

METABOLOMICS

OSAKA, JAPAN
JUNE 16-20 2024

Career Night Roundtable Discussion Leaders

Career Transitions

Natasa Giallourou
Metabolon, Cyprus



Dr Natasa Giallourou is a Field Metabolomics Scientist supporting Metabolon's International Business activities. She provides scientific counsel for metabolomics applications in the biopharma and academic sectors. Natasa obtained her PhD in Metabolomics from the University of Reading and holds an MSc in Nutrition and Health from Wageningen University and a BSc in Biology from the University of Leeds.

Prior to joining Metabolon, Natasa served as a Marie Skłodowska-Curie Postdoctoral Fellow at biobank.cy. Her research projects involved integrating metabolomic data with other 'omics' data in population-based studies, with a focus on identifying biomarkers for complex diseases. She has also worked as a Postdoctoral Research Associate at Imperial College London, where she specialized in utilizing metabolic phenotyping to address global health challenges, particularly in the field of public health nutrition.

Natasa sits on the Board of Directors of the International Metabolomics Society and is also an advisor to the Early-career Member's Network for young metabolomics scientists.

Michael Witting
Helmholtz Munich – Metabolomics and Proteomics Core, Germany



Dr. Michael Witting studied Applied Chemistry with a functional direction into biochemistry at the Georg-Simon-Ohm University of Applied Science, Nuremberg, Germany and obtained his PhD in 2013 from the Technical University of Munich. He is a current member of the Metabolomics Society Board of Directors and since 1st of January 2021 he is heading the metabolomics section of the Metabolomics and Proteomics Core at Helmholtz Munich. His main research interests are LC-MS based metabolomics method development and application, as well as metabolite identification improvement by retention time prediction.

Women in Science

Alice Limonciel

biocrates life sciences, Austria



How do you become the CSO of one of the leading metabolomics companies in the world? Should you transition between scientific fields or stick to your niche topic? How do you know if you made the right career move? What are the pros and cons of working in industry vs. academia? And where does gender come into play in all of this? My offering for this round table discussion is to give you my most heartfelt answers to these and any other career-related questions you may have, based on my own experience as a molecular toxicologist with a passion for omics turned metabolomics interpretation expert, scientific communicator and chief scientific officer of biocrates.

Farhana Pinu

New Zealand Institute for Plant and Food Research Ltd, New Zealand



Farhana Pinu is a Science Group Leader of Biological Chemistry and Bioactives group, New Zealand Institute for Plant and Food Research Ltd (PFR) where she is responsible for managing four different teams that specialise in metabolomics, analytical and natural products chemistry. After completing her PhD from the University of Auckland, New Zealand, she joined PFR to work on a programme to develop fermentation technologies to produce lower alcohol wines using data driven approaches. Over the decade, she has contributed to some of the pioneering work involving the application of targeted and untargeted metabolomics in grape and wine research.

Her current projects focus on the development and optimisation of metabolomics, lipidomics, flavoromics and imaging approaches mainly using mass spectrometry, to understand plant systems to identify new flavour traits in horticultural crops and also to study microbial metabolism linking to fermentation outcomes. Farhana was the President of Australian and New Zealand Metabolomics Society from 2020-2023.

International Networking

Masanori Arita

National Institute of Genetics, Japan



With Ph. D. in information science, MA started his career as a termed researcher at Electrotechnical Laboratory, Tsukuba, Japan. He moved to Computational Biology Research Center of AIST (Japan) as its starting member in 2001, and was later appointed as Associate Professor of Computational Biology Department, The University of Tokyo in 2003. He started working with RIKEN in 2007, and is currently Team Leader at CSRS (RIKEN). From 2014, he is Professor at National Institute of Genetics, and Head of DNA Data Bank of Japan since 2018. The main research focus is metabolomics and bioinformatics, especially on data infrastructure and management.

Jules Griffin

University of Aberdeen, United Kingdom



Jules Griffin received his doctorate (a DPhil) from the Department of Biochemistry, University of Oxford, where he studied metabolism using stable isotope approaches in the Radda group. He then took up a Harvard Medical School/Massachusetts General Hospital Fellowship in Radiology using magnetic resonance spectroscopy to follow cardiac metabolism with Doug Lewandowski. In 1999 he returned to the UK to take up a research associate position at Imperial College London, supervised by Prof. Jeremy Nicholson to develop NMR based approaches for the new field of Metabonomics. He was awarded a Royal Society University Fellowship which in 2003 he transferred to the University of Cambridge to start his own research group, followed by a return to Imperial College in 2019 as head of section and Professor of Biological Chemistry.

In 2021, he became the Director of the Rowett Institute, University of Aberdeen. His programme of research focuses on the development of metabolomics and lipidomics tools to investigate aspects of the Metabolic Syndrome. His group has an interest in identifying biomarkers that stratify patients according to risk factor of the Metabolic Syndrome and understand the associated underlying mechanisms.

He was also President of the Metabolomics Society and director of the Metabolic Profiling Forum. He likes mountains but isn't very good at getting up or down them.

Careers in Government

Audrey Le Gouellec

Université Grenoble Alpes, France



Dr Audrey Le Gouellec is an Associate Professor and Hospital Practitioner in clinical biochemistry at the Faculty of Medicine, Université Grenoble Alpes (UGA) and Centre Hospitalier Universitaire de Grenoble Alpes (CHUGA). She is the scientific manager of the GExiM Mass Spectrometry Metabolomics platform. Recruited since 2016, she focuses her research in the TIMC laboratory (UMR 5525 CNRS-UGA) on the study of host-pathogen interaction and considers each time medical applications. At CHUGA, within the Biochemistry, Molecular Biology and Environmental Toxicology department, Audrey Le Gouellec is a biologist, responsible for 36 clinical parameters of routine biochemistry care such as inflammation and CSF markers. She is part of the board of directors of the “Reseau Francophone de Metabolomique et Fluxomique (RFMF) and deputy director of the graduate school (Ingenierie de la Santé de la Cognition et de l'Environnement).” She published 40 peer-reviewed articles (h-index: 16, num. of citations: 1276, SIGAPS: 330).

Tomas Pluskal

IOCB Prague, Czech Republic



I am a Junior Group Leader at the Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences in Prague. My laboratory develops new computational and experimental approaches for connecting plant natural products to their biosynthetic enzymes, and for engineering novel biosynthetic circuits using synthetic biology tools.

Getting Started with Teaching

Dajana Vuckovic
Concordia University, Canada



Dr. Vuckovic is a Professor, Concordia University Research Chair in Clinical Metabolomics and Biomarkers and the Director of Centre for the Biological Applications of Mass Spectrometry at Concordia University, Montreal, Canada. Her research program focuses on the development of novel mass spectrometry and microextraction methods to accurately measure challenging low-abundance and unstable metabolites and improve metabolite coverage and data quality in clinical metabolomics and lipidomics. Dr. Vuckovic is the recipient of several research awards including the 2019 Young Investigator Award of the Canadian Society for Mass Spectrometry, the 2020 Eastern Analytical Symposium Young Investigator Award and the 2023 Fred Beamish Award from the Canadian Society for Chemistry. She serves on the editorial boards of *Bioanalysis* and *Analytical and Bioanalytical Chemistry*, and is on the Board of Directors of Metabolomics Association of North America. She also currently co-leads the Best Practices Working Group of

Metabolomics Quality Assurance and Quality Control Consortium and has co-chaired Metabolomics 2023 conference.

Nicholas Rattray
University of Strathclyde, United Kingdom



Nik is a Senior Lecturer (Associate Professor) in clinical metabolism within the University of Strathclyde. He currently directs a productive research team who collectively investigate biomolecular changes of life-course through the optics of dysregulated energy metabolism. His group's primary aim is to uncover new mechanisms of ageing alongside the development and translation of biomarker panels. They answer research questions through the application of three inter-related research themes: i. Employing mass spectrometry-based metabolomics, proteomics and stable isotope tracer experiments, alongside cell-based assays and molecular biochemistry to develop biomolecular targets of age associated diseases and frailty. ii. Development of a portfolio of clinical trials investigating how metabolites/proteins associated with mitochondrial dysregulation can be used to

predict response to surgery in frail patients. iii. Utilizing biobank derived multiomics data to develop better understanding of how biomolecular, clinical, and socioeconomic factors contribute to an individual's frailty status.

Careers in Industry

Eiichiro Fukusaki **Osaka University, Japan**



Osaka University
Professor, Department of Biotechnology, Graduate School of Engineering
Director,
URL: <http://fukusaki.net>

Education - Eiichiro Fukusaki entered a private company, Nitto Denko Co, after receiving master degree from Osaka University on 1985. He received PhD from Osaka University on 1993 through his company work.

Research Positions - After ten years company experience, he returned back to Osaka University as an associate professor. On 2007 he has been assigned as a full professor in department of biotechnology, graduate school of engineering, Osaka University.

Overview of Scientific Work

He received several awards including; an Excellent Paper Award of the Society for Biotechnology, Japan [1993, 2003, 2007, 2009, 2012, 2015], the Japanese Society for Chemical Regulation of Plants Award for the Encouragement of Young Scientists. [2001]; the Society of Biotechnology, Japan 'Saito' Award [2004]; the Society of Biotechnology, Japan Achievement Award [2015]; Excellent Paper Award of Division of Chemical Information and Computer Science, The Chemical Society of Japan [2009]. He was assigned as a life-time honorary fellow of Metabolomics International Society [2019]. His research focuses on the development and application of metabolomics technologies. He has published over 300 original papers and 50 patents. He is focusing on not only fundamental science but also practical application. Particularly he facilitates research collaboration with private companies in the several fields including food, chemical, pharmaceutical, analytical etc. He is also energetically promoting international education and research collaboration. Recently he has participated double degree program in graduated school level between Osaka University and several foreign universities. He is served a two-year term as president of the Japan Society for Biotechnology in 2021.

Marissa Jones **biocrates life sciences ag, United States**



Dr. Marissa Jones is a Business Development Manager at biocrates life sciences, where she connects researchers with metabolomics solutions. She earned her PhD in Analytical Chemistry from Vanderbilt University, studying under Dr. Richard Caprioli. Transitioning from academia to business development, Dr. Jones leverages her training as a PhD analytical chemist to guide researchers to the best technology for their needs. She has published in prestigious journals such as Analytical Chemistry and the Journal of Experimental Medicine. As a former NSF GRFP fellow and Womix Mentorship Award nominee, Dr. Jones is dedicated to mentoring and advocating for women in STEM.

Setting Up and Managing Your First Lab

Tim Ebbels

Imperial College London, United Kingdom



Prof Tim Ebbels was awarded his PhD in 1998 from the University of Cambridge. His group focuses on the application of bioinformatic, machine learning and chemometric techniques to post-genomic data, with a particular emphasis on computational metabolomics. Key areas of interest are NMR & MS data processing, data integration, visualisation, network analysis, time series and metabolite annotation. Tim is a previous Director of the international Metabolomics Society and a co-founder of the London Metabolomics Network. He has supported numerous efforts promoting quality and reusability of metabolomics data and is an editorial board member for BMC Bioinformatics. He has a strong commitment to education, serving as Director of the MRes in Biomedical Research at Imperial College (~1000 students trained) and leading the 'Hands-on Data Analysis for Metabolomics' short course. He is a Fellow of the Royal Society of Chemistry and Lifetime Honorary Fellow of the Metabolomics Society.

Bart Ghesquiere

KU Leuven, Belgium



Bart Ghesquiere is a Full Professor at the Department of Cellular and Molecular Medicine at KU Leuven and Head of the Metabolomics Expertise Center, Center for Cancer Biology at Vlaams Instituut voor Biotechnologie (VIB). Bart is specialized on tracer metabolomics providing insights into metabolic pathways, elucidating their interconnectivity in a wide variety of circumstances. He is leading a team of 11 researchers (1 project manager, 2 expert technicians, 1 senior postdoctoral scientist, 2 data-analysts and 5 Phd students (2 as promotor, 3 as co-promotor)) providing service to metabolomics-oriented research groups as well as developing his own research lines focusing on technology (method development, software and hardware) as well as biology (profiling metabolic disorders/syndrome).

Grant Writing

David Beale

Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia



Adjunct A/Prof. David Beale is a Senior Research Scientist and Team Leader in the Industry Environments Program in Brisbane (Dutton Park), where he delivers research outcomes and creates impact in applications of functional environmental systems biology (i.e., metabolomics, lipidomics, and proteomics). As a science domain and organizational leader in Environmental Metabolomics, David develops tools for detecting, quantifying, and tracking contaminants in the environment and assessing their biological impact using omics-based techniques in model and non-model species. His ability to transfer these tools and approaches to industrial bioprocessing and clinical applications outside his field of expertise has earned him a reputation as an international science leader in metabolomics and omics-based research. He has served as Chair of the CSIRO Land & Water Science Council; He is the outgoing Vice

President of the Australian & New Zealand Metabolomics Society (ANZMetSoc) and is the current co-Chair of the International Society of Toxicology and Chemistry (SETAC) Omics interest group. He holds numerous adjunct positions at Australian and international universities. David is also the Environmental Science section editor of the current International Metabolomics Society journal, 'Metabolites', and an associate editor for the International SETAC journal, 'Environmental Toxicology & Chemistry'.

Kyo Bin Kang

Sookmyung Women's University, Republic of Korea



Kyo Bin is an associate professor in his 6th years. Currently He enjoys to analyze various chemicals produced by plants and microorganisms with mass spectrometry, to answer various questions including drug discovery, microbial interaction, plant-insect interaction, microbial biotransformation, and evolution of specialized metabolism. He was trained as a natural product chemist during his PhD and first postdoc in Seoul National University, and became a big fan of computational mass spectrometry and open science during his second postdoc in Pieter Dorrestein's lab at UC San Diego.

How to Publish

Fidele Tugizimana

University of Johannesburg, South Africa



Fidele Tugizimana holds various academic degrees including a B.Phil. in Philosophy (Urbaniana University, Rome), B.Sc. in Biochemistry-Chemistry (University of Johannesburg, UJ, South Africa), M.Sc. and PhD in Biochemistry (UJ, SA). He has received different non-degree purpose training in Advanced Mathematics (UNISA) and in Metabolic Modeling, Pathway and Flux Analyses (Wageningen University and Research, Netherlands).

He is currently a Lecturer, Research Scientist and Deputy HoD (Research) in the Department of Biochemistry at UJ; a co-Director of the Research Centre for Plant Metabolomics at UJ; a Specialist Scientist in the International R&D division of Omnia Nutriology, Omnia Group, Ltd, South Africa.

Fidele Tugizimana is an active member of various national and international scientific associations. He is currently one of the Directors on the Metabolomics Society's Board (since 2020) and serves at different committees and task groups of the Metabolomics Society. He serves as the current President of the Metabolomics South Africa (MSA).

Fidele Tugizimana leads a research group of 16 young scientists (MSc's and PhD's candidates and postdoctoral fellows). His work contributes to the advancement and applications of metabolomics, nationally and internationally. He applies metabolomics (i) to understand crop plant-environment interactions, (ii) to discover natural products (with health benefits) from medicinal plants in Africa and (iii) to elucidate modes of action of plant biostimulants, for an innovative formulation and application programs of biostimulant products, for sustainable and productive farming practices. Fidele Tugizimana collaborates with various experts and research groups across the globe. His research contributes towards the realization of UN sustainable development goals (SDGs) and the African agenda 2063. He is an author/co-author of several metabolomics papers in leading peer-reviewed international scientific journals and book chapters; and serves in editorial capacities for different peer-reviewed journals.

Pieter Dorrestein

UC San Diego, United States



Pieter Dorrestein is a Professor at the University of California, San Diego. Although born in Utrecht, The Netherlands, Pieter spent most of his academic career in the United States. He completed his undergraduate degree in metalloorganic chemistry at Northern Arizona University under the guidance of Prof. MacDonald and his graduate work in mechanistic enzymology at Cornell University under the guidance of Prof. Begley. He conducted his postdoctoral research at the NIH with an NRSA fellowship in top-down proteomics in the lab of Prof. Kelleher. Since his arrival at UC San Diego in 2006, Prof. Dorrestein has been pioneering the development of mass spectrometry methods to study the chemical ecological crosstalk between hosts and microorganisms. Among other projects, he is now focusing on discovering novel bile acid molecules and their roles in host organisms. In his spare time, Pieter enjoys spending time with Kathleen, his better half, and his awesome daughter Tatiana. He also likes to garden, rock climb, hike, kayak, and mountain bike.

Obtaining a Postdoctoral Fellowship

Helena Mannocho Russo

University of California San Diego (USCD), United States



Helena Mannocho Russo obtained her B.Sc. degree in Chemistry at the State University of Campinas, and both her M.Sc. and Ph.D. degrees in Chemistry from the Sao Paulo State University, Brazil. She is currently a post-doctoral researcher at University of California San Diego in Professor Pieter Dorrestein's group. Her main research interests involve employing mass spectrometry computational tools for the reanalysis of public metabolomics datasets to explore the broad distribution of specific classes of compounds in the public domain. Helena is a Fulbright alumna (2019-2020), a Lindau alumna (2022), and received the CAS Future Leaders Award (2022). She is currently the co-chair of the Young Researchers Committee of the Brazilian Chemical Society.

Claude Yasmine

University of Johannesburg, South Africa



I am Dr Claude Y. Hamany Djande, a passionate and driven young scientist who embarked on her scientific journey with a passion to understand the intricate processes of life. Holding a B.Sc. in Pharmacology from the University of Dschang in Cameroon, I laid a foundation for a remarkable career in scientific fields. I pursued further studies at the University of Johannesburg, where I earned a series of impressive degrees including a B.Sc./Hons, M.Sc., and ultimately a Ph.D. in Biochemistry. My academic journey was marked by a relentless pursuit of excellence, materialised in my M.Sc. degree completed with distinction. Throughout my academic career, I have demonstrated hard work, determination, and a remarkable ability to conceptualise ideas into tangible outcomes. Currently, I am engaged in post-doctoral research focused on understanding plants and their interactions with the environment. My expertise extends beyond the confines of the

laboratory, encompassing a diverse range of professional and soft skills. As a creative and enthusiastic individual, I am deeply committed to fostering a positive and nurturing environment. I believe in empowering others, promoting critical thinking, and nurturing self-esteem, all of which are essential ingredients for achieving excellence. My journey stands a testament to the transformative power of passion, dedication, and perseverance.

Mentoring/Career Tips

Sandi Azab

McMaster University, Canada



I am interested in researching cardiometabolic disease in women and children, in populations of varying ancestral origins, in a multigenerational setting in-utero and early childhood, with the help of metabolomics. In 2023, I was awarded the Canadian Institutes for Health Research (CIHR) Research Excellence, Diversity, and Independence (REDI) award designed to support the transition to a research faculty career. I enjoy the multidisciplinary nature of my research where epidemiology, analytical chemistry, biostatistics, bioinformatics, and metabolomics are applied to approach complex biological problems. I am also a VAST (VAScular cognitive impairment Training) Scholar investigating the effect of air pollution on subclinical cardiovascular and cerebrovascular disease in the Canadian Alliance of Healthy Hearts and Minds cohort. My PhD research included development of novel high-throughput methods for fatty acids profiling and perfluoroalkyl substances biomonitoring using multiplexed, non-aqueous capillary electrophoresis-mass spectrometry to enable screening from large birth cohorts, as well as metabolomic investigations of peripheral artery disease and dietary biomarkers. Finally, I am a practicing community pharmacist with strong orientation to patient-centered care and passion for smoking cessation support.

Stefania Noerman

Chalmers University of Technology, Sweden



Stefania got her PhD from University of Eastern Finland in 2021. In her thesis, she aimed to find molecular links between lifestyle factors, such as diet and psychological wellbeing, and the risk of metabolic diseases. After her PhD, she continued working as a postdoctoral researcher at Chalmers University of Technology. Her research covers discovery, validation, and developing assessment method of dietary biomarkers and endogenous metabolites associated with individual traits, lifestyle exposures, and metabolic health. She is particularly interested in multi-omics interactions to capture, explain, and predict interindividual variations in dietary responses, with special interest towards precision nutrition. In her research projects, she got exposed to several international collaborations, including taking part in Working Group 1 of Federation of European Nutrition Societies aiming to improve standards in the science of nutrition. Besides her research, she is actively involved in several networking and mentorship activities, such as mentoring pod of Females in Mass Spectrometry (2021-2022), committee of Early-Career Members Network of Metabolomics Society (2020-2022), as well as mentoring Indonesians aspiring to pursue higher education or career in STEM through Indonesia Mengglobal and Dealls Jobs&Mentoring.