Daniela Barile, PhD

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ACADEMIC RANK

Full Professor, Department of Food Science and Technology, UC Davis

EDUCATION

7/2002 Master of Science – Chemistry and Pharmaceutical Technology, University A. Avogadro, Italy.

7/2004 Pharm.D., University A. Avogadro, Italy

12/2007 Doctor of Philosophy–Food Science, University of A. Avogadro, Italy

RESEARCH AND PROFESSIONAL EXPERIENCE

Prof. Barile's research, focused at the nexus of food, health, and the environment, aims to understand food bioactive compounds formation, their recovery from milk and food production side streams, and their specific interactions within the human body. The analytical platform that she set up, based on mass spectrometry, allows investigating a range of relatively untapped waste streams from food processing to extract valuable, healthful bioactive compounds, such as oligosaccharides and bioactive peptides. The highly collaborative aspect of her research is evidenced by the publication, during the past 10 years, of over 100 manuscripts in leading peer-reviewed food science journals and specialized books, which have already been cited nearly 3000 times (i10-index 58). Her full list of publications can be found here: https://scholar.google.com/Barile

Her capacity to translate basic research findings to actual practical value is of significant relevance, thanks to a network of over 20 food industries that routinely collaborate with her lab.

ACADEMIC SPECIALTY

Food chemistry, bioactive compounds discovery & characterization, advanced mass spectrometry, membrane filtration, chromatography, chemistry of carbohydrates and interaction with bacteria, prebiotics, probiotics, proteomics, peptidomics.

HONORS AND AWARDS

2017	Distinguished Professor: Chancellor Fellow
2014	UC Davis Dean's Team Award for Excellence for Outstanding multi-disciplinary team contributions in the mission area of Research

PROFESSIONAL ACTIVITIES: EDITORIAL / ADVISORY BOARDS

2017–present	Associate Editor, Editorial Board of Nutrition Methodology, a specialty of Frontiers in Nutrition.
2016– present	R&D Advisory Board for Evolve Biosystems, Davis, CA.
2016–2017	Co-Editor of the newsletter "UCD Squared," a quarterly newsletter to report on joint activities of the faculty at UC Davis and UCD Dublin.
03/2013–Present	Member, Editorial Board for The World of Food Ingredients journal.
03/2012–present	Associate Editor, Newsletter for the International Milk Genomics Consortium.

Entrepreneurial Activities

2011–Present Co-Founder of Evolve Biosystems, Davis, CA a startup dedicated to solving dysbiosis

Ad Hoc Reviewer (Journals and Books)

International Journal of Dairy Science, Journal of Dairy Science, Advances in Nutrition, Journal of Membrane Science, PLOS ONE, Food Research International, Journal of Agriculture and Food Chemistry, Cellular and Molecular Biology, Food Chemistry, Evidence-Based Complementary and Alternative Medicine, Organic Letters, Studies in Natural Product Chemistry, Frontiers. Reviewed various proposals on Dairy Science for Elsevier "Science and Technology Books."

Ad Hoc Reviewer for National/International Grants

2017–2018	Member of the Expert Panel to determine the Generally Recognized as Safe (GRAS) status of synthetic oligosaccharides.
2016–2017	Ad-hoc expert panel for the European Science Foundation. Reviewing research proposals for the University of Turin (Italy).
2016–2017	Ad-hoc reviewer for the Czech Science Foundation established by Ministry of Health of the Czech Republic.
2016–2017	Member of ad-hoc committee reviewing Fellowships applications for a European Commission funded program (Horizon 2020 and INPhINIT), Barcelona, Spain.
2016	Ad-hoc reviewer for the French National Programme AgreenSkills, an international mobility programme co-funded by the European Union and the INRA (Europe's top agricultural research institute).
2015	Ad hoc reviewer–USDA National Institute of Food and Agriculture's (NIFA's) Exploratory Research Program of the Agriculture and Food Research Initiative (AFRI).
2013–2014	Member–Dairy Research Institute–Panel, reviewing proposals for the Nutrition Research Area.

Professional Memberships: Institute of Food Technologists (IFT); American Society of Mass Spectrometry (ASMS); Italian Scientists and Scholar of North America Foundation (ISSNAF); American Chemical Society (ACS); " Future Food Institute" Steering Committee (Reggio Emilia and Modena University, Italy); Phi Tau Sigma, The Honor Society of Food Science and Technology.

Organizer/Chairman of National/International Symposia and Conferences

2017	Member of the Scientific and Organizing Committee of the 18th Chemistry Department Miller Symposium. UC Davis Chemistry Department (March 14–15, 2018) special topic "Chemistry of the Microbiome."
2016	Organizer of International Symposium "Big Data food and health" and the "John E. Kinsella Memorial Lecture," UC Davis, Silverado Sensory Theater.
2016	Member of the organizing committee of the first UC Davis FFHI–New Zealand AgResearch workshop "Disruptive Innovation in Milk and Health."
2015	Co-organized the program of the "John E. Kinsella Memorial Symposium and Lecture" hosted at the Fitzgerald Debating Chamber, University College Dublin (Ireland).
2015	UC Davis Representative–FAPESP Week UC Davis in Brazil.
2015	Moderator–Two panels at the University and Industry Consortium Fall Meeting "Impacts of Microbiomes on Plant, Human and Animal Health."

Other international involvement

- Faculty lead for the first UCD-UCD Inter-Institutional "Erasmus+ Mobility Program" with the University College Dublin (Ireland), awarded 2015/2016. Selected one faculty form UC Davis and one faculty from UC Dublin who spent 2 weeks teaching at the host institutions.
- Liaison Officer for the collaboration with the National Italian Research Institution CREA (Consiglio Per La Ricerca In Agricoltura E L'analisi Dell'economia Agraria). Hosted the Minister of Agriculture, Food and Forestry Affairs for Italy, Maurizio Martina at UC Davis.

Peer Reviewed Publications during the last 4 years (July 1, 2014 - December 31, 2018)

1. Boudry G., Hamilton M.K., Chichlowski M., Wickramasinghe S., **Barile D.**, Kalanetra K.M., Mills D.A., Raybould H.E. Bovine milk oligosaccharides decrease gut permeability and improve inflammation and microbial dysbiosis in diet-induced obese mice. Journal of Dairy Science, 100: 1-11. 2017.
2. Hamilton M., Ronveaux C., Rust B., Newman J., Hawley M., **Barile D.**, Mills D., Raybould H. Prebiotic milk oligosaccharides prevent development of obese phenotype, impairment of gut permeability and microbial dysbiosis in high-fat fed mice. American Journal of Physiology-Gastrointestinal and Liver Physiology, 1(312(5)): 474-487. 2017.
3. Karav S., German J.B.,Rouquié C., Le Parc A., **Barile D.** Studying lactoferrin N-glycosylation. International Journal of Molecular Sciences, 18(4): 870. 2017.
4. Le Parc A., Karav S., Rouquié C., Maga E.A., Bunyatratchata A., **Barile D.** Characterization of recombinant human lactoferrin N-glycans expressed in the milk of transgenic cows. PlosOne, | DOI:10.1371(February 7, 2017): 1-15. 2017.
5. Martín-Ortiz A., **Barile D.**, Salcedo J., Moreno F.J., Clemente A., Ruiz-Matute A.I., Sanz M.L. Changes in caprine milk oligosaccharides at different lactation stages analyzed by high-performance liquid chromatography coupled to mass spectrometry. Journal of Agricultural and Food Chemistry, 65(17): 3523–3531. 2017.
6. Sischo W., Short D., Geissler M., Bunyatratchata A., **Barile D.** Comparative composition, diversity, and abundance of oligosaccharides in early lactation milk from commercial dairy and beef cows. Journal of Dairy Science. 100: 1–10. 2017.
7. Smilowitz J.T., Lemay D.G., Kalanetra K.M., Chin E.L., Zivkovic A.M., Breck M.A., German J.B., Mills D.A., Slupsky C., **Barile D.** Tolerability and safety for the intake of bovine milk oligosaccharides extracted from cheese whey in healthy human adults. Journal of Nutritional Science, 6(doi:10.1017/jns.2017): 1-11. 2017.
8. Tian T., Freeman S., Corey M., German JB., **Barile D.** Chemical characterization of potentially prebiotic oligosaccharides in brewed coffee and spent coffee grounds. Journal of Agricultural and Food Chemistry, 65((13)): 2784–2792. 2017.
9. Bode L., Contractor N., **Barile D.**, Pohl N., Boons G.J., Jin Y.S., Jennewein S. Overcoming the limited availability of human milk oligosaccharides: challenges and opportunities for research and application. Nutrition Reviews, 74(10): 635-644. 2016.
10. Charbonneau M., O'Donnell D., Blanton L.V., Totten S.M., Davis J.C.C., Barratt M.J., Chen, J., Guruge J., Talcott M., Bain J.R., Muehlbauer M.J., Ilkayeva O., Wu C., Struckmeyer T., **Barile D.**, Mangani C., Jorgensen J., Fan Y.M., Maleta K., Dewey K.G., Ashorn P., Newgard C.P., Lebrilla C.B., Mills D.A., Gordon JI. Sialylated milk oligosaccharides promote microbiota-dependent growth in models of infant undernutrition. Cell, 164(5): 859-871. 2016.
11. Cohen J.L., **Barile D.**, Liu Y., de Moura Bell J.M.L.N. Role of pH in the recovery of oligosaccharides from dairy streams by nanofiltration. International Dairy Journal, 66: 68–75. 2016.
12. Dallas D.C., Citerne F., Tian T., Silva V.L.M., Kalanetra K.M., Frese S.A., Robinson R.C., Mills D.A., **Barile D.** Peptidomic analysis reveals proteolytic activity of kefir microorganisms on bovine milk proteins. Food Chemistry, 197: 273–284. 2016.
13. de Moura Bell J.M.L.N., Aquino L.F.M.C., Liu Y., Cohen J.L., Lee H., de Melo Silva V.L, Rodrigues M.I., **Barile D.** Modeling lactose hydrolysis for efficiency and selectivity towards the preservation of sialyloligosaccharides in bovine colostrum whey permeate. Journal of Dairy Science, 99(8): 6157-6163. 2016.
14. Domizio P., Liu Y., Bisson L., **Barile D.** Cell wall polysaccharides released during the alcoholic fermentation by Schizosaccharomyces pombe and S. japonicus: quantification and characterization. Food Microbiology, 61: 136-149. 2016.
15. Karav S., Cohen J.L., **Barile D.**, de Moura Bell J.M.L.N. Recent Advances in Immobilization Strategies for Glycosidases. Biotechnology Progress, 33(1): 104-12. 2016.

16. Karav S., Le Parc A., de Moura Bell J.M.N.L., Frese S., Kirmiz N., Block D.E., **Barile D.**, Mills D.A. Oligosaccharides released from milk glycoproteins are selective growth substrates for infant-borne bifidobacteria. Applied and environmental microbiology, 82 (12): 3622-3630. 2016.
17. Lee H., Cuthbertson D., Otter D., **Barile D.** Rapid screening of bovine milk oligosaccharides in a whey permeate product and domestic animal milks by accurate mass database and tandem mass spectral library. Journal of Agricultural and Food Chemistry, 64(32): 6364-6374. 2016.
18. Martín-Ortiz A., Salcedo J., **Barile D.**, Bunyatratchata A., Moreno F.J., Martin-García I., Clemente A., Sanz M.L., Ruiz-Matute A.I. Characterization of goat colostrum oligosaccharides by nano-liquid chromatography on chip quadrupole time-of-flight mass spectrometry and hydrophilic interaction liquid chromatography-quadrupole mass spectrometry. Journal of Chromatography A, 1428: 143-153. 2016.
19. Mudd A.T., Salcedo J., Alexander L.S., Johnson S.K, Getty C.M., Chichlowski M., Berg B.M., **Barile, D.**, Dilger R.N. Porcine milk oligosaccharides and sialic acid concentrations vary throughout lactation. Frontiers in Nutrition, 3: Article 39 pp. 1-10. 2016.
20. Picariello G., Addeo F., Ferranti P., Nocerino R., Paparo L., Passariello A., Robinson R.C., **Barile D.**, Dallas D.C., Canani R.B. Antibody-independent identification of bovine milk-derived peptides in breast-milk. Food & Function, 7 (8): 3402-3409. 2016.
21. Salcedo J., Frese SA , Mills DA , **Barile D.** Characterization of porcine milk oligosaccharides during early lactation and their relation to the fecal microbiome. Journal of Dairy Science, 99(10): 7733-7743. 2016.
22. Dallas D., Guerrero A., Parker E., Robinson R., Gan J., German J.B., **Barile D.**, Lebrilla C.B.. Current peptidomics: applications, purification, identification, quantification and functional analysis. Proteomics, 15(5-6): 1026-1038. 2015.
23. Dallas D., Smink C., Robinson R., Tian T., Guerrero A. , Parker E., Smilowitz J., Hettinga K., Underwood M., Lebrilla C.B., German J.B., **Barile D.**. Endogenous human milk peptide release is greater after preterm birth than term birth. American Society for Nutrition, 145(3): 425-433. 2015.
24. Guerrero A., Lerno L., **Barile D.**, Lebrilla C.B. Top-down analysis of highly postranslationally modified peptides by electrospray ionization fourier transform ion cyclotron resonance mass spectrometry. Journal of the American Society of Mass Spectrometry, 26(3): 453-459. 2015.
25. Dallas, D.C., Sanctuary, M.R., Qu, Y., Khajavi, S.H., Zandt, A.E.V., Dyandra, M., Frese, S.A., **Barile, D**., and German, J.B. Personalizing protein nourishment. Critical Reviews in Food Science and Nutrition 57:15, 3313-3331, 2015.
26. Karav S., de Moura Bell J.M.L.N., Le Parc A., Liu Y., Mills D.A., Block D.E., **Barile, D**. Characterizing the release of bioactive N-glycans from dairy products by a novel endo-β-N-acetylglucosaminidase. Biotechnology progress, 31: 1331–1339. 2015.
27. Karav S., Le Parc A., de Moura Bell J.M.L.N., Rouquié C., Mills D.A., **Barile D.**, Block D.E. Kinetic characterization of a novel Endo-β-N-acetylglucosaminidase on concentrated bovine colostrum whey. Enzyme and Microbial Technology, 77: 46-53. 2015.
28. Le Parc A., Karav S, de Moura Bell J.M.L.N., Frese S.A., Liu Y., Mills D.A., Block D.E., **Barile D.** A novel endo-β-N-acetylglucosaminidase releases specific N-glycans depending on different reaction conditions. Biotechnology progress, 31(5): 1323-1330. 2015.
29. Lee H., de MeloSilva V.L., Liu Y., **Barile D.** Quantification of carbohydrates in whey permeate products using high-performance anion-exchange chromatography with pulsed amperometric detection. Journal of Dairy Science, 98(11): 7644-7649. 2015.
30. Holton T., Vaishnavi V., Dallas D., Guerrero A., Borghese R., Lebrilla C.B., German J.B., **Barile D.**, Underwood M., Shields D., Khaldi N. Following the digestion of milk from mother to baby. Journal of Proteome Research, 13(12): 5777-5783. 2014.
31. de Aquino L.F.M., de Moura Bell J.M.L.N., Cohen J., Liu Y, Lee H., de Melo Silva V.L., Domizio P., Conte C.C Jr., **Barile D.** Purification of caprine oligosaccharides at pilot-scale. 2017.
32. Murray N.M., O'Riordan D., Jacquier J.C, O'Sullivan M., Cohen J., Heymann H., **Barile D**., Dallas D.C. Sensory-guided, food-grade fractionation of a bioactive sodium caseinate hydrolysate to characterize bitterness. Journal of Sensory Studies. 2017.
33. O'Sullivan A., Henrick B.M, German J.B., Zivkovic A., Smilowitz J., **Barile D**., Martin W., Dixon B., Schaefer S.E . 21st century toolkit for optimizing population health through precision nutrition. Critical Reviews in Food Science and Nutrition. 2017.

34. de Moura Bell J. M.L.N., Cohen J., de Aquino L. F. M., Lee H., de Melo Silva V.L., Liu Y, Domizio P., **Barile D.** An integrated bioprocess to recover bovine milk oligosaccharides from colostrum whey permeate. Journal of Food Engineering. 2017.
35. Cohen J.L., Geissler M., **Barile D.**, Simmons C.W., de Moura Bell J.M.L.N. Current utilization of dairy industry co-products; in Foster C.N. (editor in chief) Agricultural Wastes: Characteristics, Types and Management. 978-1-63482-376-0, Nova Publishers. 2015.
36. Barnett S.M., Trenhaile-Grannemann M.D., Van Sambeek D.M., Miller P.S., **Barile D.**, Burkey T.E. Effects of energy restriction during gilt development on milk nutrient profile, milk oligosaccharides, and progeny biomarkers. Journal of Animal Science, 96(8): 3077-3088.
37. Bhattacharya M., Robinson R.C., Henrick B.M., Gao A., **Barile D.** Peptidomic profiling of commercial dairy products: Identification and functional analysis. In final revison at Nature Partner Journal Science of Food **2019.
38. Frese S.A., Smilowitz J.T., Hutton A.A., Shaw C.A., Contreras L.N., Casaburi G., Palumbo M.C., Xu G., Davis J., Lebrilla C.B., Henrick B.M., Freeman S., German J.B., **Barile D.**, Mills D.A., Smilowitz J.T., Underwood M. The gut symbiont Bifidobacterium longum subsp. infantis restores ecosystem function in infants. Microbiome, mSphere, 2(6): 1-15. 2017
39. Kirmiz N. Robinson RC, Shah IM, **Barile D**, Mills DA. Milk glycans and their interaction with the infant gut microbiota. Annual Review of Food Science and Technology. ** submitted to Annual Review of Food Science and Technology, 9: 429-450. 2017.
40. Salcedo J., Karav S., Le Parc A., Cohen J.L., de Moura Bell J.M.L.N., Sun A., Lange M.C., **Barile D.** Application of industrial treatments to donor human milk: effects on gangliosides. submitted to Nature Partner Journal Science of Food, 2(5): 1-8, 2018.
41. Murray N.M., O'Riordan D., Jacquier J.C., O'Sulliva M., Holton T.A., Wynne K., Robinson R.C., **Barile D**., Nielsen S.D., Dallas D.C. Peptidomic screening of bitter and non-bitter casein hydrolysate fractions for insulinogenic peptides approach. Journal of Dairy Science, 101(4): 2826-2837.
42. Murray N.M., O'Riordan D., Jacquier J.C, O'Sullivan M., Cohen J., Heymann H., **Barile D.,** Dallas D.C. Validation of a paper-disk approach to facilitate the sensory evaluation of bitterness in dairy protein hydrolysates from a newly developed food-grade fractionation system. Journal of Sensory Studies., 32(3): e12266.
43. Robinson R.C.,E. Colet, T. Tian, N.A. Poulsen, **D. Barile**. International Dairy Journal. An improved method for the purification of milk oligosaccharides by graphitized carbon-solid phase extraction. International Dairy Journal, 80: 62-68, 2018
44. Robinson R.C., Poulsen N.A., **Barile D**. Multiplexed bovine milk oligosaccharide analysis with aminoxy tandem mass tags. PLOS ONE, 13(4) 2018.
45. Jena P.K., Sheng L., Nagar N., Wu C., **Barile D.,** Mills D.A., Wan Y.Y . Synbiotics Bifidobacterium infantis and milk oligosaccharides are effective in reversing cancer prone non-alcoholic steatohepatitis using Western diet-fed FXR knockout mouse models. The Journal of Nutritional Biochemistry, 57: 246-254, 2018
46. Nijman R., Liu Y., Bunyatratchata A., Smilowitz J., Stahl B., **Barile D**. Characterization and quantification of oligosaccharides in human milk and infant formula. Journal of Agricultural and Food Chemistry, 66(26): 6851-6859, 2018
47. Barnett S.M., Trenhaile-Grannemann M. D., Van Sambeek D. M., Miller P.S., **Barile D**., Burkey T.E. Effects of Energy Restriction during Gilt Development on Milk Nutrient Profile, Milk Oligosaccharides, and Progeny Biomarkers. Journal of Animal Science, 96(8): 3077-3088, 2018.
48. Salcedo J., Frese S., **Barile D**. Thoroughbred mare's milk exhibits a unique and diverse free oligosaccharide profile. FEBS Open Bio, 8(8): 1219–1229, 2018.
49. Gan J.,Robinson R.C., Wang J., Krishnakumar N., Manning C.J., Lor Y., Breck M., **Barile D**., J.B. German. Peptidomic profiling of human milk with LC-MS/MS reveals pH-specific proteolysis of milk

proteins. Food Chemistry, 274: 766-774, 2018.

50. Cohen J., Karav S., **Barile D**.,de Moura J.a Bell JMN. Immobilization of an endo- β-N-acetylglucosaminidase for the release of bioactive N-glycans. 8(7): 347-361.

Limited Distribution Publications (Industry-oriented)

51. Tian T., **Barile D.** The future of coffee and its waste streams: Novel health benefits ahead. The World of Food Ingredients. ISSN 1566-6611, pp 62-65. (February.) 2017.
52. Karav S., **Barile D.** Unlocking novel bioactive compounds in milk. The World of Food Ingredients. April-May issue, pp 72-74. (March). 2016.
53. Robinson C.R., Dallas D.C., **Barile D.** Nutritional platforms for dairy peptides. The World of Food Ingredients, 44: 44-46. 2014.
54. Salcedo J., **Barile D.** The forgotten milk components that will make kids smarter. The World of Food Ingredients. (Oct-Nov). 2014.

Webinars

1. December 5, Webinar: "Redefining food analysis and food processing." organized by Food Quality & Safety magazine and sponsored by Agilent Technologies. The webinar was attended by nearly 400 participants from all over the world and will remain available on-demand in the archives of Wiley Periodicals, Inc.
2. December 6, Webinar: Dairy Oligosaccharides: Types, Amounts and Market Potential. ADPI seminar series "Providing Education and Training", American Dairy Products Institute. Over 300 attendees registered for the webinar, which is also on permanent display on the ADPI website. 2018

Invited Presentations (Conferences, workshops, lectures): last 4 years (2014-2018)

3. December 13, Invited seminar: "New Analytical Tools for Next Gen Nutrition: Understanding Glycosylated Compounds". NIZO FOOD RESEARCH BV Ede, The Netherlands. 2018
4. December 4, Invited seminar: Valorization of Agricultural Co-Products: a Glycomics approach. Instituto de Investigación en Ciencias de la Alimentación CIAL (CSIC-UAM), Campus de Cantoblanco - Universidad Autónoma de Madrid, Spain. 2018
5. November 27, Invited talk: Characterization and Bioprocessing of Prebiotics from Agricultural Co-Products.Dipartimento di Scienze degli Alimenti e del Farmaco Parco Area delle Scienze, University of Parma, Italy. 2018.
6. October 26, Invited seminar "Feeding for Health in the XXI Century: Redefining food analysis & food processing", CIBIO -Centre for Integrative Biology, University of Trento, Italy. 2018.
7. July 17, Invited presentation "New Glycobiology tools to study gut-directed bioactive components of foods", Experts Food Derived Gut Directed Bioactives Convening, The Bill & Melinda Gates Foundation, Seattle, WA. 2018.
8. June 26, Leading "Community Discussions" at FOOD-IT on "Data Layers for Food & Ag". Mission Bay Conference Center, University of California San Francisco. 2018.
9. June 21, Glycomics and Peptidomics to unravel breastfeeding benefits. Sutter Medical Group, Sacramento. 2018.
10. May 1, Invited plenary lecture: Dairy Oligosaccharides: Types, Concentrations and Potential Value as A New Ingredient". American Dairy Products Institute (ADPI) Annual Meeting, April 29-May 1, Chicago, Attended by 1000 industry representatives (CEO's, VP sales, VP Operations, VP Technical Services and/or R&D, etc.). 2018.
11. March 19, Innovating Food Manufacturing - Properties of food components. MASTER in FOOD INNOVATION, Università degli Studi di Modena e Reggio Emilia, Bologna, Italy. 2018.
12. February 6, Panelist at the Food, Ag + Health Entrepreneurship Academy, UC Davis Alumni Center, Share my experience in commercializing technology from the university and tell my story and role on campus. 2018.
13. December 12, Invited seminar: "Interrogating agricultural streams for added value food molecules"; Food Quality & Design Department, Wageningen University, The Netherlands. 2017.
14. November 13, "Capturing the milk glycome for gut health", Biotechnology Training Program Pizza Seminar, with graduate student BioTch Fellow Josh Cohen, UC Davis Biotechnology Program.2018.
15. October 31, Invited talk: " Innovative Utilization of waste in Food Systems". Course "Sustainable Innovations in Food Systems", Bowley hall, UC Davis.2017.

16. September 21, Invited presentation "The power of whey: old and new activities". Land O'Lakes R&D and Marketing teams, Arden Hills, MN. 2017.
17. September 20, Invited talk "Oligosaccharides from Whey: Where Are We & What is Needed to Move Forward?" in the Emerging Ingredients Session of the 2017 International Whey Conference Chicago, September 17-20. 2017.
18. June 13, Application of Glycoproteomics and peptidomics to food product development, Arla Foods Ingredients Group, R&D center, Sønderupvej 26, 6920 Videbæk, Denmark. 2017.
19. June 12, An update on milk functional glycomics, Arla Foods Ingredients Group, R&D center, Sønderupvej 26, 6920 Videbæk, Denmark. 2017.
20. June 8, Invited key note: "The effect of dairy products on obtaining a healthy intestinal microbiota", 44th Nordic Dairy Congress,Copenhagen (Denmark), 7-9 June 2017.
21. May 8, Panel "Innovations for nutrition & sensory quality of foods: Ag Innovation Showcase hosted by The World Food Center". The audience included entrepreneurs, investors in ag/food tech companies, along with established companies in these industries, with a focus on high value crops and livestock. 2017.
22. March 20, Tour with presentation "Innovations in Milk Research from the Milk Processing Lab" UC-wide Research Development (UCRD) conference. This meeting involved individuals from the 10 UC Campuses teaming up for strategic initiatives and interdisciplinary research. 2017.
23. February 14, Invited presentation: Feeding the world in the XXI Century. World Ag Expo; research track Hosted by College of Agricultural and Environmental Sciences, UC Davis at the International Agri-Center in Tulare, CA . 2017.
24. January 11, Invited talk: Harvesting milk components for health. Annual meeting of the California Creamery Operators Association. UC Davis. 2017.
25. June 12, An update on milk functional glycomics, Arla Foods Ingredients Group, R&D center, Sønderupvej 26, 6920 Videbæk, Denmark. 2017.
26. June 13, Application of glycoproteomics and peptidomics to food product development, Arla Foods Ingredients Group, R&D center, Sønderupvej 26, 6920 Videbæk, Denmark. 2017.
27. June 8, Invited key note: The effect of dairy products on obtaining a healthy intestinal microbiota, 44th Nordic Dairy Congress, Copenhagen (Denmark), 7-9 June 2017.
28. March 20, Tour with presentation, Innovations in milk research from the Milk Processing Lab, UC-wide Research Development (UCRD) conference. This meeting involved individuals from the 10 UC Campuses teaming up for strategic initiatives and interdisciplinary research. 2017.
29. May 8, Panel Innovations for nutrition & sensory quality of foods: Ag Innovation Showcase hosted by The World Food Center. The audience included entrepreneurs, investors in ag/food tech companies, along with established companies in these industries, with a focus on high value crops and livestock. 2017.
30. September 20, Invited talk: Oligosaccharides from whey: Where are we and what is needed to move forward?, in the Emerging Ingredients Session of the 2017 International Whey Conference Chicago, September 17-20. 2017.
31. April 13, Invited talk: Dairy streams: challenges and opportunities, ETH Zurich Meets California, Tackling Food System Challenges with IT Innovation, event hosted by the "Mixing Bowl Hub"; Robert Mondavi Institute, Davis CA. 2016.
32. December 6, Invited talk: Technological Innovation in the Agro-Food sector. Istituto di Cultura Italiana (Institute of Italian Culture), San Francisco. A World-Expo follow-up event organized by the Italian Minister of Agriculture. 2016.
33. December 8,Invited talk: Health benefits of bioactive compounds extracted from agricultural side-streams. FST Research Symposium, UC Davis. 2016.
34. February 17, Invited talk: Oligosaccharides Processing from Dairy Fluids – An Update, 18th Annual Dairy Ingredients Symposium: "Emerging Markets, Technologies and Products Using Milk and Dairy Ingredients", February 17-18, Shell Beach, CA. 2016.
35. July 16, Invited talk: Creation of novel foods with an unusual nutritional value, Food Innovation Summer

School Mediterraneo, University of Messina, Sicily IT. 2016.

36. March 9, Invited talk: Next generation prebiotics: challenges and opportunities. Probiotic Educational Track at Natural Products Expo, Anaheim Convention Center. 2016.
37. May 17, Invited talk: Overview of human milk oligosaccharides measurement and capture from animal milks, Human Milk Oligosaccharides for Environmental Enteric Dysfunction Workshop, The Bill & Melinda Gates Foundation | Seattle, WA. 2016.
38. May 31, Invited talk: Prebiotics for premature infants: discovery and characterization, Prebiotics– Quantifying impact on host health workshop, IPA World Congress, Probiotas Americas, Chicago (USA) . 2016.
39. November 18, Invited talk at the Chemistry Careers Club, Department of Chemistry Colloquium. California State University Stanislaus. 2016.
40. November 23, Invited lecture: Milk as a model for food digestion. The Food Innovation Master's Program 2.0. University of Modena and Reggio Emilia, Italy. 2016.
41. November 24, Invited talk: The food of the future. Food Is a conversation with Daniela Barile. Food Innovation Program, event open to the city of Reggio Emilia, IT. 2016.
42. November 25, Invited lecture: Innovating dairy ingredients with a multi-omics approach. The Food Innovation Master's Program 2.0. University of Modena and Reggio Emilia and the Young Talents Academy, Italy. 2016.
43. November 26, Invited lecture: Comparing the Italian and American dairy system: valorization of by-products. The Food Innovation Master's Program 2.0. University of Modena and Reggio Emilia, Italy. 2016.
44. November 8, Invited talk: Challenges in processing bioactive food components. IC-FOODS (International Conference/Consortium/Center for Food Ontology, Operability, Data and Semantics) Nov. 7-9, 2016 UC Davis Conference Center. 2016.
45. September 24, Invited talk: Characterization and recovery of compounds from natural sources. Society of Environmental Journalists annual conference, UC Davis. 2016.
46. September 28, Invited Keynote Presentation: Milk glycoproteomics: Preserving, enhancing, and delivering bioactivity, 13th International Symposium on Milk Genomics and Human Health, Davis CA, 27-29 September 2016.
47. April 14, Invited talk: Novel tools to evaluate bioactive compounds in dairy products, Nanjing Agricultural University-UC Davis One Health Food Safety Symposium. 2015.
48. August 11, Lecture: A roadmap for milk bioactives, RMI, Hosting a delegation from the Beijing University of Chemical Technology, China. 2015.
49. December 10, Invited talk: Beyond essential nutrition: discovering & delivering bioactive compounds, John E. Kinsella Memorial Symposium and Lecture The Fitzgerald Debating Chamber, University College Dublin (Ireland) . 2015.
50. Invited talk: New opportunities and challenges for bioactive ingredients manufacturing, One Health Center Graduate Education Conference, Western Institute for Food Safety and Security, UC Davis January 24, 2015. 2015.
51. July 2, Guiding the food supply to consumers, Campus visit by Mengniu Dairy Group Co. Ltd UC Davis Conference Center. 2015.
52. July 21, Invited talk: Processing strategies for the purification of oligosaccharides from donor milk and agricultural streams, FASEB Science Research Conferences: Origins and Benefits of Biologically-Active Components of Human Milk. Big Sky, MT, USA. 2015.
53. March 15, Seminar: Personalizing foods, nutrigenomics, "FOOD IS A CONVERSATION," Food Innovation Program, Reggio Emilia, IT. 2015.
54. March 19, Invited talk: Food digestion: what milk can teach us from the infant's perspective, 4th International Conference on Food Digestion, Naples, IT. 2015.
55. March 25, Invited seminar: Functional properties and sources of recently identified bioactive Food components, Future Food Institute, University of Modena and Reggio Emilia, IT. 2015.
56. March 26, Invited seminar: Personalizing foods and nutrigenomics, Future Food Institute, University of

Modena and Reggio Emilia, IT. 2015.

57. March 26, Key Note Lecture: Taking lessons from Nature: the "omics" of bioguided processing for personalized health, Food Innovation Program, Reggio Emilia, IT. 2015.
58. May 10, Invited talk: Novel tools to evaluate bioactive compounds in dairy products. Department of Food Technology, Unicamp, Campinas (Brazil) . 2015.
59. May 12, Invited talk: Integrating biology and new 'Omics to guide diet, health and agriculture. FAPESP-UC Davis Research Symposium in São Paulo (BR) . 2015.
60. May 21, New technologies to discover new bioactive compounds in foods, World Bank – Haiti – Coffee Production. Alumni Center, Allewelt Conference Room, UC Davis. 2015.
61. May 28, Invited seminar: Beyond essential nutrition: Cultivating friendly bacteria with old and new prebiotics, IMB Research Distinguished Speaker series, Accelerated Discovery Lab, IBM Almaden Research Center, San Jose CA. 2015.
62. November 9, Invited talk: Innovation in milk research, visit of a delegation of Italian entrepreneurs led by the Governor of Emilia Romagna. UC Davis. 2015.
63. October 26, Moderated industry panel on "Impacts of Microbiomes" at the FALL 2015 University-Industry Consortium Meeting – UC Davis Conference Center. 2015.
64. December 1, Guest lecture: Milk bioactive compounds at the interface of food and health, Graduate Group In Nutritional Biology & Western Human Nutrition Research Center, UC Davis.
65. October 17, Guest lecture: Milk bioactive compounds: prebiotic effect and beyond, Emerging Challenges in Microbiology and Immunology (MMI 291), UC Davis. 2014.

Patents Granted

1. **Barile D**., German J.B., Mills D., Lebrilla C.B., Locascio R. Bovine milk oligosaccharides. European patent WO/2012/009, 315 issued Aug 1, 2014, also granted in US and Canada.

OTHER PROFESSIONAL ACTIVITIES

Committees

Department/Section

2018	Chair of mentoring committee for tenure-track Assistant Professors
2018	Admission committee for the UCD Food Science Graduate Group
2017	Represented the FST Chair at the meeting with BASF, the world's leading chemical company. May 18, Kemper Hall, UC Davis.
2016–2016	Committee for the selection of Teaching Assistants of the Food Science Graduate Group.
2016–2017	Member of the Food Science Graduate Group Executive Committee.
2015–2016	FST 101A and FST 101B Review Committee for the FST and Nutrition majors.
2015	Faculty representative at the CA&ES Faculty Executive Committee (FEC) Learning Management System (LMS) consultation meetings.
2015	Acted as Master Adviser in the CA&ES 2015 Commencement ceremony.
2014	Food Science Department, Hiring an SRA to manage teaching labs and safety.

School/College/Division

2015	FST Department Representative–College of Agricultural and Environmental Sciences Academic and Strategic Planning Committee.
2014–present	Affiliated Faculty, UC Davis Department of Italian and French–provide scientific exposure to students in the Department of Italian and French.

2013–present	NIH faculty trainer for the Designated Emphasis in Biotechnology (DEB) graduate program. Attend annual biotechnology retreat, seminars and serve on Qualifying Exams for DEB students.
2011–present	Member–Forensic Science Graduate Group, participating in meetings and initiatives of the Forensic Science Graduate Group.

Campus-wide

2016–present	Research faculty affiliated with the UC Davis Coffee Center (https://coffeecenter.ucdavis.edu/).
2016	Shimadzu research partnership. Meeting with Shimadzu leadership to discuss establishing a UC Davis Analytical Innovation Research Laboratory.
2016	Moderator–One poster session at the 27th Annual Undergraduate Research, Scholarship & Creative Activities Conference, Student Community Center, UC Davis, March 11,2016.
2015	FST Department Representative–Academic Senate Representative Assembly.
2011–present	Stakeholders education–RMI Milk Processing Lab Tours and demonstrations.

Recruitment activities

Hosted STEM Transfer Students from Northern California Community Colleges (November 4, 2016).
Hosted the Chemistry Career Club from the California State University (January 30–February 2, 2017).

TEACHING EXPERIENCE

Instructor of record for the following courses

FST101B	2013–present.Undergraduate course: Food Properties. Lecture and laboratory. Sole Instructor. Instructor rating 4.5 / 5
FST201	2012-present. Graduate course: Food Chemistry and Biochemistry. Lecture. Co-teaching with Dr. A. Taha. Average Instructor rating 4 / 5
FST192	Internship. 2011–present. Sole Instructor.
FST 199	Special Study. 2011–present. Sole Instructor.
FST290C	Adv Research Conf. 2011-present. Sole Instructor.
FST 299	Research. 2011–present. Sole Instructor.

EXPERIENCE IN DIRECTING RESEARCH:

Recent Dissertations Directed (Chair and primary advisor only)

1. Tian, Tian: PhD in Food Science, degree awarded in 2017. Topic: Oligosaccharides in coffee and coffee streams.
2. Weinborn, Valerie: PhD in Food Science, degree awarded in 2018. PhD student in Food Science. Topic: Extraction and of bovine milk oligosaccharides from dairy streams and enzymatic modification.
3. Robinson, Randall: PhD in Food Science, degree awarded in 2018. Topic: Identification of factors influencing oligosaccharide abundance in bovine milk.
4. Cohen, Josh: PhD in Food Science, degree awarded in 2018. Topic: Refining dairy whey streams into high value added biofuel co-products.
5. Bunyatratchata Apichaya: degree in progress, PhD student in Food Science. Topic: Investigating the effect of enzymatic cleavage of N-glycans on protein digestibility and bifidogenic activity.
6. Shankar Shalini: degree in progress, MS in Food Science. Topic: Evaluation of the use of non-antibiotic alternatives in calf rearing and their impact on calf health.
7. Duhram Sierra: degree in progress, PhD student in Food Science. Topic: Investigating the Maillard Reaction to preserve milk oligosaccharide bioactivity.

8. Yu-Ping Huang: degree in progress, PhD student in Food Science. Topic: Glycoproteomics of almond and effect of processing on bioactive compound functionality.

International Visiting Scholars hosted (2014–2017): only stays >3 months reported

2014–2015	Paola Domizio, PhD, Visiting Professor, University of Florence, Italy
2014	Niamh Murray, visiting PhD Student, University College Dublin, Ireland
2014	Christa Smink, Visiting MS Student, Wageningen University, Netherlands
2014	Stefania Chiodini, Visiting MS Student, University of Piedmont, Italy
2016	Chloe Alisson Duchene, Visiting MS student, Agrocampus-Ouest, France
2016	Anne Laure Carole Pacaud, Visiting MS student, Agrocampus-Ouest, France
2015	Andrea Martín Ortiz, visiting PhD Student, Instituto de Química Orgánica General Madrid Spain
2016	Nina Aagaard Poulsen, Visiting Professor, Aarhus Univeristy, Denmark
2015-2016	Coline Martin, Visiting MS student, PhD Student at Montpellier SupAgro, France
2015	Laura Ruiz Aceituno, Visiting PhD Student, Instituto de Química Orgánica General Madrid, Spain
2015-2016	Emeline Colet, Visiting MS student, Student at Chimie-Paristech, France
2015-2016	Etienne T. Laborie, Visiting MS student, Student at Chimie-Paristech, France
2016	Aifric O'Sullivan, Visiting Professor, Assistant professor at UC Dublin, Ireland
2015	Ana Lucia Barretto Penna, Visiting Professor, Universidade Estadual Paulista, Campus de São José do Rio Preto, Brazil
2017	Juliana Aparecida Dos Santos Leite, PhD Student, São Paulo State University, Brazil
2017	Calypso Bardot, MS student, Montpellier SupAgro, France
2017	Aifric O'Sullivan, Visiting Professor, University College Dublin, Ireland
2017	Sabrina Cesarotti, PhD student, São Paulo State University, Brazil

Undergraduate students mentored (2014-2017)

Van Zandt Alexandria E.; Kesaruck, Anchaya; Lelakulwaj, Varit; Dyandra, Melissa, Wang, Xinyue; Pratama Ratna; Hsiao Vivian; Tjahjadi Adeline; Gong Haohan, Darkazanli Anwar; Brooke Lusa; Kristel Dwita, Yunyao Qu, Dela Cruz Daryl Ann, Won Savanna.

Extending Knowledge

Broadcast, Print or Electronic Media

"Breast milk science: Toward preemie probiotics," Website, July 29, 2014, NewsBeat, news from the College of Agricultural and Environmental Sciences.

Interviewed by Food Bloggers from Best Food Facts, Website, 06/03/2015, http://www.bestfoodfacts.org/.

Interviewed by Sharon Gerdes for Dairy Foods, Magazine Article, 06/22/2015.
In Defense of Food, Television Interview, 10-10-2015, The documentary featuring my interview aired on PBS on Dec. 30, 2015 and was nominated for the 2017 Emmy Award (recognizing excellence in the television industry).
Interviewed by Sao Paolo Media (Brazil) about my work on Foods & Health, Television Interview, 05-13-2015, My interview was also selected to be permanently featured on the website http://www.fapesp.br/week2015/ucdavis/fapesp-week-uc-davis-in-brazil-foods-for-health/.
Interviewed by Sandeep Ravindran in SPLASH! milk science update: Producing human milk sugars for use in formula, Website, October 2015, http://milkgenomics.org/article/producing-human-milk-sugars-for-use-in-formula/.
Interviewed by Bob Johnson, "Searching for Miracles at the UC Davis Milk Processing

Lab," for Ag Alert, the state Farm Bureau newspaper, Magazine Article, January 7, 2016.

Interviewed by Kristen Simoes, KQCA KCRA3 Television, Television Interview, 2/12/2016.

Interviewed by Sandeep Ravindran in SPLASH! milk science update: "Dairy industry's opportunity to combat malnutrition with milk sugars," Website, April 5, 2016, http://milkgenomics.org/article/combatting-malnutrition-with-milk-sugars.
Interviewed by Gillian Allen for The Aggie: Women in STEM, Website, 04/18/2015, https://theaggie.org.

Breast-Feeding the Microbiome. The New Yorker. Interviewed by Ed Yong, Website, July 22, 2016, http://www.newyorker.com/tech/elements/breast-feeding-the-microbiome.

Interviewed for "Our College is Cool," a video created for the College of Agricultural and Environmental Sciences, Website, July 20, 2016, http://www.caes.ucdavis.edu/news/multimedia/2016/our-college-is-cool.
My work was featured in the New York Times Bestseller book by Ed Yong titled "I contain multitudes: the microbes within us," 2016.

Featured in "Highlights of the 13th Annual IMGC Symposium." SPLASH! Milk Science Update, Website, 10/5/2016.

My work on milk fractionation was mentioned in the Newsletter UCDSquared, jointly published by UCD in Dublin (Ireland) and UCD in Davis, Magazine Article, 2017.