiome Committee (2018-2023).
- Member of the working group convened by the FAO/WHO that developed guidelines for probiotics (2002)
- Served on the Board of Experts for Gut Microbiota for Health, expert exchange. Expert for the "Probiotics" section (2014-2023)
  - Example activity: [Does the “biotic” family ring a bell? Here are some interesting facts about this group of microorganisms](#)
- Participated in an NIH project titled “Federal Regulation of Probiotics: An Analysis of the Existing Regulatory Framework and Recommendations for Alternative Frameworks,” coordinated at the University of Maryland School of Law (2010-2012)
- Served on the Product Integrity Working Group of the NIH National Center for Complementary and Alternative Medicine

*Video appearances and webcast presentations:*

- Interview, Gut Health Podcast, episode #23 find the podcast: <https://www.buzzsprout.com/2293918/share>, Sept 1, 2025
- [Reflections on the probiotic field and ISAPP’s role](#). Updated 2026
- Webinar sponsored by ILSI-North America. [Probiotics and prebiotics – Definitions](#). July 23, 2018.
- Webinar sponsored by Medscape. [Navigating the World of Probiotics. Helping Patients Make Good Choices](#). April 17, 2018.
- [Is it time for live cultures to be included in official dietary recommendations?](#) (2017) Nature Café, London
- [Beyond Strain-Specific Effects for Probiotics](#) (2016) Nature Café, Tokyo
- [Probiotics: Their Potential to Impact Human Health](#), Council for Agricultural Science and Technology (2011)
- [Microwarriors: The Power of Probiotics](#) (2011)

*Continuing Education courses co-authored:*

- [Probiotics for GI Health in 2012: Issues and Updates](#) (CME-certified, targeted for primary care physicians).
- [Probiotic Supplementation: What Nurse Practitioners Need to Know to Recommend Safe and Effective Formulations](#). (CE-certified, targeted for nurse practitioners.)

**PUBLICATIONS**

1. Merenstein D, Grant-Beurmann S, Sanders ME, Tan T, Burke B, Kumar A, Herbin-Smith K, Sparenborg J, D’Amico F, Roberts B, Fraser C. [Probiotic intervention not beneficial to prevent antibiotic-](#)

- [associated diarrhea in absence of antibiotic-induced microbiome disruption](#). Sci Rep. 2026 Feb 16;16(1):9301.
2. Vinderola G, Salminen S, Collado MC, Endo A, Hill C, Lebeer S, Merenstein D, Quigley EMM, Shamir R, Swann JR, Szajewska H, Tancredi DJ, Sanders ME. [Comments on a recently proposed alternative definition for postbiotics](#). Trends in Food Science & Technology 165 (2025) 105289.
  3. Vinderola G, Benkowski A, Bernardeau M, Chenoll E, Collado MC, Cronin U, Eckhardt E, Green JB, Ipharraguerre IR, Kemperman R, Lacroix C, Minami J, Wilkinson M, Sanders ME, Salminen S. 2025. [Postbiotics: a perspective on their quantification](#). Front Nutr 12.
  4. Sanders ME, Hill C. 2025. [The microbiome: an actor or stage for the beneficial action of probiotics, prebiotics, synbiotics and postbiotics?"](#) Cell Host Microbe 33(6): 777-789.
  5. Szajewska H, Scott K, de Meij T, Forslund-Startceva SK, Knight, R, Koren O, Little P, Johnston BC, Łukasik J, Suez J, Tancredi DJ, Sanders ME. 2025. [Antibiotic-perturbed microbiota and the role of probiotics](#). Nat Rev Gastroenterol Hepatol, 22:155–172.
  6. Hutkins R, Walter J, Gibson GR, Bedu-Ferrari C, Scott K, Tancredi DJ, Wijeyesekera A, Sanders ME. 2025. [Classifying compounds as prebiotics—scientific perspectives and recommendations](#). Nat Rev Gastroenterol Hepatol. 22(1):54-70. Erratum in: Nat Rev Gastroenterol Hepatol. 2025 Jan;22(1):82. doi: 10.1038/s41575-024-01012-0. PMID: 39358591.
  7. Merenstein D, Tancredi DJ, Karl JP, Krist A, Lenoir-Wijnkoop I, Reid G, Roos S, Szajewska H, Sanders ME. [Is there evidence to support probiotic use for healthy people?](#) Adv Nutrition 15(8). <https://doi.org/10.1016/j.advnut.2024.100265>.
  8. Guarner F, Sanders ME, et al. World Gastroenterology Organisation Global Guidelines - Probiotics and prebiotics. J Clin Gastro, July 2024. [https://journals.lww.com/jcge/fulltext/2024/07000/world\\_gastroenterology\\_organisation\\_global.2.aspx](https://journals.lww.com/jcge/fulltext/2024/07000/world_gastroenterology_organisation_global.2.aspx)
  9. Vinderola G, Sanders ME, Cunningham M, Hill C. [Frequently asked questions about the ISAPP postbiotic definition](#). Front Microbiol. Vol 14, 2024. <https://www.frontiersin.org/articles/10.3389/fmicb.2023.1324565/full>
  10. McFarland LV, Hecht G, Sanders ME, Goff DA, Goldstein EJC, Hill C, Johnson S, Kashi MR, Kullar R, Larco ML, Merenstein DJ, Millette M, Preidis GA, Quigley EMM, Reid G, Salminen S, Sniffen JC, Sokol H, Szajewska H, Tancredi DJ, Woolard K. [Recommendations to improve quality of probiotic systematic reviews with meta-analyses](#). JAMA Network Open. Dec 8, 2023.
  11. Hill C, Tancredi DJ, Cifelli CJ, Slavin JL, Gahche J, Marco ML, Hutkins R, Fulgoni VL 3rd, Merenstein D, Sanders ME. [Positive Health Outcomes Associated with Live Microbe Intake from Foods, Including Fermented Foods, Assessed using the NHANES Database](#). J Nutr. 2023 Apr;153(4):1143-1149. doi: 10.1016/j.tjnut.2023.02.019.
  12. Merenstein D, Pot B, Leyer G, Ouwehand AC, Preidis GA, Elkins CA, Hill C, Lewis ZT, Shane AL, Zmora N, Petrova MI, Collado MC, Morelli L, Montoya GA, Szajewska H, Tancredi DJ, Sanders ME. [Emerging issues in probiotic safety: 2023 perspectives](#). Gut Microbes. 2023 Jan-Dec;15(1):2185034. doi: 10.1080/19490976.2023.2185034.
  13. Vinderola G, Cotter PD, Freista M, Gueimonde M, Holscher HD, Puaș-Madiedo P, Salminen S, Swanson KS, Sanders ME, Cifelli CJ. Fermented foods: a perspective on their role in delivering biotics. Front Microbiol. 14: 1196239. <https://doi.org/10.3389/fmicb.2023.1196239>
  14. Vinderola G, Sanders ME, Salminen S, Szajewska H. [Postbiotics: the concept and their use in healthy populations](#). Front Nutr. 2022 Dec 9;9:1002213. doi: 10.3389/fnut.2022.1002213
  15. Salminen S, Vinderola G, Sanders ME. 2022. [Commentary on: functional food science and gastrointestinal physiology and function](#). Br J Nutr. 2022 Jul 28;128(2):179-182. doi: 10.1017/S0007114522001520.

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17. Marco ML, Hutkins R, Hill C, Fulgoni VL, Cifelli CJ, Gahche J, Slavin JL, Merenstein D, Tancredi DJ, Sanders ME. [A classification system for defining and estimating dietary intake of live microbes in US adults and children](#). J Nutr. 2022 Jul 6;152(7):1729-1736.
18. Vinderola, G.; Sanders, M.E.; Salminen, S. The Concept of Postbiotics. *Foods* **2022**, *11*, 1077. <https://doi.org/10.3390/foods11081077>
19. Holscher HD, Hutkins R, Sanders ME; International Scientific Association for Probiotics and Prebiotics. Evidence-based use of probiotics, prebiotics and fermented foods for digestive health. <http://viewer.zmags.com/publication/c85ca1bd#/c85ca1bd/1>. Continuing education course for dietitians (2 credits). Published March 9, 2021.
20. Cunningham M, Vinderola G, Charalampopoulos D, Lebeer S, Sanders ME, Grimaldi R. [The influence of product formulation on the activity and clinical outcomes of probiotic and prebiotic products](#). Trends Food Sci Technol: 112, June 2021, Pages 495-506.
21. Salminen, et al. [Expert consensus document: The International Scientific Association for Probiotics and Prebiotics \(ISAPP\) consensus statement on the definition and scope of postbiotics](#). Nature Rev Gastroenterol Hepatol. Published May 4, 2021.
22. Marco ML, Hill C, Hutkins R, Slavin J, Tancredi DJ, Merenstein D, Sanders ME. 2020. [Should there be a recommended daily intake of live microbes?](#) J Nutr. 150 (12): 3061–3067.
23. Marco, et al. [Expert consensus document: The International Scientific Association for Probiotics and Prebiotics \(ISAPP\) consensus statement on fermented foods](#). Nat Rev Gastroenterol Hepatol (2021). <https://doi.org/10.1038/s41575-020-00390-5>.
24. Swanson KS, Gibson GR, Reid G, Verbeke K, Hutkins R, Scott KP, Reimer RA, Holscher HD, Azad MB, Delzenne NM, Sanders ME. [Expert consensus document: The International Scientific Association for Probiotics and Prebiotics \(ISAPP\) consensus statement on the definition and scope of synbiotics](#). Nat Rev Gastroenterol Hepatol (2020). <https://doi.org/10.1038/s41575-020-0344-2>.
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## INVITED PRESENTATIONS

1. Considerations for determining safety of probiotics, prebiotics and postbiotics in foods. Society of Toxicology Meeting, Orlando FL. March 18, 2025.
2. Postbiotics: the Newest 'Biotic'. New England Dairy, Webinar for dietitians. March 5, 2025.
3. How do probiotics differ from fermented foods? 2nd Foro Microbiota congress, Sociedad Mexicana de Microbiota, Guadalajara, Mexico. February 6, 2025.
4. Evidence-based use of probiotics in dietetics practice, Washington State Dairy Council and Oregon Dairy and Nutrition Council, March 7, 2023.
5. Probiotics in Physical & Mental Wellness: Basics, Global Wellness Academy Forum, May 25, 2023.
6. Why and how to choose probiotics, Global Wellness Academy Forum, May 25, 2023.
7. Postbiotics. Council for Responsible Nutrition working group. May 9, 2022.
8. Definitions of probiotics, prebiotics, synbiotics and postbiotics, European Federation of the Associations of Dietitians. Recorded training for European dietitians. 2022.
9. Considerations for using probiotics in dietetic practice, European Federation of the Associations of Dietitians. Recorded training for European dietitians. 2022.
10. [Are fermented foods probiotic?](#) The International Fermentation Conference – Fermentation 2021. Annual Meeting of The Fermentation Association. Nov 9, 2021. Virtual. (fermentnow)
11. Synbiotics, 7th International Congress on Probiotics, Prebiotics in Pediatrics, Oct 8, 2021. Virtual.
12. Shaping the future of probiotic foods and supplements: ISAPP consensus on scope and proper use of term of probiotics. Chinese Institute of Food Science and Technology Annual Probiotic Conference. 26th-28th May 2021.
13. Probiotics: Where Can the Evidence Lead You? Yogurt & Cultured Innovation Conference, International Dairy Foods Association, April 13, 2021.
14. [Are fermented foods probiotics?](#) Webinar for The Fermentation Association, March 2, 2021.
15. Basics of Probiotics for Practitioners, Webinar for Integrative Practitioner, April 27, 2021.
16. Probiotics: From Evidence to Marketplace, Yogurt & Cultured Innovation Conference, April 13, 2021.
17. Probiotic foods: do they have evidence of health benefits? University of Maryland Journal Club, 2020.
18. Probiotics and fermented foods. As part of symposium: [“Biotics” for health: what they are and how can we use them in clinical practice?](#) World of Microbiome Conference 2020, virtual. November 6, 2020.
19. Live microbes as part of official dietary recommendations. Outcomes from the ISAPP 2019 discussion group. IPA Probiotic Workshop in DC, Washington DC. October 31, 2019.
20. Selecting, developing, testing, and delivering probiotic-based solutions for military personnel. 3rd Annual TriService Microbiome Consortium Symposium, Dayton OH. October 22-24, 2019
21. Probiotic efficacy: Putting matrix effects into perspective. Annual meeting ISAPP, Antwerp, Belgium. May 14-16, 2019.

22. Perspectives on future success for probiotics. 5<sup>th</sup> Annual Translational Microbiome Conference, Boston MA. April 16-18, 2019.
23. [Probiotics and prebiotics – Definitions](#). ILSI-North America webinar. July 23, 2018.
24. [Navigating the World of Probiotics. Helping Patients Make Good Choices](#). Medscape webinar. April 17, 2018.
25. Probiotics: Basic Benefits and Shared Mechanisms. Workshop titled “Probiotics, their role in health. A vision from the Southern Cone”. Buenos Aires, Argentina. April 26-27.
26. Probiotics: Their Benefits and Uses. Symposium: “Probiotics, their role in health. A vision from the Southern Cone”. Buenos Aires, Argentina. April 25, 2018.
27. [Be a Pre- & Probiotic Pro: Overview of the Gut Microbiome](#). Bell Institute of Health, Nutrition and Food Safety, General Mills webinar. March 12, 2018. [Slides](#).
28. Is it time for live cultures to be included in official dietary recommendations? Probiotics Association of India meeting. New Delhi, India. February 17-18, 2018.
29. The Contribution of Probiotics to Health. Gut Microbiota and Probiotic Science Foundation (India). New Delhi, India. February 16, 2018.
30. [Is it time for live cultures to be included in official dietary recommendations?](#) Nature Café, London. October 2017.
31. [Beyond Strain-Specific Effects for Probiotics](#). Nature Café, The role of microbiota in health and disease. Tokyo, Japan. November 1, 2016.
32. Beyond Strain-Specificity for Probiotics. 5th International Symposium Human Gut Microbiota in Health and Disease. Mexico City, July 1, 2016.
33. Probiotics for Nutrition and Clinical Uses. 5th International Symposium Human Gut Microbiota in Health and Disease. Mexico City, July 1, 2016.
34. Probiotics: A Nurse Practitioner’s Guide. AANP Annual Meeting, San Antonio, June 24, 2016.
35. Effectiveness of probiotics on the duration of illness in healthy children and adults who develop common acute respiratory infectious conditions. Pharmabiotics Conference 2015, Paris.
36. Regulatory Perspectives of the Human Microbiome. Clinical trials and safety of probiotics. FDA Center for Food Safety and Applied Nutrition Symposium: Linking the Microbiome to Health, Safety, and Regulation. College Park, MD. September 29-30, 2015.
37. Probiotics: A Family Physician’s Guide. Presented at a product theater at the 2015 American Academy of Family Physicians meeting, Denver. October 1-2, 2015.
38. Defining probiotics: 12 years later. ISAPP reconsiders the probiotic definition. Satellite Session of the AFSLAB 2015, Bangkok, Thailand. July 10, 2015.
39. The Probiotic Concept Revisited – A Summary of the ISAPP Consensus Panel. Sponsored by the International Center for Scientific Debate, Barcelona, Spain. July 2-3, 2015.
40. Looking into the future of probiotics: research and regulatory constraints, Symposium in honor of the retirement of Dr. Todd Klaenhammer, *Frontiers of Lactic Acid Bacteria: Bioprocessing and Health*, Raleigh, NC. May 15, 2015.
41. Probiotics and the microbiome: key to health and disease. California Dietetics Association Annual Conference, Riverside, CA. April 9, 2015.
42. What pharmacists need to know about probiotics. American Pharmacists Association Annual Meeting, San Diego. March 29, 2015.
43. Probiotics in 2015 – Their Scope and Use. 4th Triennial Yale/Harvard Workshop on Probiotic Recommendations for GI Conditions, Yale University, CT. March 20, 2015.
44. Considerations for conducting human trials in the USA to reduce allergy with probiotics, Gastrointestinal Microbiota in Allergy and Advances in Probiotic Research workshop, Sponsored by National Institute of Allergy and Infectious Diseases and the Office of Dietary Supplements, Bethesda MD, September 4-5, 2014.

45. Emerging Benefits of Probiotics, National Institutes of Health STEP Program, Bethesda MD, May 22, 2014.
46. Probing Probiotics: Benefits, Applications & Regulations. 2014 Milk and Cultured Dairy Conference. Indianapolis, IN. May 21, 2014.
47. Regulatory roadblocks to probiotic functional foods and supplements. American Oil Chemists meeting, San Antonio, May 6, 2014.
48. What pharmacists need to know about probiotics. St. John's University, College of Pharmacy and Health Sciences, Office of Continuing Professional Education. Jamaica, New York, November 2, 2013.
49. Probiotics: Optimizing the Benefits Within Regulatory Limitations. Institute of Food Technologists annual meeting, Chicago, July 16, 2013.
50. Probiotic Basics for Pharmacists. American Pharmacists Association annual meeting, March 2, 2013.
51. Probiotics, health claims and EFSA. Presented as part of a symposium: Probiotics and prebiotics in practice - a practical guide to usability in specific cases. Ljubljana, Slovenia, November 29, 2012.
52. Regulation of Health and Nutritional Claims Comparison of Europe and U.S.A. Symposium: Clinical Trials for Foods and Supplements—Guidance for Industry, Limerick, Ireland. September 28, 2012.
53. Developing a Dossier to Substantiate Health Effects of Probiotic Foods, Experimental Biology Meeting, San Diego, April 23, 2012.
54. Evidence needed for a health claim. Gut Microbiota For Health 1st World Summit, European Society of Neurogastroenterology and Motility, Evian, France. March 26-28, 2012.
55. Translation of Probiotic Science into Probiotic Foods. Food Forum Workshop on the Human Microbiome, Diet, and Health. Sponsored by the Institute of Medicine. Washington DC, February 22-23, 2012.
56. Probiotics - Friendly Flora. Hot Topics in Nutrition, sponsored by Dairy Council of Arizona, Phoenix, October 18, 2011.
57. Demystifying probiotics. Nonprescription Medicines Academy Annual Conference, Mason OH, October 14, 2011.
58. Is your pizza probiotic? Webcast lecture as part of Yakult USA Dietician Website lecture series, September 14, 2011.
59. The Impact of Regulatory Frameworks on Probiotic Development Pathways. FASEB Summer Research Conference, Carefree AZ, July 28, 2011.
60. Developing Efficacy Standards to Support the Health Benefits of Probiotics. Institute of Food Technologists Webcast, July 19, 2011.
61. What Are the Risks and Challenges of Making Health Benefit Claims on Probiotic Foods and Supplements? University College Cork, Ireland, June 22, 2011.
62. Communicating health benefits on probiotic foods. International Dairy Foods Association 2011 Milk and Cultured Dairy Products Symposium, Rosemont, IL, March 22, 2011.
63. Can Probiotics Alter the Microbiota? Yale University 3rd Workshop on Advances in Probiotic Use, New Haven, CT, April 8, 2011.
64. The Impact of Regulatory Frameworks on Probiotic Development Pathways. FASEB Summer Research Conferences, "Probiotics, Intestinal Microbiota and the Host: Physiological and Clinical Implications", Carefree Resort, Carefree, Arizona, July 24 – July 29, 2011.
65. What to Look for in a Probiotic Product. American Academy of Family Physicians, Dinner Symposium on "Infections and Health: How Can Probiotics Help?" Denver CO, September 30, 2010.
66. Confused about probiotics? Here's help! Webcast lecture as part of Yakult USA Dietician Website monthly lecture series. 2010.
67. Translating probiotics research: Global regulatory environment. Institute of Food Technologists, Annual Meeting, Chicago, July 19, 2010.

68. Translating the science into efficacy claims on probiotic or prebiotic products in the US market. American Dairy Science Association, Annual Meeting, Denver, July 13, 2010.
69. Probiotics: myths vs. facts. NY Academy of Sciences Conference - Probiotics: From Bench to Market, New York, June 11, 2010.
70. New York Academy of Sciences, "Science & The City" podcast about probiotics. [Free podcast](#) ("More Than A Yogurt Cup") at NYAS website and on iTunes (search "Science & The City"). 2010.
71. Applications of beneficial microbes: state of the art! TNO beneficial microbes conference, Noordwijkerhout, the Netherlands, March 15-17, 2010.
72. Strategies for Managing Individuals with Diagnosed Lactose Intolerance: Probiotics. National Institutes of Health Consensus Development Conference: Lactose Intolerance and Health. Bethesda MD, February 22-24, 2010.
73. The Good Gut Bugs: Prebiotics & Probiotics. Current Issues in Nutrition, Iowa State University, University Extension Program. April 15, 2010. Webinar.
74. Probiotics: what are they and how they might be of value to patients with kidney disease. Council on Renal Nutrition, March 3, 2010. Webinar.
75. Probiotics and prebiotics: what are they and how might they help infants and children. Part 1. Background on the gut microbiota, defining probiotics and prebiotics and the marketplace. Part 2. Examining the clinical evidence for health effects of probiotics and prebiotics of probiotics and prebiotics. WIC conference, Norman, OK, February 3, 2010.
76. Are generic claims justified for probiotic products? The need for strain-specific demonstration of efficacy. Supply Side West trade show, Las Vegas NV, November 13, 2009.
77. Probiotics: An overview – understanding health effects, mechanisms of action and marketplace. Amer College of Nutrition, Orlando FL, October 2, 2009.
78. Understanding and Recommending Probiotics. Teleseminar sponsored by the American Dietetics Association, August 27, 2009. [Online archive](#)
79. How do we define a probiotic? 11<sup>th</sup> Annual Postgraduate Nutrition Symposium "Protective Nutrients: Are They Here to Stay?" Harvard Medical School, Boston MA, July 8-9, 2009.
80. Probiotics: Health Effects and Navigating the Marketplace. Wyoming Medical Society, Sheridan, WY, June 11, 2009.
81. What Constitutes a Probiotic? American Academy of Physician Assistants 37<sup>th</sup> Annual conference, San Diego, CA. May 26, 2009. [Webcast](#)
82. The Potential Uses for Probiotics in Human Health, 16<sup>th</sup> Annual Alimentary Update conference, South Lake Tahoe, NV, March 26, 2009.
83. Probiotics: Recommendations for Patients, Navigating the Marketplace and Understanding the Regulatory Categories, 16<sup>th</sup> Annual Alimentary Update conference, South Lake Tahoe, NV, March 26, 2009.
84. Probiotics: strain and dose dependency of effects, Natural Products Expo West, Anaheim CA, March 6, 2009.
85. Probiotic effects on human health: what do we know? Lecture presented as part of NIH STEP Lecture Series, Bethesda, MD, January 13, 2009.
86. The potential use for probiotics in health. American College of Nutrition, 49<sup>th</sup> Annual Meeting, Arlington, VA, October 3, 2008. [Webcast](#).
87. Health benefits of active cultures: probiotics. Colorado Academy of Family Physicians, Estes Park, CO, July 18-20, 2008.
88. Latest developments in probiotics: scientific, clinical and regulatory – a US perspective. Probiotech2008, Nantes France, June 18-24, 2008.
89. NY State Dietetics Assn, Albany, NY May 6-7, 2008.

90. Probiotics: part of a healthy diet. Nebraska Dietetics Association Annual Meeting, Omaha, NE, April 24, 2008.
91. Establishing guidelines for defining probiotics and product quality standards. International Probiotics Association meeting, Beverly Hills, April 11-12, 2008.
92. Probiotics: the health impact of active cultures, Family Medicine Grand Rounds, Department of Family Medicine, University of Colorado at Denver Health Sciences Center, Aurora, CO, March 5, 2008.
93. Factors influencing gut microbiota: Probiotics. NIH/NIDDK Conference on Gastrointestinal Microbiota and Advances in Prebiotic and Probiotic Research, Bethesda, MD, December 11-12, 2007.
94. Use of probiotics and yogurts in maintenance of health. Advances in Clinical Use of Probiotics – 2007. Yale University, New Haven, CT, November 16, 2007.
95. Gut flora and the impact of probiotics on intestinal health. American College of Gastroenterology annual conference. Satellite symposium. Philadelphia, October 16, 2007.
96. Probiotics: The health impact of active cultures. Indiana Academy of Family Physicians 59th Annual Meeting, French Lick, IN, July 26, 2007.
97. Health benefits of probiotics. ILSI China Workshop on Fermented Milk and Health, Beijing, China, June 8, 2007.
98. Breaking the barriers - connecting with consumers and delivering the benefits of probiotic cultures. IDFA Cultured Products Symposium. Minneapolis, MN, May 23, 2007.
99. Barriers to commercialization of probiotic products. ILSI North America meeting, Cancun, Mexico, January 24, 2007.
100. Probiotics: Definition, Source, Selection and Uses. At “Developing Probiotics as Foods and Drugs – Scientific and Regulatory Challenges”. Conference sponsored by Natural Health Products Special Area Interest Community (NHP- SIAC) of the Drug Information Association. College Park MD, October 16-17, 2006.
101. Probiotics: What, Why and When? Presented to the American Academy of Family Practitioners, Satellite Symposium, Washington DC, September 29, 2006. [Webcast](#)
102. Probiotics: benefits and applications. American Dietetic Association Food & Nutrition Conference, Honolulu, HI, September 19, 2006.
103. Probiotic cultures for cheese. 17<sup>th</sup> Biennial Cheese Industry Conference. Sun Valley, Idaho, August 9, 2006.
104. Probiotics: considerations for human health. Council for Responsible Nutrition’s Day of Science, Washington DC, July 25, 2006.
105. The contribution of microbes in fermented dairy products to health. IFT, Orlando FL, June 24-28, 2006.
106. Health benefits of probiotics. Pennsylvania Dietetic Association Annual Meeting, King of Prussia, PA, April 28, 2006.
107. Health benefits of probiotics in dairy foods. 8<sup>th</sup> Symposium on Advances in Dairy Products Technology, Shell Beach, CA, February 27-28, 2006.
108. What is a probiotic and how do you choose it? European Conference on Probiotics and Their Applications, Krakow, Poland, October 6 – 8, 2005.
109. Myths about probiotics. The Pennsylvania State University, Departmental Seminar, University Park, PA, September 15, 2005.
110. The value of revising the standard of identity for yogurt: why bacteria are important. Presentation made to Congressional Staffers on behalf of the National Yogurt Association, Washington DC, May 17, 2005.

111. Prebiotics and probiotics. Albuquerque District Dietetic Association, Albuquerque NM, March 7, 2005.
112. Communicating about efficacy of probiotic products in the US market: scientific and regulatory considerations. Univ. of Guelph, Guelph, Ontario Canada, March 2, 2005.
113. Probiotic and prebiotic use in a hospital setting: antibiotic induced diarrhea, Crohn's disease and other indications. Longmont United Hospital, Longmont, CO, February 18, 2005.
114. The potential impact of probiotics and prebiotics on gastrointestinal and immune health of combat soldiers. Paper presented at the Institute of Medicine Workshop on Optimization of Nutrient Composition of Military Rations for Short-Term, High-Stress Situations. Institute of Medicine. Committee on Optimization of Nutrient Composition of Military Rations for Short-Term, High-Stress Situations. Natick MA, August 9-11, 2004.
115. Probiotics in the control of allergy: clinical support and product development. Institute of Food Technologist Annual Meeting, Las Vegas NV, July 12-16, 2004.
116. Probiotic and prebiotic standards for yogurt and yogurt drinks. IDFA Cultured Dairy Products Conference, Minneapolis, MN, May 18-19, 2004.
117. Probiotic bacteria in yogurt: how much is enough? Nutracon, Anaheim, CA, March 4, 2004.
118. Building a probiotic dairy product: a case study. Worldwide Food Expo 2003, Chicago, IL, October 30, 2003.
119. Probiotic dairy products: marketing challenges. 40<sup>th</sup> Annual Marschall Cheese & Dairy Expo, Visalia CA, September 17-18, 2003.
120. Probiotics: What's New? 40<sup>th</sup> Annual Marschall Cheese & Dairy Expo, Visalia CA, September 17-18, 2003.
121. Update on probiotics – new research. Cultured Dairy Products Conference, Milwaukee, WI, May 20-21, 2003.
122. Probiotics: definition, importance to microbiology and health, and optimal standards for human use. American Society for Microbiology, Washington DC, May 18 – 23, 2003.
123. The role of probiotics in human health. Wisconsin Dietetics Association 2003 Annual Conference, Madison, WI, April 10, 2003.
124. The science and marketing of probiotics: emphasis on opportunity for dairy products. 2003 All Star Convention, La Jolla, CA, March 12-16, 2003.
125. *L. acidophilus* NCFM<sup>®</sup>: functional properties of a unique probiotic strain. Expo West, Anaheim, CA, March 7, 2003.
126. Probiotics: scientific basis and clinical applications. American Society of Parenteral and Enteral Nutrition, National Nutrition Week, San Antonio, TX, January 20-24, 2003.
127. Safety of oral probiotics in human health: what is known? Montreal International Symposium Probiotics and Health: Biofunctional Perspectives. October 24-25, 2002, Montreal, Quebec.
128. Probiotics: what are they and how are they used? American College of Nutrition 43rd Annual Symposium on Advances in Clinical Nutrition, San Antonio, TX, October 3-6, 2002.
129. Sanders, M. E. and F. Guarner. 2002. Convene round table on: Yogurts and Fermented Milks. Benefits of Live Cultures. World Dairy Congress, Paris. September 25, 2002.
130. *L. acidophilus* NCFM<sup>®</sup>: functional properties of a unique probiotic strain. Vitafoods International 2000 Exhibition and Conference, Geneva, Switzerland. 2002.
131. Probiotics for humans: status and future of the science and marketplace. FDA National Center for Toxicological Research, Jefferson, AK. 2002.
132. The scientific basis and clinical effects of probiotics. Michigan State University Malcolm Trout Lecture Series, E. Lansing, MI. 2002.
133. Marketing opportunities for nutraceuticals and probiotics. SmartMarketing 2002 (sponsored by IDFA), San Diego, CA. 2002.

134. Probiotic delivered through foods. Probiotics, Prebiotics and New Foods Conference. Rome, Italy. 2001.
135. Regulatory aspects of health claims associated with probiotics. International Dairy Federation Nutrition Conference. Auckland, New Zealand. 2001.
136. Probiotics: new strains and strain specific research. Nutricon 2001, San Diego, CA. 2001.
137. Probiotics in the human diet: what is their role? American Dietetic Association Annual Meeting, St. Louis, MO. 2001.
138. Probiotics: efficacy and applications to dairy products. 2001 Annual Meeting of Institute of Food Technologist, New Orleans, LA. 2001.
139. Regulatory considerations for labeling foods and supplements with health statements in the U.S. First International Bio-Minerals Symposium: Trace Elements in Nutrition, Health and Disease. Salt Lake City, UT. 2001.
140. Dairy foods and those friendly bacteria important to your health. California Dairy Industry Conference, Pomona, CA. 2001.
141. The emerging role of probiotics in health. Food 3000, Rome, Italy. 2001.
142. Functional foods in the USA: can probiotics and prebiotics play a role? American Association of Candy Technologists, Section Meeting, Chicago, IL. 2000.
143. Probiotics: foods in the marketplace. Food Advisory Committee to FDA, meeting on probiotics, Arlington, VA. 2002.
144. Probiotic theory and application in foods. General Mills Technical Seminar Series, Minneapolis, MN. 2000.
145. Probiotics/prebiotics. Cultured Dairy Products Conference, Las Vegas, NV. 2000.
146. The perfect partnership: milk and probiotics. Fluid Milk Forum, Dairy Management Inc., Rosemont, IL. 2000.
147. Probiotic products in the U.S.: current status and future challenges. California Institute for Agricultural Research Conference XIII, Sacramento, CA. 2000.
148. Better health and better foods: the role of probiotics. East Coast Section of IFT, Philadelphia, PA. 2000.
149. Probiotics. Oregon Dairy Industries 2000 Conference. Eugene, OR. 2000.
150. USA perspectives on probiotics. PROBDEMO Meeting, Rovaniemi, Finland. 2000.
151. Current market and potential for probiotic-containing products in the U.S. IFT Scientific Lecturer. Ohio IFT Division, Cleveland, OH. 1999.
152. Microbiological issues in marketing probiotic products. International Workshop on Dairy Products and Colon Cancer Risk Reduction, Utrecht, The Netherlands. 1999.
153. Bringing a probiotic-containing functional food product to market: microbiological, product, regulatory and labeling issues. Sixth Symposium on Lactic Acid Bacteria, Veldhoven, The Netherlands. 1999.
154. Approaches and limitations of in vitro characterization of probiotic bacteria. Submitted to 1999 Annual Meeting of the American Dairy Science Association, Memphis, TN. 1999.
155. Functional properties of yogurt. Dannon International Research Center Symposium: "Yogurt: Eighty Years of Active Research for Health", Barcelona, Spain. 1999.
156. Probiotics and health. IRTU Conference on "Dairy Products and Health", Ulster, Northern Ireland. 1999.
157. Considerations for use of probiotic bacteria to modulate human health. 1999 Experimental Biology annual meeting, Washington, D.C. 1999.
158. Current market and potential for probiotic-containing products in the U.S. Northern California Section IFT, San Jose, CA. 1998.

159. Overview of functional foods with an emphasis on probiotic bacteria. Washington DC Section IFT, October 22, Washington DC. 1998.
160. Current market and potential for probiotic-containing products in the U.S., Bonneville Section IFT, September 18, Park City, UT. 1998.
161. Scientific basis of probiotic functionality. Brigham Young University, Departmental Seminar Series, Provo, UT. 1998.
162. Current market and potential for probiotic-containing products in the U.S. Cultured Dairy Products Symposium, Milwaukee, WI. 1998.
163. Overview of functional foods. US/Ireland Co-operation Programme in Agricultural Science and Technology, Conference on Functional Foods, Cork, Ireland. 1997.
164. Probiotics: theory, potential and use. Nutracon 97 Conference, Las Vegas, NV. 1997.
165. Development of consumer probiotics in the US market. Institute of Food Technologists Annual Convention, Orlando, FL. 1997.
166. Probiotic cultures and human health. XII International Symposium on Gnotobiology (ISG), Honolulu, HI. 1996.
167. Probiotic cultures for milk products: positive human health effects and microbiological challenges. Departmental Seminar, Dairy Products Technology Center, Cal Poly State University, San Luis Obispo, CA. 1996.
168. Overview of probiotics: their effect on human health. 16th Symposium on Nutrition and Food Technology, Chicago, IL. 1996.
169. Probiotics: from all things to all people, to snake oil. World Congress on Anaerobic Bacteria and Infections, San Juan, Puerto Rico. 1995.
170. Probiotics: definition and range of applications. Institute of Food Technologists Annual Meeting, Anaheim, CA. 1995.
171. Lactic acid bacteria and human health. Old Herborn University Seminar, Herborn, Germany. 1994.
172. The effect of lactic acid bacteria on human health. Univ. Minnesota Departmental Seminar, St. Paul, MN. 1994.
173. The next generation of fluid milks with added lactic cultures. Spring Dairy Industry Conference, Sacramento, CA. 1994.
174. Culture containing milks for the California market: project update. California Cheese Symposium, San Francisco, CA. 1994.
175. Health attributes of cultured dairy foods. Annual Meeting of American Cultured Dairy Products Institute, Las Vegas, NV. 1993.
176. Rapid Microbiological Methods. Rocky Mountain Section of IFT Suppliers Night, Denver, CO. 1992.
177. HACCP. Rocky Mountain Section of IFT, Denver, CO. 1991.
178. Genetic approaches for the improvement of strains for Italian cheese manufacture. Marschall Italian Cheese Seminar, Madison, WI. 1990.
179. Genetic approaches for improving food starter cultures. ASM Conference on Biotechnology, Chicago, IL. 1990.
180. Bacteriophage resistance and its applications to yogurt flora. International Conference on Health Attributes of Live Active Culture Yogurt, New York. 1989.
181. Phage-resistance in cheese-making bacteria. Western Michigan University, Kalamazoo, MI. 1989.
182. Phage resistant starters. E.M.B.O. Workshop on Genetic Manipulation of Lactic Acid Bacteria: A Breakthrough in the Food Industry, Annecy, France. 1988.
183. Genetic characterization of lactic acid bacteria. Western Food Industry Conference, Davis, CA. 1986.

184. Advances in starter culture technology. X Food Microbiology Research Conference, Chicago, IL. 1985.

## RESEARCH PRESENTATIONS

185. Korzenik, J., Kitts, C., Pittler, A., Engelbrektsen, A., Sanders, M. and Klaenhammer, T. 2005. A randomized, double-blind, controlled trial of probiotics to minimize the disruption of gut flora as assessed by 16S rRNA terminal restriction fragment length polymorphism and culture enumeration in healthy subjects undergoing antibiotic therapy. Digestive Disease Weekly, Chicago, IL, May 14-19, 2005.
186. Nguyen, H.D., Lung, D.Y., Engelbrektsen, A.L., Korzenik, J., Sanders, M.E., Leyer, G. and Kitts, C. 2004. The effect of probiotics on the species distribution of *Bifidobacterium* and *Lactobacillus* in healthy subjects undergoing antibiotic therapy. International Society of Microbial Ecology, Cancun, Mexico, August 22-27, 2004.
187. Yeung, P. S. M., R. Cano, C. L. Kitts, M. E. Sanders and P. S. Tong. 1999. Gene-based techniques for species identification and strain relatedness of commercial probiotic strains. 1999 IFT Annual Meeting, Abstract 37D-27. 1999.
188. Yeung, P.S.M., R. Cano, P. S. Tong, and M. E. Sanders. 1999. Comparison of API, 16S rDNA sequencing and fatty acid analysis as methods to speciate commercial probiotic bacteria. 1999 Annual Meeting of the American Dairy Science Association, Memphis, TN. 1999.
189. Iturriria-Laverty, K., P. S. Tong, and M. E. Sanders. 1999. Microbiological stability of probiotic and starter bacteria in commercial yogurt and cottage cheese. 1999 Annual Meeting of the American Dairy Science Association, Memphis, TN. 1999.
190. Sanders, M. E., R. Cano and T. R. Klaenhammer. 1998. Lactic acid bacteria – they can be “healthy” for the consumer and you. California Milk Producer Research Conference: Report on Producers’ Investments, Visalia, CA. 1998.
191. Sanders, M. E., P.J. Leonhard, and T.R. Klaenhammer. 1986. The use of pTR2030 for the conjugal construction of a fast acid-producing, phage-resistant strain of *Streptococcus lactis*. American Dairy Science Association Annual Meeting, Davis, CA. 1986.
192. Sanders, M. E. 1985. Protoplast transformation of *Streptococcus cremoris*. Wind River Conference on Genetic Exchange, Estes Park, CO. 1985.
193. Sanders, M. E. and T. R. Klaenhammer. 1984. Temperature-sensitive phage resistance in a phage-insensitive strain of *Streptococcus lactis*. 84th Annual Meeting of the American Society of Microbiology, St. Louis, MO.
194. Klaenhammer, T.R. and M. E. Sanders. 1983. Resistance of group N streptococci to lytic bacteriophage: mechanisms and genetic determinants. International Symposium on Lactic Acid Bacteria in Foods: Genetics, Metabolism and Applications. Netherlands Society for Microbiology, Wageningen, The Netherlands.
195. Sanders, M. E. and T. R. Klaenhammer. 1983. Phage resistance in a phage insensitive strain of *Streptococcus lactis*: involvement of plasmid DNA in genetically determining phage adsorption. 77th Annual Meeting of the American Dairy Science Association, University of Wisconsin, Madison, WI.
196. Sanders, M. E. 1982. Involvement of plasmid DNA in the bacteriophage resistance of the lactic streptococci. Carolina - Virginia Section Meeting of Institute of Food Technologists, Winston-Salem, NC.
197. Sanders, M. E. and T. R. Klaenhammer, 1981. Plasmid composition of mutants deficient in restriction and modification and proteolytic capacities in *Streptococcus cremoris* KH. American Society for Microbiology International Conference on Streptococcal Genetics, Sarasota, FL.

198. Sanders, M. E. and T. R. Klaenhammer, 1981. Evidence for plasmid linkage of restriction and modification systems in *Streptococcus cremoris*. 76th Annual Meeting of the American Dairy Science Association, Louisiana State University, Baton Rouge, LA.
199. Sanders, M. E. and T. R. Klaenhammer, 1980. Restriction and modification in the lactic streptococci: the effect of heat on the development of modified, lytic bacteriophage. 75th Annual Meeting of the American Dairy Science Association, Virginia Polytechnic Institute, Blacksburg, VA.
200. Sanders, M. E. and T. R. Klaenhammer, 1979. Host restriction and modification in the lactic streptococci: effect of environmental stress. North Carolina Branch of the American Society for Microbiology, Raleigh, NC.