25 YEARS Strengthening Knowledge and Understanding of Dietary Supplements

ODS 25th Anniversary Scientific Symposium

Virtual Meeting
October 25, 2021 10:00 a.m. – 5:00 p.m. ET
October 26, 2021 10:00 a.m. – 4:00 p.m. ET

Speakers

James Anderson, Ph.D., M.D., is the director of the Division of Program Coordination, Planning, and Strategic Initiatives at the National Institutes of Health (NIH). Prior to joining NIH, he was a professor and chair of the Department of Cell and Molecular Physiology in the School of Medicine at the University of North Carolina at Chapel Hill and a professor of medicine and cell biology and chief of the Section of Digestive Diseases at the Yale School of Medicine. Dr. Anderson has extensive clinical experience in both internal medicine and hepatology and he is considered among the top authorities in the world in his primary research field of tight junctions and paracellular transport. He conducts his research of the paracellular barrier in a laboratory in the Intramural Research Program of the National Heart, Lung, and Blood Institute. He has been a principal investigator on NIH grants for almost 20 years. With experience in clinical medicine, academic research, and administration, Dr. Anderson has a broad understanding of the biomedical research spectrum that will inform his work with the NIH community in evaluating, prioritizing, and coordinating a wide range of trans-NIH research opportunities. He graduated from Yale University and received his Ph.D. in biology from Harvard University and his M.D. from Harvard Medical School.

Karen W. Andrews, B.S., manages the Dietary Supplement Ingredient Database (DSID) research program, a joint project of the Office of Dietary Supplements (ODS)/National Institutes of Health (NIH) and the U.S. Department of Agriculture (USDA). The DSID provides estimated levels of ingredients in dietary supplement (DS) products sold in the United States (https://dsid.usda.nih.gov). These statistically predicted estimates are based on the chemical analysis of nationally representative DS and may differ from labeled amounts. Epidemiological studies of nutrient intake and health that include DS currently use the manufacturer's label information. The DSID is a tool that can be used to estimate intakes from DS more accurately. Ms. Andrews is a member of the American Chemical Society, the American Society for Nutrition, and AOAC International. Previously she was an analytical research chemist for Texaco, Inc., and W. R. Grace and Co., where she focused on the carbohydrate fractions of foods. She received her B.S. in chemistry from The Pennsylvania State University.

Richard Bailen, M.B.A., M.H.A., is a senior program analyst at the National Institutes of Health's (NIH's) Office of Dietary Supplements (ODS). His primary responsibilities include business management of the ODS extramural grants portfolio and project management of ODS database initiatives. He served as project manager for the design, development, deployment, and enhancement of the ODS custom database known as the Grants Efficiency Management System (GEMS) and currently serves as the GEMS system administrator, managing the system's daily operations. GEMS has streamlined the quarterly grant review process at ODS from application receipt through review and award. In collaboration with many NIH Institutes, ODS co-funds meritorious grant

applications falling within the scope of the ODS mission—to support research advancing the science of dietary supplements. Mr. Bailen also is the ODS project manager for the Dietary Supplements Label Database Initiative. Coordinating the efforts of NIH scientific program staff and a private contractor, he oversaw the design, development, and demonstration of this database intended to serve the needs of researchers and educators by providing public access to the information on the labels of the estimated 50,000 dietary supplements sold in the United States. He manages the deployment and data population aspects of this high-profile project. Before joining ODS, Mr. Bailen worked as a program analyst at the National Cancer Institute (NCI), where he coordinated all administrative and information technology aspects of the extramural grants process for the NCI's Division of Cancer Treatment and Diagnosis. He received his M.B.A. and M.H.A. from Arizona State University and his bachelor's degree in business from the University of Massachusetts at Amherst.

Regan Bailey, Ph.D., R.D., is a registered dietitian and a professor in the Department of Nutrition Science at Purdue University. She also directs the Indiana Clinical and Translational Science Institute, Purdue Diet Assessment Center. Previously she was a nutritional epidemiologist and the director of career development and outreach at the National Institutes of Health's (NIH's) Office of Dietary Supplements (ODS). The focus of research in the Bailey lab is to improve the methods of measuring nutritional status to optimize health. She utilizes nationally representative survey data to characterize the American dietary landscape; to identify the optimal methods for assessment of biomarkers of nutritional status; and, importantly, to understand how dietary intakes relate to health outcomes. Dr. Bailey's work has identified differences in nutritional exposures by gender, race, ethnicity, age, and income, suggesting the need for population-specific interventions and public health policy for interventions and policies. She is the author of more than 130 peer-reviewed scientific publications and has been elected to the National Academy of Medicine for her research contributions. She received her M.S. in food and nutrition from the Indiana University of Pennsylvania, her Ph.D. in nutrition science and gerontology from The Pennsylvania State University, and her M.P.H in epidemiology and public health from the Bloomberg School of Public Health at Johns Hopkins University. She completed a postdoctoral fellowship at ODS.

Joseph M. Betz, Ph.D., is the acting director of the Office of Dietary Supplements (ODS). He directs an office whose purpose and responsibilities were defined in the Dietary Supplement Health and Education Act (DSHEA) of 1994. He also is an adjunct associate professor in the Department of Pharmacology and Physiology at the Georgetown University School of Medicine and in the Department of Cell Biology and Biotechnology at the Philadelphia College of Pharmacy and Science (now the University of the Sciences [USciences]). He joined ODS as the first director of the Analytical Methods and Reference Materials (AMRM) Program. As AMRM director, he oversaw several large intra- and extra-governmental initiatives with the goal of providing stakeholders with rugged, validated analytical methods and reference materials for measuring natural products in research, industrial, and regulatory settings. Previous positions include vice president for scientific and technical affairs at the American Herbal Products Association (AHPA) and research chemist at the Food and Drug Administration

(FDA). The author or co-author of more than 100 peer-reviewed publications and book chapters, Dr. Betz is the recipient of the American Botanical Council's first Norman R. Farnsworth Award for excellence in Botanical Research, the American Herbal Product Association's Herbal Insight Award for contributions to the Botanical Sciences, AOAC International's Technical Division on Reference Materials Reference Material Achievement Award, and the American Society of Pharmacognosy's Varro E. Tyler Prize for outstanding scientific contributions to the broad field of dietary supplements, with special emphasis on botanicals. He was recognized by the NIH Office of the Director with an Honor Award for his contributions to the establishment and development of the ODS Vitamin D Standardization Program. He is a member of the Board of Visitors of the Misher College of Arts and Sciences in the USciences, a member of the American Society of Pharmacognosy, and a fellow of AOAC International. He also is chair of the Editorial Board for the *Journal of AOAC INTERNATIONAL* and a member of the United States Pharmacopeia's Expert Committee on Dietary Supplements and serves on expert scientific advisory committees for the governments of Canada and Hong Kong. He received his B.Sc. in biology and his Ph.D. in pharmacognosy from USciences and his M.Sc. in marine and environmental Science from C.W. Post/Long Island University.

Patsy M. Brannon, Ph.D., R.D., retired as professor of nutritional sciences and director of the Cornell Dietetic Internship in June 2018 and is now a visiting professor in the Division of Nutrition at Cornell University. She also taught nutrition and the life cycle and developmental nutrition. She was a visiting scientist at the Office of Dietary Supplements (ODS), twice working on the Vitamin D Initiative and on the Iron Supplementation in Pregnancy Project. She was recognized for her distinguished career by being inducted as an American Society for Nutrition Fellow in 2018. She has served nationally and internationally in nutrition and human sciences. Key past service includes membership on the National Academies of Science, Engineering, and Medicine Food and Nutrition Board; Dietary Reference Intake Committees to Review Sodium and Potassium and Calcium and Vitamin D; and Women, Infants and Children Food Package Review Committee. She also served on the U.S. Department of Agriculture's (USDA's) National Agriculture Research, Economics, Extension, and Education Advisory Board and its Science Advisory Council; the Federation of Societies for Experimental Biology (FASEB) Science Policy Committee; and the American Society for Nutrition Advocacy and Policy Committee. Dr Brannon was the dean of the College of Human Ecology at Cornell University from 1999 to 2004, chair of the national Board of Human Sciences in 2004, and chair of the Department of Nutrition and Food Science at the University of Maryland from 1994 to 1999. Her research focused on diet-gene interactions in the placenta and exocrine pancreas and vitamin D in pregnancy. She received her Ph.D. in nutritional biochemistry from Cornell University and her B.S. *magna cum laud* and M.S. in nutrition and food science from Florida State University.

LaVerne Brown, Ph.D., is a program director at the Office of Dietary Supplements (ODS), where she is interested in research that explores the impact of dietary supplement use on resilience and health in diverse populations. As chair of the Trans-NIH Resilience working group, her work focuses on elucidating mediators of resilience to help gain a better understanding of how adaptations to environmental and biological stressors may impact nutrient status and overall health status in individuals. Dr. Brown first joined ODS as an American Association for the Advancement of Science (AAAS) Science & Technology Policy Fellow in August 2016. In this role, she led a project to explore the vitamin D paradox in Black Americans. A 2017 forum on the topic, which she organized in collaboration with the National Institute on Minority Health and Health Disparities, National Institute on Aging, and National Institute of Diabetes and Digestive and Kidney Diseases, provided insight into the state of the science with respect to key knowledge gaps impacting vitamin D status and bone health. Previously she was an associate professor of medicinal and organic chemistry. Her research interests included the isolation and chemical characterization of active molecules from natural products as well as the design and synthesis of novel small molecules to better understand the role of nicotinic acetylcholine receptors in neurological disorders. She received her B.S. in chemistry from Old Dominion University and her Ph.D. in organic/natural products chemistry from Virginia Commonwealth University and completed postdoctoral training in medicinal chemistry at the National Institute on Drug Abuse.

Dr. Nadja B. Cech is the Patricia A. Sullivan Distinguished Professor of Chemistry at the University of North Carolina, Greensboro. She supervises a dynamic research group engaged in developing novel mass spectrometry metabolomics approaches to solve challenging problems in natural products research. A major focus of this work is developing novel methodologies to identify combinations of molecules that interact to achieve biological effects (additivity, synergy, or antagonism). Dr. Cech is the recipient of the 2011 Jack L. Beal Award from the *Journal of Natural Products* and the 2017 Thomas Norwood Award for Undergraduate Research Mentorship. She is a principal investigator for the National Center for Complementary and Integrative Health (NCCIH)- and Office of Dietary Supplements (ODS)-funded Center for High Content Functional Annotation of Natural Products, the co-director of the Analytical Core for the Center of Excellence for Natural Product Drug Interaction, and the co-director of the Medicinal Chemistry Collaborative.

Emily Y. Chew, M.D., is the director of the Division of Epidemiology and Clinical Applications and the chief of the Clinical Trials Branch at the National Institutes of Health's (NIH's) National Eye Institute (NEI). She is a board-certified ophthalmologist who specializes in medical retina. She designed and conducted the Age-related Eye Diseases Study (AREDS), which was a randomized clinical trial of oral supplementation with antioxidant vitamins and zinc with copper for the treatment of age-related macular degeneration (AMD), the leading cause of blindness in the United States and the developed world. In a subsequent clinical trial, the AREDS2, lutein/zeaxanthin and omega3 fatty acids (DHA and EPA) were evaluated as additional therapies for AMD. Dr. Chew is the editor in chief of *Ophthalmology Science*. She received her M.D. from the University of Toronto; completed her residency in ophthalmology at the University of Toronto; and completed her medical retina fellowships at the Wilmer Eye Institute, Johns Hopkins University, and the University of Nijmegen.

Paul M. Coates, Ph.D., is the president of the American Society for Nutrition. He retired from federal service in 2018 and, since that time, has consulted with universities, focusing on faculty members developing grant applications for submission to the National Institutes of Health (NIH). He has provided guidance at key stages of their academic career development. He was director of the Office of Dietary Supplements (ODS) at the National Institutes of Health (NIH) and, through a range of initiatives by an energetic and knowledgeable staff, he established ODS as a strong and authoritative voice for rigorous science in dietary supplements and related areas of nutrition. ODS continues to address many of the key issues in dietary supplements, from critical evaluation of the literature to supporting and conducting science and translating the results of that work into reliable and effective information for the public. His office was instrumental in incorporating evidence-based review strategies into the assessment of nutrient efficacy and safety (vitamin D, calcium, sodium, and potassium, among others) and informing the development of nutrient reference intake values for populations. Dr. Coates was the acting director of the NIH Office of Disease Prevention (ODP) and served as the deputy director of the Division of Nutrition Research Coordination (DNRC) at the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). In that role, he helped to coordinate human nutrition research efforts, both at the NIH and between the NIH and other government agencies. Before joining the DNRC, he was the director of the NIDDK's Type 2 Diabetes Research Program and the project officer for the multi-center clinical study, Epidemiology of Diabetes Interventions and Complications. He maintained an active role in career development and fellowship training in the Division of Diabetes, Endocrinology, and Metabolic Diseases until his departure from NIDDK. Prior to his career at NIH, he was on the faculty of the Children's Hospital of Philadelphia and the University of Pennsylvania School of Medicine as a research professor of pediatrics and biochemistry/biophysics. His major research efforts were in inborn errors of lipoprotein metabolism and fatty acid oxidation. He is the author of more than 180 publications and the editor of four books. Dr. Coates co-chaired the joint Department of Health and Human Services/U.S. Department of Agriculture (DHHS/USDA) Steering Committee for the National Nutrition Summit, was a member of the Federal Steering Committee developing the United States/Canada Dietary Reference Intakes, was co-executive secretary of the Interagency Committee on Human Nutrition Research, and was chair of the Federal Working Group on Dietary Supplements. He received the Conrad A. Elvehjem Award from the American Society for Nutrition (ASN) for public service in nutrition, became a Fellow of the ASN, and has served in numerous roles on the ASN Board of Directors. He was lead editor of the *Encyclopedia of Dietary Supplements* and associate editor of *The American Journal of Clinical Nutrition*. He received his B.Sc. from McGill University and his Ph.D. in human genetics from Queen's University and performed postdoctoral training in the Department of Human Genetics and Biometry at University College London.

Francis S. Collins, M.D., Ph.D., was appointed the 16th director of the National Institutes of Health (NIH) by President Barack Obama and confirmed by the Senate. He was sworn in on August 17, 2009. In 2017, President Donald Trump asked him to continue to serve as the NIH director. President Joe Biden did the same in 2021. Dr. Collins is the only Presidentially appointed NIH director to serve more than one administration. In this role, he oversees the work of the largest supporter of biomedical research in the world, spanning the spectrum from basic to clinical research. Dr. Collins is a physician-geneticist noted for his landmark discoveries of disease genes and his leadership of the international Human Genome Project, which culminated in April 2003 with the completion of a finished sequence of the human DNA instruction book. He served as director of the National Human Genome Research Institute at NIH from 1993 to 2008. He is an elected member of both the National Academy of Medicine and the National Academy of Sciences, was awarded the Presidential Medal of Freedom in November 2007, and received the National Medal of Science in 2009. In 2020, he was elected a Foreign Member of the Royal Society (United Kingdom) and was named the 50th winner of the Templeton Prize, which celebrates scientific and spiritual curiosity. He received his Ph.D. in physical chemistry from Yale University and his M.D. from the University of North Carolina at Chapel Hill School of Medicine.

Cindy D. Davis, Ph.D., is the national program leader for the Program in Human Nutrition conducted by the U.S. Department of Agriculture (USDA)-Agricultural Research Service. In this role, she helps direct the scientific program for 6 Human Nutrition Research Centers. Prior to joining USDA, she was the director of grants and extramural activities in the Office of Dietary Supplements (ODS), where she actively engaged and encouraged partnerships with other National Institutes of Health (NIH) Institutes and Centers to develop a portfolio that advances both nutritional and botanical dietary supplement research for optimizing public health. She also is actively involved in a number of government working groups focused on the microbiome, including being a co-founder and co-chair of the Joint Agency Microbiome Working Group (NIH, Food and Drug Administration [FDA], National Institute of Standards and Technology [NIST] and USDA). Before coming to ODS, she was a program director in the Nutritional Sciences Research Group at the National Cancer Institute. In 2000, she received a Presidential Early Career Award for Scientists and Engineers and was named the USDA Early Career Scientist. She has published more than 135 peer-reviewed journal articles and 11 invited book chapters. She is a supplement editor for the *Journal of Nutrition*, assistant editor for *Nutrition Reviews*, and a member of the editorial board for *Advances in Nutrition*. She received her B.S. with honors in nutritional sciences from Cornell University and her Ph.D. in nutrition with a minor in human cancer biology from the University of Wisconsin, Madison. She completed her postdoctoral training at the Laboratory of Experimental Carcinogenesis at the National Cancer Institute.

Patricia A. Deuster, Ph.D., M.P.H., FACSM, CNS, is a professor in the Department of Military and Emergency Medicine and the chief science officer for the Consortium for Health and Military Performance (CHAMP), which is a Defense Center of Excellence for Human Performance Optimization, at the Uniformed Services University of the Health Sciences (USU) in Bethesda, Maryland. Visit CHAMP's websites: Human Performance Resources by CHAMP (hprc-online.org) and Operation Supplement Safety (OPSS.org). She chairs the Department of Defense (DoD) Dietary Supplement Subcommittee; is a member of the DoD Food and Nutrition Subcommittee; and serves on the Veterans Affairs (VA)/DoD Health Executive Committee Women's Health Work Group, the DoD Nutrition Committee, and various federal working groups. She has conducted research in sports, warrior nutrition, and human performance for more than 35 years. Dr. Deuster is a Fellow of the American College of Sports Medicine; a certified nutrition specialist; and has more than 300 peer-reviewed papers, numerous book chapters, and books relating to human performance with a focus on health, nutrition, dietary supplements, and total force fitness. She is a member of the Order of Military Medical Merit and received the Special Operations Medical Researcher Award from the Special Operations Medical Association in 2014 and the Distinguished Service Award in 2021. She received her A.B. in mathematics and computer science and her M.A. in education and physical education from the College of William and Mary, her Ph.D. in nutritional sciences and physiology from the University of Maryland, and her M.P.H. with an emphasis in public health and epidemiology from USU.

Johanna Dwyer, D.Sc., M.Sc., M.S., is a part-time senior nutrition scientist (contractor) at the National Institutes of Health's (NIH's) Office of Dietary Supplements (ODS), where she works on the development of a Dietary Supplement Label Database of supplement labels and the Dietary Supplement Ingredient Database that provides analytically substantiated values for key ingredients in dietary supplements. She also is involved in activities on developing an understanding of dietary supplement motivation and use on the part of Americans and in studies involving several large-scale population surveys on use of dietary supplements. She also is the director of the Frances Stern Nutrition Center at Tufts Medical Center, professor of medicine (nutrition) and community health at the Tufts University Medical School, and professor of nutrition at the Friedman School of Nutrition Science and Policy at Tufts University. She also is a senior scientist at the Jean Mayer/U.S. Department of Agriculture (USDA) Human Nutrition Research Center on Aging at Tufts University. Dr. Dwyer is the author or co-author of more than 250 original research articles and 300 review articles published in scientific journals on topics including dietary supplements, preventing diet-related disease, maximizing quality of life and health in the elderly, and vegetarian and other alternative lifestyles. In addition to her work as a scholar and clinician, her interests in public policy and, specifically. nutrition policy have led to extensive involvement and assignments in Washington, DC. Work on such projects has included the White House Conference on Food, Nutrition and Health; the organization of nutrition research in the federal government; strengthening the role of human nutrition in the USDA; and assuring that the national population-based nutrition surveys remain strong. She is a member of the National Academy of Medicine and the National Academy of

Sciences and served on its Council. She also has been active in several professional associations. From 2001 to 2002, Dr. Dwyer worked as the assistant administrator for human nutrition at the USDA's Agricultural Research Service. She is the past president of the American Institute of Nutrition, past secretary of the American Society for Clinical Nutrition, and past president and a Fellow of the Society for Nutrition Education and was a member of the Food and Nutrition Board of the National Academy of Sciences. Dr. Dwyer was a member of the Year 2000 Dietary Guidelines Committee. She served as a study section member for the NIH and on the Board of Scientific Counselors for the National Cancer Institute's Division of Cancer Prevention and Control. As a Robert Wood Johnson Health Policy Fellow, she served on the personal staffs of Senator Richard Lugar (R-Indiana) and the Hon. Barbara Mikulski (D-Maryland). She served on President Carter's President's Reorganization Project in the Executive Office of the President at the White House. She also was vice chair and later chair of the food advisory group of the Office of Technology Assessment, U.S. Congress. Dr. Dwyer received the W. O. Atwater Award from the USDA, the J. Harvey Wiley Award from the Society for Nutrition Education, the American Dietetic Association's Medallion Award, the Academy of Nutrition and Dietetics Elaine Monsen Award, and the Academy of Nutrition and Dietetics/Institute of Food Technology Trailblazer Award. She received her D.Sc. and M.Sc. from the Harvard School of Public Health and her M.S. from the University of Wisconsin and completed her undergraduate degree with distinction from Cornell University.

Abby G. Ershow, Sc.D., R.D., FAHA, is a senior nutrition scientist at the National Institutes of Health's (NIH's) Office of Dietary Supplements (ODS). Previously she was an extramural program director in nutrition at the National Heart, Lung, and Blood Institute (NHLBI) and a staff fellow in the Epidemiology and Biostatistics Program of the National Cancer Institute (NCI). She also completed a detail assignment as a visiting analyst at the U.S. Government Accountability Office. A registered and Maryland-licensed dietitian, she is a member of the American Society for Nutrition and the American Chemical Society and is an elected Fellow of the American Heart Association. She is the author or co-author of 9 book chapters and more than 50 peer-reviewed articles and monographs. She also was a coordinating editor for the only full-length text on conducting controlled diet studies in humans. Dr. Ershow's areas of interest include maternal and child health, cardiovascular nutrition, exercise physiology, preventive medicine, vascular biology, public health, nutritional epidemiology, nutrition and developmental disabilities, food chemistry, and metrics for evaluation of program effectiveness. A recent focus is assessment of iodine status and databases on the iodine content of foods and dietary supplements. Other longstanding interest areas include heart failure, diabetes, obesity, peripheral arterial disease, chronic kidney disease, and the use of biomedical engineering approaches to address nutrition research issues. She has expertise with interagency agreements and other collaborative funding mechanisms. She received her a B.A. in biological sciences (physiology) from Cornell University; her Sc.D. in nutrition, physiology, and biostatistics from the Harvard School of Public Health; and her Certificate in Public Leadership from the Brookings Institution. She also received certificates in strategic planning and performance measure development from the Balanced Scorecard Institute.

Annette Fitzpatrick, Ph.D., is a research professor in the Departments of Family Medicine, Epidemiology, and Global Health at the University of Washington (UW), Seattle. Her research interests include studies of aging and chronic diseases, cardiovascular disease and its risk factors, physical and cognitive functioning in the elderly, dementia including Alzheimer's disease and vascular dementia, and chronic disease in low- and middle-income countries. She was the program director of the Ginkgo Evaluation of Memory Study (GEMS) Coordinating Center at UW throughout the trial and continues to work with GEMS data in ongoing ancillary studies. She received her B.S. in biology from Loyola University, her M.A. in zoology from Southern Illinois University, and her Ph.D. in epidemiology from the UW.

Jaime J. Gahche, Ph.D., M.P.H., is a nutritional epidemiologist in the Office of Dietary Supplements (ODS) Population Studies Program. Her work focuses on assessing the use of dietary supplements in the United States and investigating the role of dietary supplements in disease prevention and health promotion, using data from health surveys and epidemiologic studies. Prior to joining ODS, Dr. Gahche worked as a nutritional epidemiologist in the Division of National Health and Nutrition Examination Surveys (NHANES) at the Centers for Disease Control and Prevention's (CDC's) National Center for Health Statistics. She directed the effort to collect and process dietary supplement data collected in NHANES from 2005 to 2016. During that time, she also worked closely with colleagues at ODS to characterize dietary supplement usage in the U.S. population. She received her B.S. in nutritional sciences from Cornell University, her M.P.H. from The George Washington University, and her Ph.D. in nutrition from the University of Maryland, College Park.

Carol Haggans, M.S., R.D., is a scientific and health communications consultant with the Office of Dietary Supplements (ODS) at the National Institutes of Health (NIH). In this role, she handles a variety of health communications activities including writing and updating the ODS dietary supplement fact sheets and the consumer-focused e-newsletter, *The Scoop*. She also leads the ODS public inquiry program and researches and responds to inquiries from consumers, health professionals, and the media about dietary supplements. In addition, Ms. Haggans is a member of the NIH Nutrition Education Subcommittee, a group that reviews federally developed nutrition education materials written for the public to ensure consistency with the *Dietary Guidelines for Americans*. She is a member of the American Society for Nutrition and the Academy of Nutrition and Dietetics. She received her M.S. in nutrition from the University of Minnesota, where she conducted clinical research on the effects of flaxseed consumption on estrogen metabolism and breast cancer risk. Prior to that, she worked in the information technology field as a manufacturing and technical service engineer after receiving her B.S. in mechanical engineering from Rensselaer Polytechnic Institute.

Patricia A. Haggerty, Ph.D., is the director of Grants and Extramural Activities in the Office of Dietary Supplements (ODS). In this capacity, she actively engages and encourages partnerships with other NIH research Institutes and Centers to facilitate funding of extramural grants of high relevance to the ODS mission and goals. Previously she was a senior advisor to the director and associate director for Operations at the National Institute of Allergy and Infectious Diseases (NIAID), a branch chief in the Office of Scientific Review at the National Heart, Lung, and Blood Institute (NHLBI), and the executive secretary of the NHLBI Clinical Trials Review Committee. Dr. Haggerty's primary research interests at the NIH include the biology of nutrition and its relationship to the immune system, infectious disease, and cardiovascular disease. Her graduate studies led to extensive research and field experience in international nutrition policy, program planning, implementation, and evaluation in least developed countries (LDCs). For two decades Dr. Haggerty worked with global nutrition entities including the U.S. Agency for International Development (USAID), the Food and Agriculture Organization (FAO), the World Health Organization (WHO), and U.S. Private Voluntary Organizations (PVOs) on Vitamin A supplementation; breastfeeding; child survival; water, sanitation, and hygiene (WASH); integrated management of childhood illnesses; demographic and health surveys; and the USAID Title II nonemergency development programs. She has lived in Burkina Faso and the Democratic Republic of the Congo. She received her M.Sc. in nutritional biochemistry and metabolism from the Massachusetts Institute of Technology and her Ph.D. in human nutrition from the London School of Hygiene and Tropical Medicine.

Adam J. Kuszak, Ph.D., is a health scientist administrator in the Office of Dietary Supplements (ODS) and the director of the ODS Analytical Methods and Reference Materials (AMRM) Program. Through AMRM, he works with stakeholders involved in research, industry, and regulatory affairs to support scientific resource development and promote biomedical research on the mechanisms and health effects of dietary supplements and natural products. In addition, he provides scientific expertise and analyses to facilitate ODS initiative development, program management, strategic planning, and evaluation. Dr. Kuszak's primary research interests are elucidating the mechanisms of action and effects on cellular signaling networks of natural products and drugs and their chemical and biological characterization. He received his B.S. in pharmacology and toxicology from the University of Wisconsin, Madison, and his Ph.D. in pharmacology from the University of Michigan. He completed his postdoctoral training at the National Institute of Diabetes and Digestive and Kidney Diseases and joined the ODS as an American Association for the Advancement of Science (AAAS) Science & Technology Policy Fellow in 2014.

JoAnn E. Manson, M.D., M.P.H., Dr.P.H., is a professor of medicine and the Michael and Lee Bell Professor of Women's Health at Harvard Medical School, a professor in the Department of Epidemiology at Harvard T.H. Chan School of Public Health, and the chief of the Division of Preventive Medicine at Brigham and Women's Hospital (BWH). She is a physician-epidemiologist, endocrinologist, and principal investigator (PI) or co-PI of several research studies, including the Women's Health Initiative Clinical Center in Boston, the cardiovascular component of the Nurses' Health Study, the VITamin D and OmegA-3 TriaL (VITAL), the COcoa Supplement and Multivitamin Outcomes Study (COSMOS), and the VItamin D for COVID-19 (VIVID) trial. Her primary research interests include randomized clinical prevention trials of

nutritional and lifestyle factors related to heart disease, diabetes, and cancer; the role of endogenous and exogenous estrogens as determinants of chronic disease; and biomarker predictors of cardiovascular disease (CVD). Dr. Manson has received numerous honors, including the American Heart Association's (AHA) Population Research Prize, the AHA's Distinguished Scientist Award, the AHA's Research Achievement Award, election to the Institute of Medicine of the National Academies (National Academy of Medicine), membership in the Association of American Physicians (AAP), fellowship in American Association for the Advancement of Science (AAAS), the Woman in Science Award from the American Medical Women's Association, the Bernadine Healy Award for Visionary Leadership in Women's Health, the Massachusetts Medical Society awards in both Public Health and Women's Health Research, and the James D. Bruce Memorial Award for Distinguished Contributions in Preventive Medicine from the American College of Physicians. She has published more than 1,200 articles, is the author or editor of several books and textbooks, serves as editor in chief of *Contemporary Clinical Trials*, and is a past president of the North American Menopause Society. She is one of the most highly cited researchers in the world and was one of the physicians featured in the National Library of Medicine's exhibition, History of American Women Physicians. She received her M.D. from Case Western Reserve University School of Medicine and her M.P.H. and Dr.P.H. from the Harvard School of Public Health.

Bernadette P. Marriott, Ph.D., holds the positions of professor emerita in the Division of Gastroenterology and Hepatology of the Department of Medicine and professor emerita in the Military Division of the Department of Psychiatry at the Medical University of South Carolina (MUSC). She has had 40 years of funded research experience in the fields of nutrition, psychology, and comparative medicine. Dr. Marriott has worked in scientific settings in the federal government, universities, and foundations. Among past positions are founding director of the National Institutes of Health's (NIH's) Office of Dietary Supplements (ODS), deputy director and acting director of the Food and Nutrition Board (FNB) of the Institute of Medicine, vice provost for research and dean of the graduate college at Northern Arizona University, vice president positions at the Burroughs Wellcome Fund and RTI International, and associate director of the Caribbean Primate Research Center. Her research has focused on the interface of nutrition and behavior in humans and nonhuman primates. Her recent human projects have been clinical or epidemiological studies of diet and health outcomes. Dr. Marriott has quantified the food intake of wild and free-ranging monkeys in natural habitats in Asia and Puerto Rico and determined the taxonomy and nutrient composition of the plants consumed. This work has contributed key nutrient knowledge to international databases and native foods programs. In 2016, she was made a Fellow of the American Society for Nutrition and in 2017 she was invited to be a member of the Food and Nutrition Board of The National Academies. She has published extensively and has been on several national and international committees and university and nonprofit scientific advisory boards. Dr. Marriott was a founding member of the American Primatological Society and an early member of the International Union for Conservation of Nature (IUCN) Primate Specialist Group and has been active throughout her career in conservation activities. She particularly enjoys studying nonhuman primate feeding because, unlike humans, monkeys do not lie about their diet!

Lori Minasian, M.D., FACP, a medical oncologist, is the deputy director of the Division of Cancer Prevention at the National Cancer Institute (NCI). She is a leader in NCI clinical trials, first leading the NCI's Community Clinical Oncology Program (a community-based clinical trials program) for more than 15 years and then supporting a variety of the processes in the restructuring of the NCI's clinical trials programs. She has facilitated the development of cancer prevention and symptom management clinical trials and the incorporation of patient-reported outcomes in cancer clinical trials. Dr. Minasian was the program director of the SELECT trial and was involved in all aspects of the design, development, and conduct of the trial. She facilitated the transition of the trial into a cohort for ongoing research; 20 years after the SELECT trial was conducted, the biospecimens and data remain a resource for investigators around the world. In addition to her administrative position, she participates in the NCI's Women's Malignancy Clinic seeing patients, supervising fellows, and participating in the development and implementation of clinical trials using novel agents. She received her M.D. from the George Washington University School of Medicine and completed a fellowship in medical oncology at the Memorial Sloan-Kettering Cancer Center.

Katie M. O'Brien, MSPH, Ph.D., is a staff scientist in the Epidemiology Branch of the National Institutes of Health's (NIH's) National Institute of Environmental Health Sciences (NIEHS), where she helps lead the Sister Study, a prospective cohort study designed to identify environmental and genetic risk factors for breast cancer. Within the study, her main interests include how environmental and hormone-related exposures are related to breast, ovarian, and uterine cancers. This includes several studies of the association between vitamin D and breast cancer. Her mission as a cancer epidemiologist is to identify genetic and environmental determinants of breast and other cancers. To date, her primary research focus has been on risk factors for breast cancer among African American or young women. She also has studied racial disparities in breast cancer survival, genetic risk factors for gastrointestinal stromal tumors, and epidemiological methods. As an independent researcher, Dr. O'Brien plans to study how genetic and epigenetic factors modify susceptibility to environmental exposures or specific cancer treatments and how cancer etiology differs by race and age. Her ultimate goal is to identify ways to prevent and effectively treat cancer, especially among individuals at high risk of cancer-related mortality. She received her MSPH and Ph.D. in epidemiology from the University of North Carolina, Chapel Hill.

Elizabeth N. Pearce, M.D., is a professor of medicine in the Section of Endocrinology, Diabetes, and Nutrition at Boston University School of Medicine. She also serves as the regional coordinator for North America for the Iodine Global Network. She is an associate editor for *Thyroid* and the *Journal of Clinical Endocrinology and Metabolism* and has served on multiple editorial boards including those for *Clinical Endocrinology, Endocrine Practice, Clinical Thyroidology*, and *Lancet Diabetes & Endocrinology*. She was the 2018–2019 president of the American Thyroid Association and co-chaired the American Thyroid Association's 2017 Thyroid in Pregnancy Guidelines Task Force. Her research interests include the sufficiency of dietary iodine in the United States, thyroid function in pregnancy, the thyroid effects of environmental perchlorate exposure, and the cardiovascular effects of subclinical thyroid dysfunction. Dr. Pearce was the 2011 recipient of the American Thyroid Association's Van Meter Award for

outstanding contributions to research on the thyroid gland and was the 2018 Women in Thyroidology Woman of the Year. She received her undergraduate degree from Harvard University, her M.D. from Harvard Medical School, and her M.S. in epidemiology from the Boston University School of Public Health. She completed her residency in internal medicine at Beth Israel Deaconess Medical Center and her fellowship in endocrinology at Boston University.

Nancy Potischman, Ph.D., is a nutritional epidemiologist and the director of the Population Studies Program in the National Institutes of Health's (NIH's) Office of Dietary Supplements (ODS). Through the program, she focuses on the benefits and risks of dietary supplement use at various ages and issues related to food fortification. She works with large datasets, particularly the National Health and Nutrition Examination Survey (NHANES), to evaluate dietary supplement usage and to characterize the users and any associated health effects in the population. In addition, she fosters research on the assessment of biological measures of supplement exposure and measurement issues related to supplement ascertainment and laboratory assays. Dr. Potischman's research interests include nutritional epidemiology, dietary assessment methods and measurement error, dietary supplements, dietary patterns, nutrition screening, nutritional biomarkers, and population surveillance. In the past she has used her expertise in assessing diet to assist radiation epidemiologists address the impact of internal radiation from the first nuclear test in New Mexico, called Trinity. She led the team to quantify dietary intakes in the 1940s and 1950s among the populations exposed to the radiation. Ongoing work involves finalizing results from a follow-up study of a cohort in China. Most of her current work is related to addressing population nutritional status and exposures from dietary supplements. She is part of a team at the National Cancer Institute (NCI) developing and updating an automated self-administered 24-hour recall instrument (ASA24) and a working group on measurement errors related to dietary intakes and biomarkers. Prior to joining ODS, Dr. Potischman worked in the field of nutritional epidemiology in the NCI Division of Cancer Control and Population Sciences. She was involved in epidemiologic research, particularly of breast, endometrial, and cervical cancers, in the NCI Division of Cancer Epidemiology and Genetics. For several years, she worked on a newborn screening program demonstrating the benefit of early diagnosis of hypothyroidism using newborn filter paper blood spots. She received her B.S. in biochemistry from the University of Massachusetts and her Ph.D. in nutritional sciences from Cornell University.

Karen S. Regan, M.S., R.D., is a nutritionist at the National Institutes of Health's (NIH's) Office of Nutrition Research. Her responsibilities include the coordination of nutrition research and research training initiatives and nutrition research portfolio analysis to support the implementation of the 2020–2030 Strategic Plan for NIH Nutrition Research. She oversees the administration of the Computer Access to Research on Dietary Supplements (CARDS) database, performs portfolio analyses, and supports extramural activities for the Office of Dietary Supplements (ODS). Before joining NIH, Ms. Regan worked at the U.S. Department of Agriculture (USDA) National Agricultural Library's Food and Nutrition Information Center managing the Healthy School Meals Resource System database and acting as a nutrition information specialist. She received her M.S. in nutrition from the University of Maryland and she is a registered dietitian.

Leila G. Saldanha, Ph.D., R.D., FAND, is a part-time scientific consultant at the Office of Dietary Supplements (ODS) at the National Institutes of Health (NIH). She provides scientific expertise and support with the development of the Dietary Supplements Label Database (DSLD) and the Dietary Supplement Ingredient Database (DSID). The DSLD is a public use database that captures label-derived information from dietary supplement products offered for sale in the United States. She is actively involved in the modernization of the DSLD. Previously, she coordinated the modification of the LanguaL™ thesaurus to comply with U.S. dietary supplement labeling regulations for describing products in the DSLD. She coordinated the ad hoc Bioactive Food Components Federal Working Group that undertook defining bioactive components and exploring approaches to evaluating their significance in health promotion and disease prevention. She also played a lead role in the formation and implementation of the Dietary Supplements Analytical Methods and Reference Materials Program and coordinated publication of the *Annual Bibliographies of Significant Advances in Dietary Supplement Research*. Before providing consulting services to ODS, Dr. Saldanha was vice president of nutritional sciences for the Consumer Healthcare Products Association, a trade organization representing manufacturers and distributors of nonprescription medicines and dietary supplement products. She held several progressively responsible senior managerial roles during her 10-plus years at the Kellogg Company, including director of nutrition and scientific affairs for the AsiaPacific region based in Sydney, Australia. She is a Fellow of the Academy of Nutrition and Dietetics (AND) and an active professional member of AND and the American Society for Nutrition. She has authored and co-authored numerous publications. She received her undergraduate training in Bombay, now Mumbai, India, and her M.S. and Ph.D. in food and nutrition from Kansas State University.

Claus Schneider, Ph.D., is a professor of pharmacology at Vanderbilt University Medical School. His research interest is in the enzymatic and nonenzymatic formation of bioactive lipid mediators and in understanding the mechanisms of action of bioactive dietary compounds, with a special focus on curcumin. In a National Center for Complementary and Integrative Health (NCCIH)-funded project, Dr. Schneider determined the products and mechanism of degradation of curcumin, culminating in the hypothesis that curcumin acts as a pro-drug and that bioactivity, in part, is mediated by its degradation products. Current research in the lab focuses on the structural and functional characterization of eicosanoids that are formed by a biosynthetic crossover of 5-lipoxygenase and cyclooxygenase-2. Dr. Schneider is a member of the editorial board of the *Journal of Biological Chemistry* and an associate editor for *Free Radical Research*. He received his M.S. and Ph.D. in food chemistry from the University of Wuerzburg, Germany, and completed his postdoctoral fellowship in the lab of Dr. Alan Brash at Vanderbilt University.

Christopher T. Sempos, Ph.D., was the coordinator for the Vitamin D Standardization Program (VDSP) at the National Institutes of Health's (NIH's) Office of Dietary Supplements (ODS) since 2010. After retiring from NIH in 2015 he continued to coordinate the VDSP as a consultant to the ODS until April 1, 2018. Since then he has continued to coordinate the VDSP independently as a private business. Previously he was a professor of social and preventive medicine at the University at Buffalo, a nutritional epidemiologist at NIH, chief of the Longitudinal Studies Branch at the Centers for Disease Control and Prevention (CDC), and a junior staff fellow at the Food and Drug Administration (FDA). Dr. Sempos has more than 200 publications with 180 papers in peer-reviewed journals including *JAMA*, *NEJM*, *AJCN*, and *J AOAC International*. The VDSP, under his coordination, has published between 60 and 70 papers since 2012. He also is the co-author of the textbook *Statistical Methods in Epidemiology*, which is published by Oxford University Press. His primary areas of research are in Vitamin D and vitamin D assay standardization, nutritional epidemiology, and public health surveillance. He received his Ph.D. in nutritional sciences with a minor in applied sciences and his master's degree in epidemiology from the University of Wisconsin, Madison.

Howard D. Sesso, Sc.D., M.P.H., FAHA, is an associate epidemiologist in the Divisions of Preventive Medicine and Aging at Brigham and Women's Hospital (BWH), an associate professor of medicine at Harvard Medical School, and an associate professor of epidemiology at the Harvard T.H. Chan School of Public Health. He also is the associate director of the Division of Preventive Medicine, the director of nutrition research, and the co-director of hypertension research at BWH. He is an expert in the design, methodology, and conduct of randomized clinical trials and epidemiologic studies, focusing on vitamin and mineral supplements plus other lifestyle factors in the prevention of cardiovascular disease (CVD), hypertension, obesity, cancer, and other aging-related outcomes. Dr. Sesso helps lead the Physicians' Health Study, consisting of 2 separate completed clinical trials that have tested aspirin along with beta-carotene, vitamin E, vitamin C, and multivitamin supplements on cardiovascular disease, cancer, and other chronic diseases in 29,071 men with multiple blood collections and decades of follow-up. He also is testing vitamin D and fish oil supplements on 24-hour ambulatory blood pressure and hypertension risk in an ancillary study of the VITamin D and OmegA-3 TriaL (VITAL) trial and is involved in other VITAL ancillary studies. Dr. Sesso is co-principal investigator of the COcoa Supplement and Multivitamin Outcomes Study (COSMOS), an ongoing randomized, 2x2 factorial trial testing cocoa flavanol and multivitamin supplements in the prevention of CVD and cancer in 21,442 older women and men. He also has led completed and ongoing short-term trials of various dietary supplements on cardiometabolic outcomes and has published more than 300 papers to date. He received his M.P.H. from The George Washington University and his Sc.D. from the Harvard School of Public Health.

Barbara C. Sorkin, Ph.D., is the director of the National Institutes of Health (NIH) Consortium for Advancing Research on Botanicals and Other Natural Products (CARBON), a collaborative centers program focused on advancing the scientific base of knowledge about the chemistry and biological activities of botanicals and other natural products relevant to dietary supplements. Before moving to the Office of Dietary Supplements (ODS), Dr. Sorkin administered an extramural research portfolio including healthy aging, cancer, and sleep and coordinated programs to enhance clinical and translational research on complementary and alternative medicine at the NIH National Center for Complementary and Alternative Medicine (NCCAM). Prior to joining NIH, she was a faculty member at the Forsyth Institute in Boston, Massachusetts, and at the Scripps Research Institute in La Jolla, California. She received her B.S. and M.S. from the Department of Molecular Biophysics and Biochemistry at Yale University and her Ph.D. from the Laboratory of Developmental and Molecular Biology at Rockefeller University.

Amala Soumyanath, B.Pharm., Ph.D., is a professor in the Department of Neurology at Oregon Health and Science University (OHSU). She also directs the Botanicals Enhancing Neurological and Functional Resilience in Aging (BENFRA) Botanical Dietary Supplements Research Center at OHSU. The BENFRA Center is funded by the National Institutes of Health's (NIH's) Office of Dietary Supplements (ODS) and National Center for Complementary and Integrative Health (NCCIH); studies focus on the popular dietary supplements gotu kola (*Centella asiatica*) and ashwagandha (*Withania somnifera*). She also is co-director of an NCCIH-funded T32 grant for Complementary and Alternative Medicine Research Training in Neuroscience and Stress. Dr. Soumyanath is primarily a pharmacognosist, and her research investigates the chemistry and biological properties of traditionally used botanicals. Goals of this work are to promote evidence-based use of complex botanical products in healthcare and to identify novel phytochemical leads for drug development. Her current research program examines botanicals with potential use in neurodegenerative diseases, such as Alzheimer's or Parkinson's disease, or for resilience to neurological decline in aging. She has received multiple federal grants for collaborative projects examining the botanical Centella asiatica through chemical analysis, preclinical models, translational studies, and early clinical trials. She has published widely on her studies on biologically active botanicals, co-authoring the popular *Laboratory Handbook for the Fractionation of Natural Extracts* and editing a volume on antidiabetic plants for the series *Traditional Medicines for Modern Times*. She received her B.Pharm. and Ph.D. from the University of London.

Christine Lewis Taylor, Ph.D., is the chair of the American Nutrition Society's Committee on Advocacy and Science Policy. Previously she was a scientist at the Food and Drug Administration (FDA) from 1986 to 2006. She was the director of the Office of Nutritional Products, Labeling, and Dietary Supplements in the FDA's Center for Food Safety and Applied Nutrition. In this capacity, she oversaw a staff of more than 50 scientists who were responsible for research, regulation, and enforcement related to nutrition issues and dietary supplements. During this time, she also was lead of the U.S. delegation to the United Nations–sponsored Codex Alimentarius Committee on Nutrition Labeling. From 2004 to 2006 FDA assigned her to the World Health Organization, where she worked on the topic of approaches for determining dietary supplement safety. Following her retirement from the agency, Dr. Taylor was named a Scholar in the Institute of Medicine at

the National Academies in Washington, DC, where she was a study director for four projects including an evaluation of the process for setting dietary reference intakes, consensus recommendations for the standards for school lunch, identification of strategies for reducing sodium in the diet, and an evaluation of the recommended intakes for vitamin D and calcium. From 2011 to 2017, Dr. Taylor served as a contracting scientist for the Office of Dietary Supplements at the National Institutes of Health, where she conducted research and was responsible for developing workshops and conferences targeted to a range of nutrition topics.

Paul R. Thomas, Ed.D., RDN, is a scientific consultant at the Office of Dietary Supplements (ODS). In that capacity he has contributed to various projects with most of the ODS scientific staff. He works primarily in the ODS communications area, where he prepares dietary supplement fact sheets and other informational and educational materials. He also administers the Federal Working Group on Dietary Supplements, which serves as a means of communication between ODS and its federal partners to co-fund research; expand opportunities for research-investigator training; and strengthen collaborative efforts involving dietary supplement research, education, and communication. He is a registered dietitian and a member of the American Society for Nutrition. Previously Dr. Thomas was a project director at the Food and Nutrition Board of the Institute of Medicine of the National Academies. Other positions he has held include fellow and research assistant professor at the Center for Food and Nutrition Policy at Georgetown University, expert consultant to the U.S. Department of Agriculture, and senior staff scientist with the Life Sciences Research Office. From 2000 to 2003, he wrote and published a newsletter, *The Dietary Supplement*. He received his Ed.D. in nutrition education from Columbia University Teachers College.

Anne L. Thurn, Ph.D., has served as director of the Office of Dietary Supplements (ODS) Communications Program since 2004. In this role, she oversees development and dissemination of outreach materials and other activities, including the ODS website, that are designed to inform and educate the public, health care providers, and scientists about the benefits and risks of dietary supplements. She joined ODS in 2002 as the first director of the ODS Evidence-Based Review Program. In this position, she led ODS efforts to prioritize topics for evidence-based reviews with NIH Institutes and Centers. Until 2009, she oversaw ODS-sponsored evidence reviews performed by the Agency for Healthcare Research Quality's Evidence-Based Practice Center Program. Prior to joining ODS, Dr. Thurn worked in several capacities for the NIH National Cancer Institute (NCI) from 1992 to 2001, including her last position at NCI as the director of the Cancer Information Products and Systems (CIPS) Program. As CIPS director she had responsibility for all activities and operations of the program, including the Cancer.gov website. She received her Ph.D. from the department of Anatomy and Cell Biology at Columbia University and completed a postdoctoral fellowship at Georgetown University.

Zhi-Hong Yang, Ph.D., is a research fellow at the National Heart, Lung, and Blood Institute (NHLBI). She is particularly interested in better understanding the mechanism for the interaction of various dietary fatty acids with chronic diseases, including cardiovascular disease and eye disease. Her work showed for the first time that consumption of fish oil enriched in omega-11 long-chain monounsaturated fatty acid protects against diet-induced atherosclerosis in various animal models and improves lipoprotein subclass profiles in human subjects. Dr. Yang also is the key pioneer investigator for investigating fish oil-derived omega-3 very long chain polyunsaturated fatty acids (VLCPUFA) and very long chain fatty acids (VLCFA)-deficient diseases, such as age-related macular degeneration, Stargardt-like macular dystrophy (STDG3), and male infertility. In the United States, fish oils are the most used supplement; Dr Yang's research provides an enhanced understanding on the effect of other component fatty acids beyond omega-3 eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) on health conditions and, thus, could lead to significant improvements in the formulation of fish oil supplements for optimizing health. As evidence of her scientific achievement, Dr. Yang published 27 high-impact papers and 6 patents. Moreover, she received the NIH Office of Dietary Supplements (ODS) Research Scholars Program Grant in 2016 and 2020 and multiple conference awards, including the New Investigator Research Award from the American Oil Chemists' Society in 2018. She received her Ph.D. in science from Keio University.