Severo Ochoa Workshop

Advancing the Science on Environment, Climate and Cancer: Challenges and Future Research

PANELISTS

Kofi **Amegah**

Kofi Amegah is an Associate Professor of Environmental and Nutritional Epidemiology in the Department of Biomedical Sciences, University of Cape Coast, Ghana. He leads the Breathe Accra Project, funded by the Clean Air Fund, which seeks to accelerate air quality improvements in the Greater Accra Metropolitan Area to protect public health and help inspire greater action on air pollution in other African cities. He also leads the Ghana Urban Air Quality Project (GHAir), which began in 2019 and anchors the Breathe Accra Project.

His research group focuses on the interface of nutritional and air pollution exposure effects on adverse maternal, perinatal, and cardiovascular health outcomes. They also explore the biological mechanisms mediating air pollution health effects among vulnerable populations.

He recently established a birth cohort in the Cape Coast Metropolitan Area with the primary aims of unraveling cellular and molecular mechanisms, and identifying social and nutritional modifiers of household air pollution health effects.

He is a member of the International Society for Environmental Epidemiology and the Nutrition Society UK, a founding member of the AfriqAir Network, as well as a collaborator on the Global Burden of Disease studies. He participated in the World Health Organization (WHO) expert meetings of the Global Platform on Air Quality and Health, and is presently a member of the Exposure Working Group of the WHO Global Air Pollution and Health Technical Advisory Group.

He is an Associate Editor with Public Health Nutrition, Deputy Editor of Journal of Health and Pollution, and Editorial Board member of the Journal of Exposure Science & Environmental Epidemiology, Environmental Epidemiology, and Plos Global Public Health.

Andrea **Baccarelli**

Andrea Baccarelli, MD, PhD is the Leon Hess Professor and Chair of the Department of Environmental Health Sciences and serves as the Director of the NIH/NIEHS P30 Center for Environmental Health in Northern Manhattan, one of such 21 centers across the country. Dr. Baccarelli's work has supported international best practices for air pollution control developed by multiple agencies worldwide, and his findings have served as the basis for the Environmental Protection Agency's decision to enforce stricter guidelines for human exposure.

Dr. Baccarelli's research investigates molecular mechanisms as pathways linking environmental exposures to human disease.

Current projects investigate a range of mechanisms, including epigenomics, epitranscriptomics, extracellular vesicles and small non-coding RNAs, mitochondrial DNA, and the microbiome.

Dr. Baccarelli was elected to the National Academy of Medicine for his pioneering work showing that environmental exposures adversely affect the human epigenome and has been included in the Web of Science list of highly cited, world's most influential scientists of the past decade.

Robert **Barouki**

Robert Barouki, MD, PhD, is Professor of Biochemistry at Université Paris Cité and head of the Inserm unit T3S: "Toxicology, Therapeutic Targets, cellular Signaling and Biomarkers". He also heads the clinical metabolomics and proteomic biochemistry laboratory at the Necker Enfants malades hospital.

His research is focused on the impact of environmental contaminants on human health, in particular POPs and EDCs and more generally on the links between the exposome and health.

He is involved in several EU projects: HBM4EU and PARC (linking exposure to health), Heals and Neurosome (exposome), HERA (setting the research agenda in environment and health) and Oberon (EDC testing).

He has also been involved in the networking of French and European research in the field of environment and health as well as in communicating scientific data to citizens.
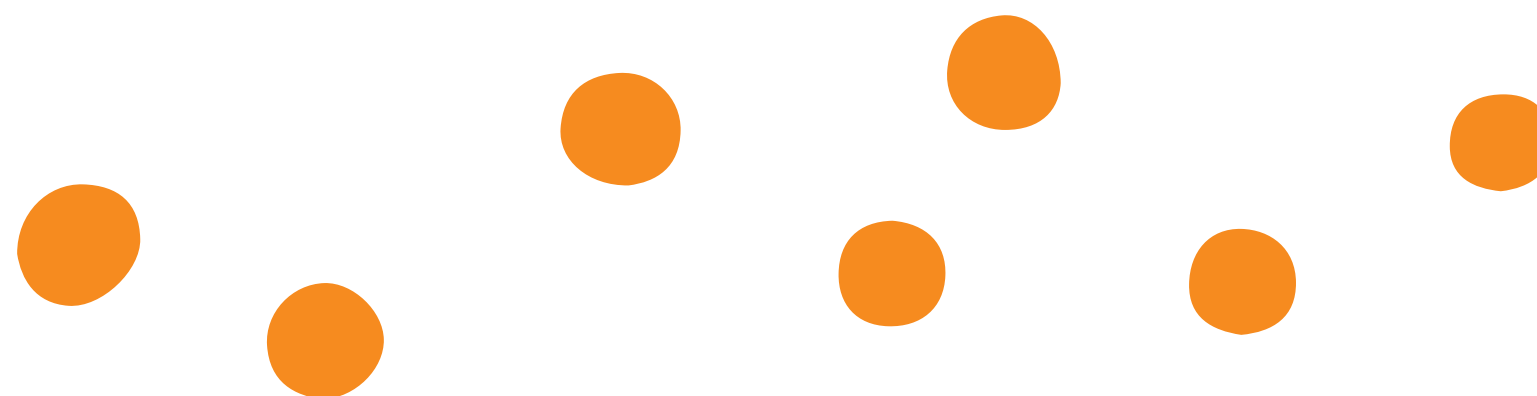
Karin **Broberg**

Dr. Karin Broberg is a distinguished researcher and academician making significant strides in the field of Molecular Occupational and Environmental Medicine. She earned an MD in Experimental Clinical Genetics in 2001 and later became an Associate Professor at Lund University in 2008.

Currently, she holds the position of Professor of Occupational and Environmental Medicine at Lund University and Guest Professor at esteemed institutions such as the National Research Center for Work Environment in Denmark and the Danish Ramazzini Center. Her expertise extends to genetics and epigenetics with a focus on understanding how environmental factors impact human health.

Dr. Broberg has held key academic positions at renowned institutions, including Senior Lecturer at both Lund University and Karolinska Institutet.

Her research, centered on biomarkers of exposure, effect, and susceptibility, combines advanced exposure assessment with epidemiological studies and in vitro analyses.

Among her many accolades, Dr. Broberg has been recognized for her outstanding contributions, including an award for the best paper in the journal "Läkartidningen" in 2021. She is an elected member of the Toxicological Council in Sweden and has served on various scientific committees and boards, showcasing her commitment to advancing research in her field.

Her dedication to research is evident in her extensive list of publications, with over 170 articles in peer-reviewed scientific journals.

Nicole **Deziel**

Dr. Nicole Deziel is a tenured Associate Professor in Environmental Health Sciences at the Yale School of Public Health, co-Director of the Yale Center of Perinatal, Pediatric, & Environmental Epidemiology, and a member of the Yale Cancer Center. She has expertise in exposure science and environmental epidemiology, and her research involves applying existing and advanced statistical models, biomonitoring techniques, and environmental measurements to provide comprehensive and quantitative assessments of exposure to combinations of traditional and emerging environmental carcinogens.

She has served as Principal Investigator of a study funded by the American Cancer Society (ACS) evaluating co-exposures to flame retardants, pesticides, and other persistent pollutants and thyroid cancer risk in adult women and a project evaluating exposures to environmental chemicals in relation to pediatric thyroid cancer.

She is a co-PI of a National Institutes of Health R01 project evaluating exposure to heat, cold, and air pollution and social and structural determinants of health. She also directs the Exposure and Health on Long Island Study, a project with the Yale Superfund Research Center evaluating exposures to known and suspected carcinogens in drinking water and early biomarkers of effect.

She has been a leader in evaluating the exposures, health, and environmental justice impacts of fossil fuel extraction, previously serving as PI of an inter-disciplinary project entitled "Drinking water vulnerability and neonatal health outcomes in relation to oil and gas production in the Appalachian Basin." She is Executive Editor of the Journal of Exposure Science and Environmental Epidemiology and an Associate Editor for Environment International.

Hari **Iyer**

Dr. Hari Iyer is a prostate cancer and environmental epidemiologist and Assistant Professor in the Section of Cancer Epidemiology at the Rutgers Cancer Institute of New Jersey.

He leads a registry-based cohort study of Black and White men with prostate cancer to study how neighborhood social and physical environments influence access to screening and racial disparities, funded through the Prostate Cancer Research, UK charity.

His research has examined how neighborhood exposures, including green space, influence systemic inflammation and tumor progression in men with prostate cancer.

He has coauthored over 55 articles in leading journals including Cancer, Environment International, and JAMA Network Open. Dr. Iyer received his ScD in Cancer Epidemiology from the Harvard T. H. Chan School of Public Health, and MPH from the Boston University School of Public Health.

Bénédicte **Jacquemin**

Dr. Bénédicte Jacquemin has a degree in Medicine from the National Autonomous University of Mexico (2000), a Master in Environmental Sciences from the Autonomous University of Barcelona, Spain (2005) and a PhD in Life and Health Sciences from the University Pompeu Fabra of Barcelona, Spain (2007).

She did a postdoc (2007-2009) at the Institut national de la santé et de la recherche médicale (INSERM), in the Respiratory and Environmental Epidemiology team in Villejuif, France, where she got a researcher position in October 2009. From September 2011 till July 2018, she was located in the center of Research in Environmental Epidemiology (CREAL) -now ISGlobal Campus Mar- in Barcelona. In August 2018, she went back to France and joined the Research Institute for Environmental and Occupational Health (INSERM-U1085) in Rennes France, and is affiliated to Team #9: Exposure Assessment and Epidemiological Research on Environment, Reproduction and Development, where she develops her research on air pollution and greenspaces health effects.

During her medical career she became interested in research and participated in several studies mainly in the field of infectious diseases. Later, during her doctorate, she worked in the assessment of exposure of air pollution and its effects on respiratory health. She currently works in the study of the effects of environmental pollution on asthma and rhinitis and their associated features. More recently, she has been interested in the effects of air pollution on other health outcomes including cognition, cancer and fertility / infertility. She has published more than 100 papers in peer-reviewed journal, she had led or is leading 7 projects and is a partner in several other projects (European and National). Furthermore, she is an associated member of the European council of the ISEE and she co-chaired the scientific committee of the ISEE young investigators conference in Munich 2018 and in Basel 2021. She is also interested in translating her research and to do so she is an expert member of several scientific committees or working groups and participates in many pop-science events and interviews.
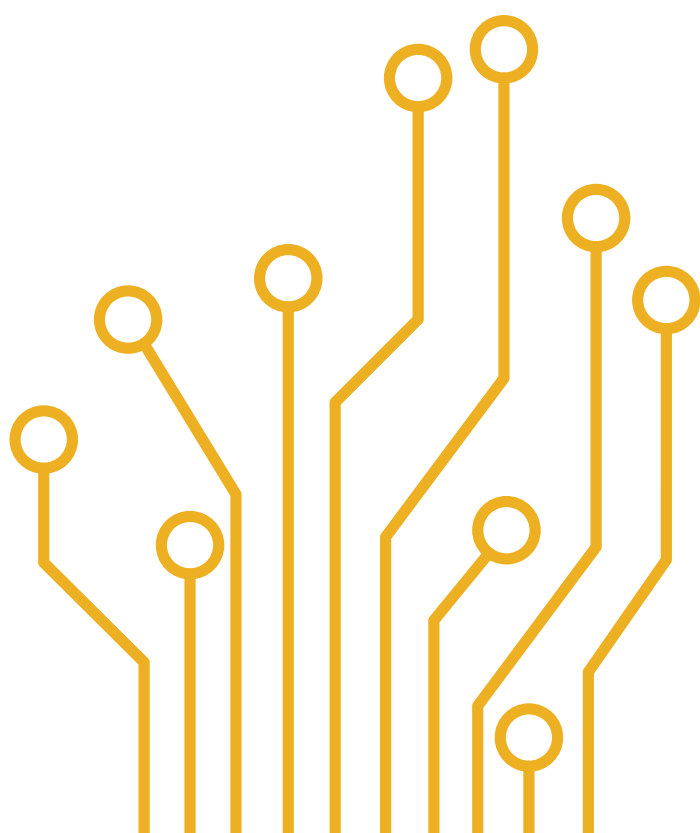
Rena **Jones**

Dr. Rena Jones is an investigator in the Division of Cancer Epidemiology and Genetics at the U.S. National Cancer Institute (NCI), where she co-chairs the Geographic Analysis Working Group. Her intramural research program seeks to clarify the role of environmental exposures in the development of cancer.

Dr. Jones leads large-scale, multidisciplinary efforts to assess population exposure to widespread environmental contaminants, including air and water pollutants, light exposures, and pesticides, and investigate their role in cancer etiology. She seeks to improve long-term exposure characterization in these studies by optimizing the spatial accuracy of residential addresses and other locations, incorporating participant mobility and time spent in microenvironments, and leveraging information from surveys, personal measurements, regulatory monitoring, and other geo-referenced datasets.

Dr. Jones is an Associate Editor of the Journal of Exposure Science and Environmental Epidemiology and Adjunct Assistant Professor of Environmental Health Sciences at the Yale School of Public Health. She received her MS and PhD degrees in epidemiology from the University at Albany, State University of New York.

Cari **Kitahara**

Dr. Kitahara is an epidemiologist and Senior Investigator in the Radiation Epidemiology Branch of the Division of Cancer Epidemiology and Genetics at the National Cancer Institute/National Institutes of Health.

She leads a multidisciplinary research program that focuses on radiation-associated health risks to medical staff and patients and staff and patients and thyroid cancer etiology and survivorship.

Her work, including more than 180 peer-reviewed publications and five book chapters, provides evidence to inform radiation protection practices, cancer prevention efforts, and thyroid cancer clinical care.
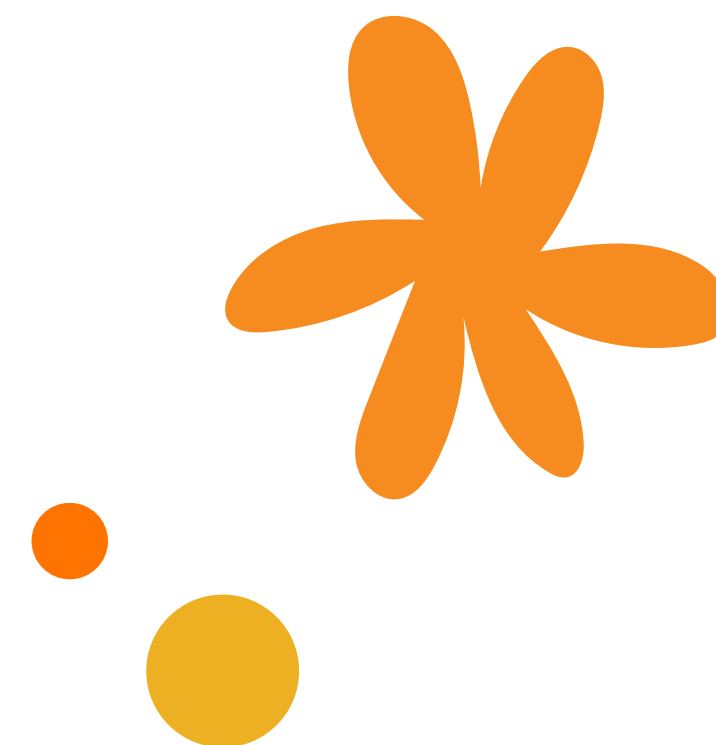
Manolis **Kogevinas**

Professor Manolis Kogevinas is the Severo-Ochoa Scientific Director at the Barcelona Institute for Global Health (ISGlobal). He trained in Athens Greece and London, UK, and then worked at the International Agency for Research on Cancer (IARC/WHO), Lyon, before moving to Barcelona.

His research focuses on the evaluation of environmental and genetic factors in relation to cancer and other NCDs and in recent years he focused his research on the effects of circadian disruption on health.

Following the COVID-19 pandemic he conducted research on the interplay of infections and NCDs. He has published more than 700 indexed publications.

He served in several WHO and other expert committees and was President of the International Society for Environmental Epidemiology (ISEE). He is committed to public health and is active in Europe and globally in the promotion of research in environmental epidemiology and translation of research findings into policy.

Meriem **Koual**

Meriem Koual is associate professor in gynecologic and breast cancer surgery, European Hospital Georges Pompidou, APHP, Paris and teacher in Université Paris Cité médical school. She joined the INSERM UMR-S 1124 laboratory in 2014 and then completed a thesis in toxicology (including one year at Boston University, USA) defended in October 2019.

Her research is interested in the interaction between environmental factors and breast cancer progression. Her work showed the role of persistent organic pollutants and peri tumoral adipose tissue on breast aggressiveness and metastases development in a cohort of patient and in vitro and in vivo experiments.

After studying a single pollutant (dioxine), she is expanding he research on the effect of mixtures of pollutants including cigarette smoke extracts and dietary additives in breast cancer and also in endometriosis, a still poorly understood disease with common characteristics of breast cancer and endometriosis (high incidence, hormone-dependent diseases, capacity for cell migration).

Camille **Lassale**

Camille Lassale is a leading expert in nutritional epidemiology and cardiovascular health. She joined ISGlobal as an Assistant Research Professor in September 2022. She has a life sciences engineering degree specialized in human nutrition (AgroParisTech, Paris, 2009) and an MSc Public Health, (University Paris-Sud, 2010).

Her PhD work (University Sorbonne Paris) included both methodological aspects of web-based nutritional data collection, and the study of aetiological associations between diet quality and metabolic health. During her postdoctoral years, at the School of Public Health, Imperial College London and at University College London, her work focused on cardiovascular disease risk prediction, determinants of ageing-related morbidities, and nutritional psychiatry.

She relocated to Barcelona in 2019, at the Hospital del Mar Research Institute (IMIM, Barcelona) to work on novel cardiovascular biomarkers. In March 2021, she obtained a very competitive La Caixa Junior Leader Retaining fellowship to study the DNA methylation signature of dietary patterns and cardiometabolic health. This paved the way to start a nutritional-omics research line at ISGlobal.

Catherine **Metayer**

Dr. Metayer received her medical degree from the University of Bordeaux II in France, and her Ph.D. in Epidemiology from Tulane University, School of Public Health in New Orleans. She is currently Professor at the UC Berkeley, School of Public Health, Division of Epidemiology. Prior to joining UC Berkeley, Dr. Metayer was a scientist at the US National Cancer Institute, Division of Cancer Epidemiology and Genetics.

Her work primarily focuses on environmental, dietary, and genetic risk factors of childhood leukemia and testicular cancer, which disproportionately affect the Latinx communities in California.

She is the Director of the Center for Integrative Research on Childhood Leukemia and the Environment (CIRCLE), and the immediate past Chair of the Childhood and Cancer Leukemia International Consortium (CLIC).

She collaborates with researchers at the intersection of various omics including genetics, epigenetics, metabolomics, and adductomics.

Ana Maria **Mora**

Ana Maria Mora, MD PhD, is an Assistant Researcher at the Center for Environmental Research and Community Health at the UC Berkeley School of Public Health. Her research focuses on the exposure to environmental toxicants such as pesticides, metals, and per- and polyfluoroalkyl substances (PFAS) and their effects on the health of vulnerable populations including pregnant women, children, and farmworkers.

She received her PhD in Environmental Epidemiology from the UC Berkeley School of Public Health, and MD at University of Costa Rica.

Dr. Mora served as Chair of the Latin American and Caribbean Chapter of the International Society of Environmental Epidemiology (ISEE) from 2014 to 2021 and Chair of the Communications Committee of the same Society from 2018 to 2022. She has served as Treasurer of the International Society of Children's Environmental Health (ISCHE) since 2022.

Dr. Mora has represented the Costa Rican Childhood Leukemia Study in the Childhood Cancer and Leukemia International Consortium (CLIC) since 2014.

Recently, she participated, along with a large group of experts, in the creation of "The Latin American and Caribbean Code Against Cancer" and led, together with other colleagues in the region, the publication of a scoping review focused on the effects of pesticides on the health of populations in Latin America and the Caribbean.

Leticia **Nogueira**

Leticia Nogueira, PhD, MPH, is a Scientific Director at the American Cancer Society. She also holds an Adjunct Professor position at the Rollins School of Public Health at Emory University and is one of the inaugural NIH Climate Change and Health Scholars hosted by the National Cancer Institute.

Dr. Nogueira's research focuses on cancer disparities that can be addressed through policy changes, especially those related to climate change and structural racism.
She received the Fellows Award for Research Excellence from the National Institutes of Health (NIH), the Woman in Cancer Research and the Minority Scholar in Cancer Research Awards from the American Association for Cancer Research (AACR), was inducted into the Hall

of Honors and received the Outstanding Young Alumni Award from the University of Texas at Austin, where she serves on the Dean's Advisory Council.

She also serves on the American College of Surgeons' Commission on Cancer Quality Assurance and Data Committee and is a climate ambassador for the Society of Behavioral Medicine and for the National Aeronautics and Space Agency (NASA) Health and Air Quality Applied Sciences Team.

Dr. Nogueira earned her PhD in molecular biology from the University of Texas at Austin and her MPH in Quantitative Methods from the Harvard School of Public Health.

Marie-Elise **Parent**

Marie-Elise Parent, PhD, is professor of epidemiology at the Institut national de la recherche scientifique, of the Université du Québec, in Montreal, Canada. She trained at the Université de Montréal and at the University of Toronto.

Her research focuses on environmental causes of cancer, particularly prostate cancer, with a particular interest in occupational exposure assessment. She holds a Canada Research Chair in Environmental Epidemiology of Cancer.

Dr. Parent has won several career awards and is the recipient of the 2023 Geoffrey R. Howe Award from the Canadian Society for Epidemiology and Biostatistics for her outstanding contribution to the discipline.

She is very active with the International Agency for Research on Cancer, within the World Health Organization, and is an elected member of its Scientific Council.
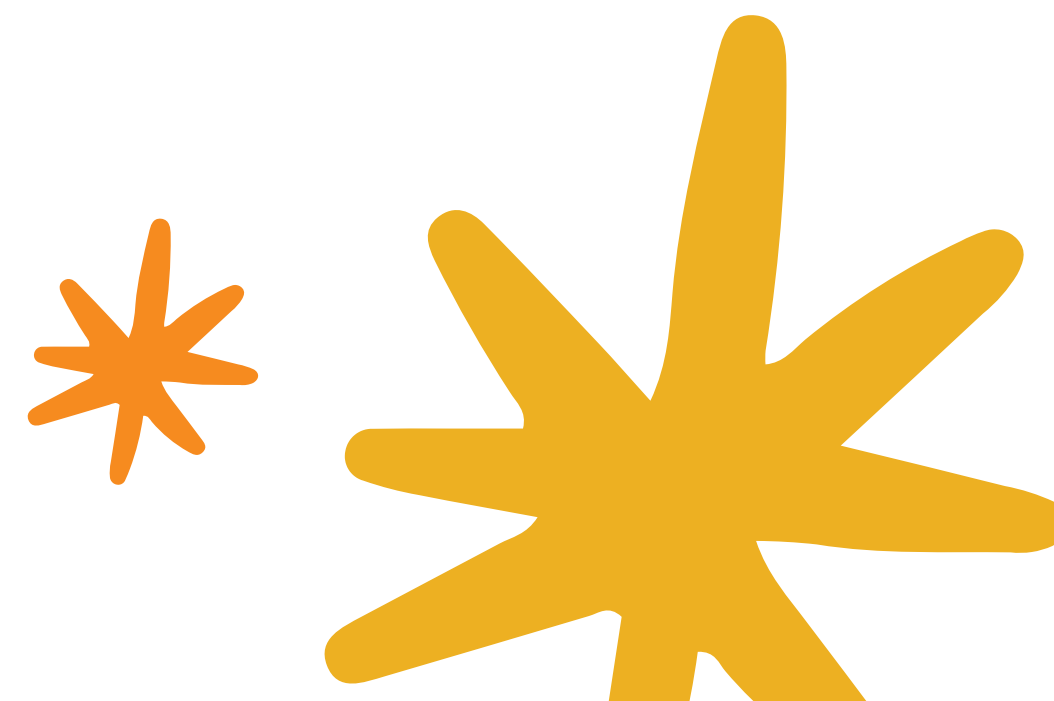
Alejandro **Piris**

Alejandro Piris is the Head of the Scientific Management Area/Chief Scientific Officer at the Vall d'Hebron Institute of Oncology (VHIO) in Barcelona, Spain. His responsibilities at VHIO include scientific support to the director and strategic decisions on research activities; writing, coordination and management of scientific proposals; monitoring and evaluation of existing scientific and institutional programmes; identification of competitive research funds/opportunities and international research consortia. He is a member of VHIO's Internal Scientific Committee and evaluator of national/international research calls, and holds a Master's degree in Management of R, D & I in Health Sciences. He previously worked in Translational Cancer Drugs Pharma (biotech company) and Mensor (research department).

He holds a degree in Veterinary Science and a PhD in Biochemistry and Molecular Biology. He has also completed a post-doctoral stay at the National Centre for Biotechnology (Madrid), focusing on the design of new viral vaccines.

The five most important articles he has co-authored in the last 5 years (2018-2022) include: (1) RNF43 mutations predict response to anti-BRAF/EGFR combinatory therapies in BRAFV600E metastatic colorectal cancer. Nat Med. 2022 Oct;28(10):2162-2170; (2) ERANET JTC 2011: Submission and activation of an international academic translational project in advanced breast cancer. Experience from the ET-FES Study. Monti M et al. Front Med (Lausanne). 2022 Jan 13;8:817678; (3) Support systems to guide clinical decision-making in precision oncology: The Cancer Core Europe Molecular Tumor Board Portal. Tamborero D et al. Nat Med. 2020 Jul;26(7):992-994; (4) Caring for patients with cancer in the COVID-19 era. Van de Haar J et al. Nat Med. 2020 May;26(5):665-671; (5) New clinical trial designs in the era of precision medicine. Garralda E et al. Mol Oncol. 2019 Mar;13(3):549-557.

His personal interest is in cancer research at all levels, but with a particular focus on personalised medicine and scientific management.

Ruthann **Rudel**

Ruthann Rudel leads Silent Spring Institute's exposure and toxicology research programs on endocrine active chemicals and on mechanisms by which chemicals may influence breast cancer risk. She directed a major review of animal mammary gland carcinogens that compiled existing research on these carcinogens, reviewed key issues in study design and animal models and synthesized information on exposure opportunities. Her 2014 review in Environmental Health Perspectives identifies methods for detecting metabolites of 100 prevalent mammary carcinogens. She has published on toxicology and risk assessment for metals, indoor air pollutants and endocrine disruptors.

Her current research includes a project funded by the California Breast Cancer Research Program to identify biological pathways that are relevant to breast cancer etiology and develop methods to test chemicals for those activities.

Rudel has made major contributions to understanding exposures to semivolatile indoor pollutants. She directs Silent Spring's Household Exposure Study, which was described by Environmental Science & Technology as the "most comprehensive analysis to date" of exposures in homes and is widely cited.

She has an appointment as a research associate in the Department of Pathology and Laboratory Medicine at Brown and serves on an EPA advisory committee. She has participated in environmental regulatory reviews for EPA, Health Canada, Toxicology Excellence for Risk Assessment and others and serves as an ad hoc manuscript reviewer for Environmental Science & Technology and Environmental Health Perspectives. Rudel earned her BA in chemistry and neuroscience from Oberlin College and an MS in environmental management and policy from Tufts.

Mary **Schubauer-Berigan**

Dr Mary Schubauer-Berigan heads the Monographs programme of IARC, after joining in 2018 as its senior epidemiologist.

Her scientific staff leads evaluations of the epidemiological and experimental evidence to identify the preventable causes of human cancer. She has been Responsible Officer for monographs on night shift work, opium consumption, and occupational exposure as a firefighter.

Previously, Mary led multidisciplinary teams conducting epidemiology studies of the health effects of occupational exposures to beryllium, carbon nanotubes, nuclear work, radon, cosmic radiation, and circadian disruption at the National Institute for Occupational Safety and Health in the USA.

Mary has co-authored over 130 publications on the above topics.

Her research on lung cancer from beryllium exposure in workers was used by OSHA in setting a more protective occupational exposure limit in 2017.

Martyn **Smith**

Martyn Smith is a Distinguished Emeritus Professor of Toxicology and the Kaiser Chair of Cancer Epidemiology in the Division of Environmental Health Sciences in the School of Public Health at the University of California Berkeley. He received his Ph.D. in Biochemistry from St. Bartholomew's Hospital in London and did Post-Doctoral training in toxicology at the Karolinska Institute in Stockholm.

Dr. Smith has expertise in molecular epidemiology, toxicology and genomics, and his research is mostly aimed at finding the causes of cancer. Dr. Smith is a Fellow of the American Association for the Advancement of Science.

He received the 2010 Children's Environmental Health Network Award, became an Elected Fellow of the Collegium Ramazzini in 2012, and received the Alexander Hollaender Award from the Environmental Mutagenesis and Genomics Society in 2014.

Since its inception in 1987, Smith has directed the Superfund Research Program (SRP) Center at the University of California, Berkeley (UC Berkeley). This program combines basic research, engineering, population studies, training, and community engagement to understand cumulative impacts from multiple environmental stressors.

Smith is best known for his work on benzene toxicity, the exposome concept and the key characteristics framework, which helps risk assessors better identify, organize, and summarize the potential health risks of different chemicals.

His most recent work uses machine learning, AI and molecular modeling to predict toxicity.
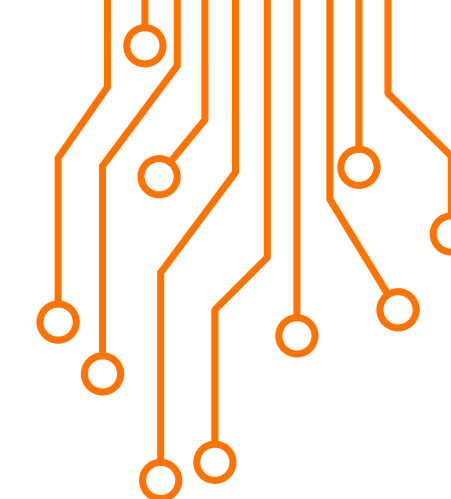
Kurt **Straif**

Kurt Straif was long-term Head of the Section of Evidence Synthesis and Classification at the International Agency for Research on Cancer, WHO, Lyon, France, where he directed the programs of the IARC Monographs, the IARC Handbooks of Cancer Prevention and the WHO Classification of Tumours.

Since his retirement from WHO, he works as a Research Professor at Boston College and as an Associate Researcher at ISGlobal, Barcelona, Spain. He co-authored more than 250 scientific papers (with an h-index of 77) and was Editor and Associate editor of several books (including World Cancer Reports; Air pollution and Cancer; Social Inequalities in Cancer).

He has received the Champion of Environmental Health Research Award of the US NIEHS (2016), the Distinguished Lecture in Occupational and Environmental Cancer of the U.S. NCI (2018), and the ISEE Research Integrity Award (2019).

He studied Medicine, Epidemiology, Public Health, and Philosophy in Europe and the United States and is Board-certified in Internal Medicine and in Occupational, Environmental and Social Medicine.
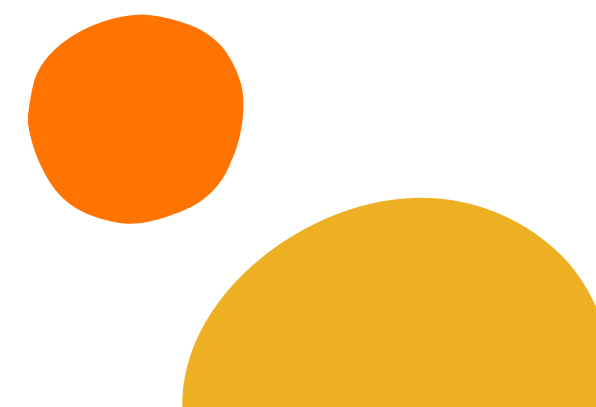
Cristina **Villanueva**

Cristina Villanueva is an expert in water quality and health, with a strong focus on exposure assessment to chemicals in water and environmental epidemiology.

Graduated in Environmental Sciences (1998) and PhD in Environmental Epidemiology (2003) by the Universitat Autònoma de Barcelona (UAB). Post-doctoral training at the National Institute of Health and Medical Research (INSERM) in Rennes, France (2004-2005). Researcher in the Centre for Research in Environmental Epidemiology-CREAL (2006-2016).

Currently she coordinates research studies on water contaminants and health in ISGlobal and leads the collaborative projects "Characterising Oral Exposure to Nanoplastics and Microplastics", "Risk of colorectal and breast cancer with widespread drinking water chemical contaminants. Cancer Watch", "Prenatal exposure to poly- and perfluorinated substances (PFAS) in drinking water and neurodevelopment early in life. PFAS-Water", and is Work Package leader of the Horizon Europe project "intoDBP. Innovative tools to control organic matter and disinfection byproducts in drinking water".

She is also member of the research team of BWATER and MARCHES projects.