

MICROBIOME & PROBIOTICS SERIES: EUROPE

6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM

3RD PROBIOTICS CONGRESS

SKIN MICROBIOME & COSMECEUTICALS CONGRESS

ROTTERDAM, THE NETHERLANDS

— 2 0 - 2 2 M a y 2 0 1 9 —



#MicrobiomeSeries

www.global-engage.com



Global Engage is pleased to announce, the **Microbiome & Probiotics Series: Europe**, which is confirmed to take place on May 20-22, 2019 at the World Trade Center in Rotterdam, the Netherlands. Expanded to 3 days and incorporating the **6th Microbiome R&D and Business Collaboration Forum**, **3rd Probiotics Congress** and the new **Skin Microbiome and Cosmeceuticals Congress** this three for the price of 1 ticket event will provide unrivalled access to cutting-edge science and the key challenges and topics facing researchers and product developers, whilst providing extended time to establish partnerships and do business.

Network with over 400 attendees; hear from over 100 top scientists in the field; pitch and exchange details with willing investors and collaborators; learn about exciting new companies in the microbiome and probiotics space through individual talks, company showcases, panel and roundtable sessions, early career researcher presentations and poster prize winner talks. There will always be a presentation of interest!

With ample networking time onsite during the day and offsite at night, in order to take advantage of the wealth that Rotterdam has to offer, there will be many opportunities to broaden your connections and maximise your time at the meeting!

With sister Series in America each October and Asia in March the Global Engage series has a fantastic reputation as the number one microbiome & probiotics networking event for fostering partnerships across academia, pharma, biotech and cosmetics. If looking to either learn more from the top scientists in the space; showcase exciting developments in your research; or seek partnerships and funding within the industry; it is 3 days not to be missed!



www.global-engage.com/event/microbiome-probiotics-series



www.global-engage.com/event/microbiota



www.global-engage.com/event/probiotics-europe



www.global-engage.com/event/skin-microbiome

6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM



KAREN NELSON

President, J. Craig
Venter Institute, USA



SCOTT JACKSON

Group Leader, Complex
Microbial Systems
National Institute
of Standards and
Technology (NIST), USA



**CHRISTOPHER
REYES**

CSO and Founder,
Bloom Science, USA



PIERRE LESTAGE

CEO, NeribiOm,
France



NIKOLE KIMES

Founder, President
& CSO, Siolta
Therapeutics, USA



DIRK LOFFERT

CEO, Biomillenia SAS,
France

3RD PROBIOTICS FORUM



SØREN KJÆRULF

CEO, Lactobio,
Denmark



CAROLINE KURTZ

Senior Vice President
and Head of Metabolic
Programs, Synlogic
Inc., USA



KOEN VENEMA

Professor of Gut
Microbiology, Centre for
Healthy Eating & Food
Innovation, Maastricht
University – campus
Venlo, The Netherlands



**ANNICK
MERCENIER**

CIO, Nutrileads,
Switzerland



HIMANSHU KUMAR

Senior Scientist,
Danone Nutricia
Research, The
Netherlands



**MARKUS
LEHTINEN**

R&D Manager, DuPont
Nutrition & Health,
Finland

SKIN MICROBIOME & COSMECEUTICALS CONGRESS



**BERNHARD
PAETZOLD**

Co-Founder & Chief
Scientific Officer
S-Biomedic, Spain



ELSA JUNGMAN

Founder and CEO,
ELSI Skin Health



ASSAF ORON

Chief Business Officer,
BiomX, Israel



AUDREY GUENICHE

Senior Clinical Expert,
Advanced Research,
L'Oréal Research &
Innovation, France



**RICHARD
ANDREWS**

President and CEO,
Azitra Inc., USA



MARIE DRAGO

Founder, Gallinée, UK



COMPOSITION OF THE MICROBIOME

- Exploring the concept of enterotypes
- Population-level variation
- Genetic determinants
- Early life & development
- The effect of antibiotics

TOOLS & TECHNIQUES

- Sequencing method development
- Metagenomic data analysis
- High-throughput culturing
- Stem cell technologies and tissue engineering – moving towards 3D models
- Gnotobiotics
- Systems biology approach

GUT MICROBIOME & DISEASE

- Autoimmunity
- Metabolic functioning
- Inflammation
- Gut-brain axis
- Fecal microbiota transplants
- Case studies such as obesity, diabetes, IBD, colitis

MICROBIOTA & CANCER

- Identifying microbes associated with cancer
- Host-microbe interactions
- Future directions

ROUNDTABLES

- Metagenomic data analysis
- Investment & VC
- Academic – industry collaboration
- Gut-brain axis
- Therapeutics development



PROBIOTICS R&D

- Strain discovery
- Next generation microbial candidates
- Mechanisms of action
- Case studies in paediatrics, digestive health, metabolic diseases, aging, skin health, allergy

BUSINESS CONSIDERATIONS & REGULATION IN THE PROBIOTICS INDUSTRY

- Regulatory update
- Commercialization strategies
- Marketing & consumer acceptance

PREBIOTICS & DIET

- The role of diet in shaping the microbiome
- Host-microbe interactions
- The potential for prebiotics
- Human milk oligosaccharides (HMOs)
- Short chain fatty acids (SCFAs)
- Diet and disease
- Mechanisms of action

PRODUCT DEVELOPMENT STRATEGY

- Strain identification and screening
- Encapsulation and delivery methods
- Safety and QC

ROUNDTABLES

- Product formulation, storage & delivery
- Regulation
- Strain identification & screening
- VC & investment



SKIN DISEASE & THE MICROBIOME

- Barrier integrity
- Wound healing
- Microbiome-based therapies for skin ailments
- Case studies such as atopic dermatitis, psoriasis, acne, allergy

COSMETICS

- Where the market is; where it's going
- Best practices for commercialization
- Microbiome-based therapies

COMPANY SHOWCASES

- Series of 15-minute presentations highlighting the work being done by some of the most exciting small- and medium-sized companies in the skin microbiome field

ROUNDTABLES

- Formulating for the microbiome in beauty
- Inter-organ axis for curative treatments
- Atopic dermatitis



**MICROBIOME & PROBIOTICS
SERIES: EUROPE**

DRUG DEVELOPMENT STRATEGY

- Candidate selection and target validation
- Safety & toxicology studies
- Model optimization
- Drug delivery methods
- Biomarker development
- Clinical trial strategy
- Manufacturing
- VC & investment
- Regulation

Platinum Sponsor



Gold Sponsors



Silver Sponsors



Other Exhibitors & Sponsors



SPONSORSHIP & EXHIBITION OPPORTUNITIES AVAILABLE

For more details contact Gavin Hambrook: gavin@globalengage.co.uk or call +44 (0) 7538 368 764

CONFIRMED MICROBIOME SPEAKERS



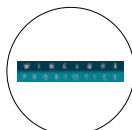
KAREN NELSON

President, J. Craig Venter Institute, USA



DIRK HADRICH

Policy and Programme Officer, Health Research, Personalised Medicine, DG Research & Innovation, European Commission, Belgium



SENIOR REPRESENTATIVE

Winclive Probiotics



OMRY KOREN

Assistant Professor, Head of the Microbiome Research Lab, Azrieli Faculty of Medicine, Bar-Ilan University, Israel



KNUT RUDI

Professor, Faculty of Chemistry, Biotechnology and Food Science, Norwegian University of Life Sciences



KATARZYNA HOOKS

Postdoctoral researcher; LaBRI / CNRS, University of Bordeaux, France



ARNE MATERNA

Vice President of Product, CosmosID



NIKOLE KIMES

Founder, President & CSO, Siolta Therapeutics, USA



DIRK LÖFFERT

CEO, Biomillennial SAS, France



LESLEY HOYLES

Associate Professor in Microbiology, Nottingham Trent University, UK



EVELIINA MUNUKKA

Research Director, Faculty of Medicine, University of Turku, Finland



PAUL FORSYTHE

Assistant Professor, Firestone Institute for Respiratory Health and Brain-Body Institute, McMaster University, Canada



GER RIJKERS

Professor in the Biomedical and Life Sciences, University College Roosevelt, The Netherlands



CHRISTOPHER REYES

CSO and Founder, Bloom Science, USA



PIERRE LESTAGE

CEO, NeribiOm, France



TINGTING ZHOU

General Manager, Novogene



ADRIEN NIVOLIEZ

Chief Executive Officer, Biose



JESSICA RICHMAN

Co-founder & CEO, uBiome, USA



JOSIPA DRAGUN

Field Application Scientist, FortéBio



MORTEN L. ISAKSEN

Founder & CEO, Bio-Me



CHRISTOPHE LACROIX

Professor, Laboratory of Food Biotechnology, Department of Health Sciences and Technology, ETH Zürich, Switzerland



JONATHAN DE JONGE

COO, ARTPred, The Netherlands



MOMU VUYISICH

Chief Science Officer, Viome, USA



GEORG ZELLER

Team Leader, Structural & Computational Biology, EMBL, Germany



BOUSHRA DALILE

PhD Student, Translational Research Center for Gastrointestinal Disorders, KU Leuven, Belgium



KAROLINE FAUST

Assistant Professor, Department of Microbiology and Immunology, KU Leuven, Belgium



MACHA NIKOLSKI

Head of Bioinformatics Center; Research Director LaBRI / CNRS, University of Bordeaux, France



HUGO ROUME

Operational Manager of Quantitative Metagenomic Sequencing Platform, MetaGenoPolis Unit, INRA, France



JAMES MCILROY

Founder, EnteroBiotix, UK



ASSAF ORON

Chief Business Officer, BiomX, Israel



SANDRA ROBELET

CSO, Syncrosome



BRIAN KLEIN

Senior Staff Scientist, Vedanta Biosciences, USA



JOS SEEGER

Operations Manager, Caelus Health, The Netherlands



MALCOLM KENDALL

Co-Founder & CEO, Microbiome Insights, Inc., Canada



CAROLE SCHWINTNER

Pharmaceutical Development Director, MaaT Pharma, France



HANSOO PARK

CEO & CSO (Co-founder), Genome & Company

CONFIRMED MICROBIOME SPEAKERS



HERMAN SPAINK
Professor of Molecular Cell Biology, University of Leiden, The Netherlands



FINN TERJE HEGGE
CTO and Head of Operations, Genetic Analysis AS, Norway



TARIQ IQBAL
Professor of Gastroenterology, University of Birmingham, UK



AMY LEBLANC
Editor in Chief, BioVox



COLETTE SHORTT
Director Global Regulatory Affairs, J&J Consumer



ERIC DE LA FORTELLE
Partner, Seventure Partners



HELOISE BRETON
Product Manager, Microbiome Product Development, DNA Genotek



LORENZA PUTIGNANI
Head of Units of Parasitology and Human Microbiome Research, Bambino Gesù Children's Hospital, Italy



SENIOR REPRESENTATIVE
Vaiomen

CONFIRMED PROBIOTICS SPEAKERS



JOHAN VAN HYLCKAMA Vlieg (Chair)
Vice President Microbiome & Human Health Innovation, Chr. Hansen, Denmark



CARINE BLANCHARD
R&D Specialist, Nestlé Research Center, Switzerland



BRUNO POT
Research Group of Industrial Microbiology and Food Biotechnology, Faculty of Sciences and Bioengineering Sciences, Vrije Universiteit Brussel, Belgium



ADAM BAKER
Head of Discovery - Microbiome and Human Health, Chr. Hansen, Denmark



MARIYA PETROVA
Research Associate KU Leuven and University of Antwerp, Belgium; and Founder of Microbiome insights and Probiotics Consultancy



CATHERINE DANIEL
Group Leader in the Laboratory of Lactic Acid Bacteria and Mucosal Immunity, Center of Infection and Immunity, Institut Pasteur Lille, France



YOAV LIVNEY
Associate Professor, Head, Lab of Biopolymers for Food & Health, Technion, Israel Institute of Technology



BART SMIT
Principal Scientist Fermentation, NIZO, The Netherlands



SØREN KJÆRULF
CEO, Lactobio, Denmark



JEAN-FRANÇOIS BRUGÈRE
Associate Professor, Université Clermont Auvergne, France



WENDY DAHL
Associate Professor, Food Science and Human Nutrition, University of Florida, USA



CAROLINE KURTZ
Senior Vice President and Head of Metabolic Programs, Synlogic Inc., USA



KOEN VENEMA
Professor of Gut Microbiology, Centre for Healthy Eating & Food Innovation, Maastricht University - campus Venlo, The Netherlands



OLAF LARSEN
Science Manager, Yakult Nederland, Assistant Professor (0.2FTE), VU University Amsterdam



ANNICK MERCENIER
CIO, Nutrileads, Switzerland



GRÉGORY LAMBERT
CEO & Vice President of R&D TargEDys SA, France



MARKUS LEHTINEN
Principal Scientist, DuPont Nutrition & Health, Finland



SUSAN JOYCE
College Lecturer, School of Biochemistry and Cell Biology; Faculty and Funded Investigator, APC Microbiome Institute & University College Cork, Ireland



PAUL DE VOS
Full Professor of Immunology, University Medical Center Groningen, The Netherlands



MAGALI CORDAILLAT-SIMMONS
Scientific and Regulatory Affairs Director, Pharmabiotic Research Institute, France



HIMANSHU KUMAR
Senior Scientist, Danone Nutricia Research, The Netherlands



JAN PETER VAN PIJKEREN
Assistant Professor, Food Science, University of Wisconsin - Madison, USA

CONFIRMED PROBIOTICS SPEAKERS



KIERAN TUOHY

Group Leader, Nutrition and Nutrigenomics, Fondazione Edmund Mach, Germany



HERMIE HARMSSEN

Associate Professor, Department of Medical Microbiology, University Medical Center Groningen, The Netherlands



FIONA CRISPIE

Technologist, Teagasc Food Research Centre and APC Microbiome Ireland



YEMI ADESOKAN

CSO, Gnubiotics Sciences SA



ROB BEUDEKER (Chair)

Investment Director, DSM Venturing

CONFIRMED SKIN SPEAKERS



BERNHARD PAETZOLD

Co-Founder & Chief Scientific Officer, S-Biomedic, Spain



ERIC HUANG

Chair Professor, National Central University, Taiwan; Adjunct Professor, Department of Dermatology, University of California, San Diego, USA



ASSAF ORON

Chief Business Officer, BiomX, Israel



JULIE O'SULLIVAN

PhD Student, APC Microbiome Ireland, Teagasc Food Research Centre, Ireland



JACOB BAK HOLM

Director of Scientific Operations, Clinical Microbiomics



MARCELLINE GOYEN

(Chair)
Skin Therapist & Gut Therapist, Editor for NTVH, The Netherlands



CATHERINE O'NEILL

Professor of Translation Dermatology, University of Manchester and CEO, SkinBiotherapeutics plc, UK



TODD KRUEGER

President and CEO, AOBiome Therapeutics, USA



GUUS KORTMAN

Scientist Microbiomics, NIZO, The Netherlands



ANNELEEN CORNELISSEN

Head of Microbiology, Lisando GmbH



SCOTT JACKSON

Group Leader, Complex Microbial Systems, National Institute of Standards and Technology (NIST), USA



LIONEL BRETON

Scientific Director, L'Oréal Advanced Research, France



AUDREY GUENICHE

Senior Clinical Expert, Advanced Research, L'Oréal Research & Innovation, France



INGMAR CLAES

Chief Scientific Officer Yun (Probiotherapy) NV, Belgium



KRISTIN NEUMANN

Author & Founder, MyMicrobiome



MARIE DRAGO

Founder, Gallinée, UK



ELSA JUNGMAN

Founder and CEO, ELSI Skin Health



RICHARD ANDREWS

President and CEO, Azitra Inc., USA



TOM VERLINDEN

CEO, Yun (Probiotherapy) NV, Belgium



HIMANSHU KUMAR

Senior Scientist, Danone Nutricia Research, The Netherlands



PAUL FORSYTHE

Assistant Professor, Firestone Institute for Respiratory Health and Brain-Body Institute, McMaster University, Canada



SENIOR REPRESENTATIVE

Metabolon



MAYA IVANJESKU

Chief Scientific Officer – LaFlora Probiotic Skincare, USA



IVANA HALUSKOVA BALTER

Independent consultant, Science for health partnership and preventive medicine, French Society of Immunology



BJÖRN ANDERSSON

Professor, Department of Cell and Molecular Biology, Karolinska Institute, Sweden



PETER JENS

CEO ANDBiopharma / Koppert Biologicals



JOHANNA GILLBRO

Co-founder and Chief Scientific Officer, Skinome Research AB, Sweden



SENIOR REPRESENTATIVE

Human Metabolome

08:00-09:00 Room: Shipping Hall Registration & Refreshments



Room: Diamond Room I&II

MICROBIOME R&D AND BUSINESS COLLABORATION FORUM

Session Chair: Christophe Lacroix, Professor, Laboratory of Food Biotechnology, Department of Health Sciences and Technology, ETH Zürich, Switzerland



**KEYNOTE ADDRESS:
KAREN NELSON**

President, J. Craig Venter Institute, USA

Translation of the Microbiome: are we there yet

The past 12 years has presented several significant studies and observations on the

human microbiome with great promise for new diagnostic and therapeutics. Many new companies have been founded in this field. Challenges that were evident in the earliest stages continue to plague the field. These include difficulties in comparing data sets from different studies; a focus on 16S gene analysis; lack of gene expression studies; limited data on host-microbe interactions; and lack of global studies. The promise still remains but as a community we need to figure out how to overcome these challenges in order to make the data from the human microbiome truly robust.

09:00-09:35



**KEYNOTE ADDRESS:
DIRK HADRICH**

Policy and Programme Officer, Health Research, Personalised Medicine, DG Research & Innovation, European Commission, Belgium

The collaborative efforts and research

directions of European microbiome funding

EU has already funded 216 projects for more than € 498 M to promote metagenomics and to advance our knowledge on microbes. MetaHIT as one of the first projects had a catalysing effect with its produced catalogue of gut microbes and the proposed distinct 'enterotypes'. Many more projects followed but we see today that mechanisms, effects and causes are still not well understood so that research is now gathering all kind of data to complement patient information aiming to advance health and disease management. Three new projects will start in 2019 to find applications and to enhance knowledge on the microbiome, host metabolism, nutrition, immune responses, lifestyle and other interplaying

09:35-10:10



Room: Penn Room I&II

PROBIOTICS CONGRESS

Session Chair: Johan van Hylckama Vlieg, Vice President Microbiome & Human Health Innovation, Chr. Hansen, Denmark



**KEYNOTE ADDRESS:
CARINE BLANCHARD**

R&D Specialist, Nestlé Research Center, Switzerland

Prebiotic, probiotic, postbiotic: where do we stand and how to move forward?

Scientific evidence regarding the health benefits of prebiotic, probiotic and postbiotic supplementation have been mounting over the last five decades. However, consumer understanding of these discoveries has lagged behind, with interest rising in the last decade only. Despite clinically proven prebiotic effects with soluble fibers, observed disease prevention following supplementation with specific probiotic strains or the pre-clinical efficacy of microbial metabolite supplementation, the gap between the clear scientific evidence and consumer engagement is visible. In this session, three examples of these scientific investigations (with a prebiotic, probiotic and postbiotic respectively) will be discussed in the context of currently available science, products and consumer messaging.

09:00-09:35



**KEYNOTE ADDRESS:
BRUNO POT**

Research Group of Industrial Microbiology and Food Biotechnology, Faculty of Sciences and Bioengineering Sciences, Vrije Universiteit Brussel, Belgium

Shared responsibility for Industry, Regulators and Press: what to do to get the consumer correctly informed on probiotics?

The microbiota of the GIT participates actively in a tremendous number of live-critical processes and the inability to develop or maintain a satisfactory microbiota is increasing the incidence of chronic immune or metabolic dysfunctions later in life. The potential role of probiotics to positively impact this microbiota is being supported by numerous research observations, either in the lab or in the hospital. Numerous nutri-economic studies illustrate the positive impact probiotics may have on our society in terms of improving health and reducing healthcare costs. Still it is very difficult to obtain a formal recognition of probiotic benefits, either as a food or as a drug. The confusion of the consumer therefore

09:35-10:10



Room: Mees Auditorium

SKIN MICROBIOME & COSMECEUTICALS CONGRESS

Session Chair:



**KEYNOTE ADDRESS:
BERNHARD PAETZOLD**

Co-Founder & Chief Scientific Officer S-Biomedic, Spain

Cutibacterium acnes the main component of the skin microbiota

- C. acnes is the main bacterial component of the skin microbiome on sebaceous and dry body sites (Byrd et al. 2018)
- Despite its dominant role on the skin many skin treatments aim at eradicating this bacterial species.
- I will present a selection examples of the literature why this bacteria is important to us and how it has a symbiotic relationship with its human host.

09:00-09:35



**KEYNOTE ADDRESS:
ERIC HUANG**

Chair Professor, National Central University, Taiwan; Adjunct Professor, Department of Dermatology, University of California, San Diego, USA

Skin Electro-biotic for microbiome banking

A commercial stool bank by collecting human gut microbiota is available in the market. Efforts from our group are devoted to establish a "Skin Microbiome Bank" for development of novel skin probiotics and/or prebiotics. The microbes within a human microenvironment may compete with each other for the same carbon source of fermentation. Microbiome editing by targeting individual bacterial species in the microbiome using bacteria-specific carbon source is our strategy to restore a health-associated microbiome after dysbiosis. The conjugates of carbohydrates and polymers provide unique carbon sources (prebiotics) for specific skin probiotic bacteria. We demonstrate for the first time that skin bacteria can produce electricity via

09:35-10:10

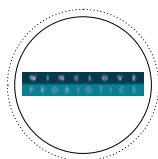
6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM

confounders. They will focus on cancer, liver failure and autism.

09:35-10:10

EARLY LIFE DEVELOPMENT OF THE MICROBIOME

10:10-10:40



SENIOR REPRESENTATIVE

Winclove Probiotics
Title TBC

3RD PROBIOTICS FORUM

remains high and contradictory reports in the media (both regular and social) make it very difficult for them to understand the benefits and limits of probiotics. Industry should keep investing in high quality research, regulators should define feasible criteria allowing recognition of these research efforts, and media should communicate in a realistic, non-skewed and balanced way on this research. Using a few recent examples the importance of each stakeholder involved will be illustrated.

09:35-10:10

PROBIOTICS R&D

SKIN MICROBIOME & COSMECEUTICALS CONGRESS

the bacterial fermentation. In this talk, the concept of probiotic-prebiotic-postbiotic-"electrobiotic" will be highlighted. Next-generation sequencing (NGS), although it is a new approach to biomarker identification, may not be able to dynamically detect the dysbiotic microbiome. We here demonstrate you the technology of "electrobiotic" for profiling and monitoring the skin dysbiosis in real time.

09:35-10:10

MICROBIOME & SKIN AILMENTS

10:10-10:40



SENIOR REPRESENTATIVE

Human Metabolome
Title TBC

10:40-11:50

Room: Shipping Hall

Morning Refreshments / One-to-One Meetings / Even Numbered Poster Presentations



OMRY KOREN

Assistant Professor, Head of the Microbiome Research Lab, Azrieli Faculty of Medicine, Bar-Ilan University, Israel

A microbiome is born: changes to the gut microbiome in pregnancy and infancy

- Pregnancy progression is associated with dramatic alterations in the composition of the gut microbiota.
- The gut microbiota of pregnant women is characterized with a decrease in bacterial diversity which is accompanied by an increase in "between sample" diversity and an increase in the relative abundance of Proteobacteria and opportunistic pathogens.
- Germfree mice inoculated with gut microbiota from pregnant women presented metabolic changes mirroring those of the pregnant women.
- We are now at the point of trying to understand whether these changes in community structure are a cause or consequence of some of the characteristics of pregnancy.

11:50-12:15



KNUT RUDI

Professor, Faculty of Chemistry, Biotechnology and Food Science, Norwegian University of Life Sciences

Transition from an infant- to adult like human gut microbiota

The colonization by gut bacteria at infancy is crucial for proper immune development and gut maturation. At birth, we are

12:15-12:40



ADAM BAKER

Head of Discovery - Microbiome and Human Health, Chr. Hansen, Denmark

Innovating in probiotics during the microbiome era. From screening to clinical development

- Screening in vitro and ex vivo to elucidate mechanisms of microbe-host interaction.
- The microbiome as a source of probiotics and live bacterial therapeutics
- Scientific and technical challenges in developing next generation probiotics

11:50-12:15

YEMI ADESOKAN

CSO, Gnubiotics Sciences SA

Selective Microbiome Modulation by Microbiota Accessible Carbohydrates

- Tools for monitoring efficacy

12:15-12:40



ASSAF ORON

Chief Business Officer, BiomX, Israel

Novel topical phage therapy for treating acne

BX001 is a topical gel of a phage cocktail comprised of natural phage capable of eradicating P. acnes, a main cause for acne disease. BX001 has demonstrated high efficacy in eradication of antibiotic resistant P. acnes strains and breakdown of biofilm. Under this talk we will share results from pre-clinical development activities and challenges in manufacturing and formulation towards entry into clinical trials expected H1 2019.

11:50-12:15



INGMAR CLAES

Chief Scientific Officer, Yun (Probiotherapy) NV, Belgium

The use of 'live' beneficial lactobacilli to treat skin conditions

YUN is a Belgian biotech company that succeeded in building an innovative and unique R&D platform and technology, allowing to keep bacteria alive in water-based

12:15-12:40

**6TH MICROBIOME R&D
& BUSINESS COLLABORATION FORUM**

nearly sterile, while just after a few days of life we become densely colonized by bacteria. How and when we acquire the adult associated bacteria, are not yet completely understood. We present evidence for the importance of butyrate producing bacteria in this transition, and a model for the establishment of an adult-like gut microbiota.

12:15-12:40


**EARLY CAREER RESEARCHER
PRESENTATION:
KATARZYNA HOOKS**

Postdoctoral researcher; LaBRI / CNRS,
University of Bordeaux, France

**Challenges of collaborative interdisciplinary
microbiome projects**

Microbiota studies rely on metagenomic sequencing and are highly technology-driven, thus require heavy bioinformatics support. Incorporating patient samples adds another layer of complexity. Clinical microbiomics is best approached through consortia involving multiple specialities, including medical doctors, microbiologists and bioinformaticians. Opportunities to form such interdisciplinary collaborations among scientists and clinicians are becoming more frequent, as funding agencies and research institutions are both actively encouraging them. I will discuss the challenges we faced in Bordeaux during collaborative work between researchers and doctors interested in the intestinal microbiota of cystic fibrosis patients. I will introduce the scientific and practical context of the study, the difficulties and the strategies that were adopted to progress the project, and the final results. Upon termination of the study, the benefits and pitfalls of the collaboration were clear, and this has allowed us to generate recommendations for other teams attempting to initiate clinical microbiome projects.

12:40-12:55


ARNE MATERNA

Vice President of Product, CosmosID

**Shotgun Metagenomics & Strain-Level
Analysis: Study Design for Microbiome R&D**

The emergence of Next-Generation Sequencing has changed the level of resolution that industry and academia can study the microbiome. As the industry transitions from 16S to Metagenomics, CosmosID is leveraging 10 years of

12:55-13:25

3RD PROBIOTICS FORUM

Continued

12:15-12:40


**EARLY CAREER RESEARCHER
PRESENTATION:
MARIYA PETROVA**

Research Associate KU Leuven and University of
Antwerp, Belgium; and Founder of Microbiome
insights and Probiotics Consultancy

**Lactobacillus rhamnosus GR-1 - the best studied vaginal
probiotic strain**

Lactobacillus rhamnosus GR-1 (LGR-1), originally isolated from a female urethra, is one of the most widely used probiotic strains. Various health effects are well documented with the best-known use in the treatment of bacterial vaginosis. Recently the complete genome sequence of LGR-1 was determined and compared to L. rhamnosus GG and L. rhamnosus LC705 at the genomic and phenotypic level. A key difference is an absence in LGR-1 of the spaCBA locus required for pili-mediated intestinal epithelial adhesion. The LGR-1 genome contains a unique cluster for EPS production, which synthesizes glucose-rich, rhamnose-lacking molecules. Only few cell-wall molecules were yet identified as essential factors governing host-microbe interactions. Such an example is the LGR-1 lectin-like protein 1 involved in tissue tropism-mediated adhesion to vaginal epithelial cells and immunomodulation.

12:40-12:55

12:55-13:25

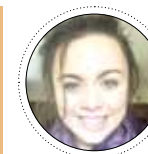
SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

**SKIN MICROBIOME &
COSMECEUTICALS CONGRESS**

environments. Use of live beneficial lactobacilli provides an antibiotics alternative by impacting the skin microbiome. Specifically for acne vulgaris YUN developed a formulation with microencapsulated live bacteria for the treatment of acne. Besides the impact on the skin microbiome and reduction of specific skin pathobionts linked with acne vulgaris, clinical symptoms of all patients with mild to moderate acne improved in our clinical trial. The improvement in clinical symptoms of acne is further underlined by a post-market follow up study. With our current data, YUN believes this will initiate a new era of skin therapeutics based on microbiome modulation, and provides a new therapeutic option to reduce antibiotic use for common skin conditions, like acne.

12:15-12:40


**EARLY CAREER RESEARCHER
PRESENTATION:
JULIE O'SULLIVAN**

PhD Student, APC Microbiome Ireland,
Teagasc Food Research Centre, Ireland

Antimicrobial potential of the skin microbiome

The human skin microbiome naturally harbours hundreds of diverse bacterial species which represent part of the body's first line of defence against the outside world. This commensal microbiota contributes to host health and is thought to be involved in the protection of the host against a range of infections. In this respect, the production of antimicrobial compounds is likely to be one of the defence mechanisms of the host microbiota. With the increase in antibiotic resistance, alternative antimicrobial therapies such as bacteriocins are being investigated. This study was undertaken to isolate and characterise novel bacteriocin-producing bacteria populating the human skin surface.

12:40-12:55


JACOB BAK HOLM

Director of Scientific
Operations, Clinical
Microbiomics

**Skin microbiome pipeline with strain
level resolution**

At Clinical Microbiomics we offer full-service microbiome analysis of skin samples. This includes a skin-dedicated metagenomics

12:55-13:25



6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM

12:55-13:25

R&D to educate and address the importance of standardization and reproducibility in metagenomics studies. This presentation will outline the various applications of shotgun metagenomics at every step of the product development workflow; from early discovery through to clinical development and manufacturing QC. CosmosID will also present data on the impact that different read-depths and lab methodologies can impact bioinformatics analysis along with recommendations on how to approach such studies.

3RD PROBIOTICS FORUM

12:55-13:25

Continued

SKIN MICROBIOME & COSMECEUTICALS CONGRESS

12:55-13:25

pipeline with optimized DNA extractions, shotgun sequencing, and data analysis to maximize data quality and insights to the skin microbiome. Here we present our skin microbiome platform, which is built on data from almost 2,000 shotgun sequenced skin samples from multiple body sites allowing premium taxonomical and functional resolution. Using SNV-based analysis we are able to identify, discriminate and track strains and sub-species populations from skin microbiome data.

13:25-14:25 Room: Shipping Hall Lunch / One-to-One Meetings

SPONSORED BY: **Yakult**

Room: Diamond Room I&II

THE GUT MICROBIOME & DISEASE

Session Chair: Yemi Adesokan, CSO, Gnubiotics Sciences SA

MICROBIOME COMPANY SHOWCASES:

Short presentations from some of the most exciting small and medium-sized companies in the industry

14:25-14:45 **NIKOLE KIMES**

Founder, President & CSO, Siolta Therapeutics, USA

Translating the Promise of the Microbiome through the Development of Live Biotherapeutic Products

- The developing gut microbiome and allergic disease
- Translating academic research into clinical trials
- Embracing the potential for prevention

14:45-15:05 **JAMES MCILROY**

Founder, EnteroBiotix, UK

Using whole community microbiome transfer to develop novel medicinal products

- Establishing a fully-integrated, GMP-compliant and MHRA licensed microbiota manufacturing platform.
- Applicability of FMT in disease indications beyond C.difficile infection
- Combining faecal microbiota with precision antimicrobials to create an entirely novel class of medicinal product

15:05-15:25 **DIRK LÖFFERT**

CEO, Biomillenia SAS, France

Sourcing Novel Microbes for Product Development from the Vast Space of Microbial Dark Matter

Room: Penn Room I&II

PROBIOTICS R&D

Session Chair: Hermie Harmsen, Associate Professor, Department of Medical Microbiology, University Medical Center Groningen, The Netherlands



MARKUS LEHTINEN

Principal Scientist, DuPont Nutrition & Health, Finland

Probiotics and nasal microbiota in respiratory tract infections

Traditionally, probiotic research has been focusing on the intestinal microbiota and gut health. With emerging research data, there has been an increasing interest and rationale in looking beyond the intestinal microbiota, especially when investigating extra-intestinal health effects of probiotics. In the context of upper respiratory tract infections, the nasal microbiota plays an important role in modulating the mucosal immune responses to viral infections. We have investigated in a clinical trial the impact of probiotic Bifidobacterium lactis BI-04 supplementation on the intestinal and respiratory tract microbiota and on the course of rhinovirus infection. Microbiota composition, immune response and clinical data will be discussed.



YOAV LIVNEY

Associate Professor, Head, Lab of Biopolymers for Food & Health, Technion, Israel Institute of Technology

Novel Biopolymeric Vehicles for Targeted Delivery to Gut Probiotics

Maintaining a healthy proportion of probiotic bacteria in our

Room: Mees Auditorium

MICROBIOME & SKIN AILMENTS

Session Chair: Marcelline Goyen, Skin Therapist & Gut Therapist, Editor for NTVH, The Netherlands



CATHERINE O'NEILL

Professor of Translation Dermatology, University of Manchester and CEO, SkinBiotherapeutics plc, UK

The gut-skin axis

Probiotics are defined as 'live micro-organisms, which when administered in adequate amounts, provide a health benefit on the host'. To date most organisms defined as 'probiotic' are members of the gut microbiota, e.g. species of Lactobacillus. There is increasing evidence that lactobacilli are useful for the treatment/prevention of a variety of conditions of the gut. Recently, it has become popular to include lactobacilli in topical formulations. Although in this context they cannot be considered 'probiotic', lactobacilli do have enormous capacity to change the physiology of the skin. In this talk, I will review the data supporting their use and describe the work my group does developing lactobacilli as novel therapies for skin.



MAYA IVANJESKU

Chief Scientific Officer - LaFlora Probiotic Skincare, USA

Lysates vs Live Probiotic cultures in skincare- what are the benefits and differences?

Numerous skincare brands incorporate lysates in their formulas and few brands were able to harness

**6TH MICROBIOME R&D
& BUSINESS COLLABORATION FORUM**

The human microbiota is a complex community of microbes that play a prominent role in health and well-being. An imbalance of the microbiota (dysbiosis) has been found to strongly impact certain lifestyle diseases, such as diabetes, obesity and allergy, as well as oncology, intestinal tract diseases, depression and autism. Biomillenia's approach is able to rapidly identify previously undiscovered microbes, providing a more comprehensive understanding of the mechanisms influencing the human microbiota. The Biomillenia technology platform is used to culture and perform functional analysis of microbes in low volume droplets using proprietary lab-on-a-chip technology with the ultimate goal of building the world's largest microbial culture collection from samples taken from animals, plants, humans and or from soil and sea water. The Company's unique approach is able to maintain a higher diversity of living microbes than standard microbiology methods.

**JOSIPA DRAGUN**

Field Application
Scientist, FortéBio



Synthetic Metagenomics: The Next Big Step Converting Digital Information Back to Useful Biology

Next-generation sequencing technologies have resulted in the identification of millions of novel predicted genes which cover the full spectrum of known pathways and functional activities. These include large numbers of novel biocatalysts for potential applications in energy and environmental technologies, and potential uses in basic research and applied biotechnology. A major challenge is converting the vast amount of digital information to observable, functional biology such as enzyme activity or protein expression. Due to the variety of organisms in any given microbiome, studies can benefit greatly from flexibility, throughput and true walk-away operation of an automated microbial colony picking system. The talk presents an example, how the QPix system offers streamlined control and management of complex and iterative processes.

3RD PROBIOTICS FORUM

colon is imperative to our health. Probiotic bacteria need amino acids, which are scarce in the colon. No existing prebiotic product contains protein. We developed a novel biopolymeric vehicle for selective targeted delivery of peptides to probiotic bacteria in the colon, for enhancing their competitive advantage over undesired microorganisms. The vehicle is composed of conjugates of galacto-oligosaccharides (GOS) and lactoferrin, pre-digested by pepsin (LFH). We found that most of the protein in the Maillard conjugates survived digestion, hence would reach the colon, and be used by the probiotics. The growth rate of the probiotic L. casei on the conjugates was double that on the unconjugated components. This study introduces the next-generation of prebiotics: peptide/protein containing prebiotics.

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

**SKIN MICROBIOME &
COSMECEUTICALS CONGRESS**

live and active bacteria in addition to the lysates. Neither is an easy task when it comes to formulation however, we can all acknowledge and appreciate the difficulty in working with live probiotics. So, what are the benefits and is this extra challenge worth the effort? There are numerous views and opinions on this topic but the bottom line is: are there any differences using lysates vs live and active probiotic cultures when it comes to skin treatment products that are driven by the results.

**GUUS KORTMAN**

Scientist Microbiomics,
NIZO, The Netherlands



In vitro microbiota models for gut, skin and women's health

NIZO has developed in vitro high-throughput screening technologies for assessment of microbiota modulators on the gut, skin and vaginal microbiota. With our MicroColon technology we can screen modulator effects on both infant and adult fecal microbiota, using fresh fecal samples as inoculum for the fermentation. By using organic acid analysis and microbiome profiling (next-generation sequencing and bioinformatics analysis, and qPCR) as readouts, the most promising ingredients (e.g. HMOs, probiotics, prebiotics, fibers, etc.) can be selected. Our MicroSkin model contains human callus as the main nutrient source, providing a much more relevant biological skin matrix compared to traditional/defined culture media. Typically, the high-throughput MicroSkin model can contain single strains of which we have tested up to 20 skin isolates and on which we can test growth promotion or inhibition of compounds (e.g. prebiotics, extracts, lysates, etc.), as well as effects on strain metabolism. With our newest in vitro microbiota screenings technology we now also offer assessment of potential modulators for the vaginal microbiota. This model contains a culture medium simulating the women's genital tract environment, inoculated with vaginal microbiota swabs. By microbiome profiling effects of potential modulators on the vaginal microbiome composition can be assessed.

6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM



MORTEN L. ISAKSEN

Founder & CEO, Bio-Me

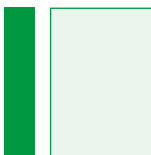
High-resolution, rapid microbiome analysis as a tool in Precision Medicine

With the need for rapid detailed analysis in routine microbiome analysis, Bio-Me has developed the Precision Microbiome Profiling (PMP) platform. PMP offers analysis of hundreds of samples in less than a day for a panel of 50 - 200 different bacterial species, providing direct quantification of number of genomes in the sample. Some data from applications of the technology in an intervention study will be presented. Among other things, considerable daily variations at species level was observed. This may have implication on future design of intervention studies and aid in better microbiome analysis as an important tool in Precision Medicine.



15:40-15:55

3RD PROBIOTICS FORUM



SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

15:40-15:55

SKIN MICROBIOME & COSMECEUTICALS CONGRESS



ANNELEEN CORNELISSEN

Head of Microbiology,
Lisando GmbH

Artilysin® - Ingenious Targeted Restoration of the Microbiome

The Lisando AG is a Biotech company founded in 2009 focusing on a new and innovative antibacterial technology platform, Artilysin®. Artilysin®s designed by the modification of endolysins, are able to pass the outer membrane of gram-negative bacteria and exhibit an increased affinity towards the gram-positive cell-wall. Their destabilisation of the bacterial cell wall bursts the cells within only fractions of a second. Furthermore, Artilysin® are quickly biodegradable, non-toxic, stable against resistance development and cause no negative side effects. As a platform technology, Artilysin®s can target nearly every bacterial species and can be specifically designed to eliminate only the target bacteria without harming the beneficial microflora. The targeted modulation of the microbiome in combination with its unique overall characteristics make Artilysin®s the perfect instrument in the restoration of a healthy and balanced microbiome.



15:40-15:55

15:55-16:45 Room: Shipping Hall Afternoon Refreshments / One-to-One Meetings / Odd-Numbered Poster Presentations

LORENZA PUTIGNANI

Head of Units of Parasitology and Human Microbiome Research,
Bambino Gesù Children's Hospital, Italy

Topic: Microbiome biomarkers for metabolic disease



BART SMIT

Principal Scientist
Fermentation, NIZO,
The Netherlands

Culturing and Scale up of Live Biotherapeutic Products & probiotics

At this moment new Live Biotherapeutic Products (LBP) with applications in several disease areas such as Metabolic diseases, Cancer, Dermatology and CNS, are under fast development. One may not only think of strains belonging to the group of Lactobacilli and Bifidobacteria, but also Eubacteria, Akkermansia, Propionibacteria, Clostridiaceae, Blautiaceae, Faecalibacteria, etc. Growing, processing and formulation of these bacteria on production scale is very species and strain dependent and poses a range of challenges. Therefore optimization of the economics of the LBPs/probiotics plays in an ever more important role in the commercialization process.



16:45-17:10



TODD KRUEGER

President and CEO, AOBIOME Therapeutics, USA

The use of ammonia oxidizing bacteria for the treatment of inflammatory conditions

AOBIOME's proprietary product candidates harness a single strain of class-defining, auto-regulating, Ammonia Oxidizing Bacteria, or AOB, a human commensal that produces well-understood and well-characterized biochemical compounds that are critical to human health. We believe that the application of AOB has the potential to restore critical biological and biochemical processes through the symbiotic relationship between humans and these naturally-existing bacteria to address significant clinical need at various stages of inflammatory conditions such as acne vulgaris or acne, atopic dermatitis or eczema, rosacea, allergic rhinitis and migraine.

16:45-17:10

6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM

17:10-17:40



LESLEY HOYLES

Associate Professor in Microbiology
Nottingham Trent University, UK

Understanding the role of the gut microbiome in non-alcoholic fatty liver disease

Non-alcoholic fatty liver disease (NAFLD) is the most common cause of chronic liver disease worldwide, with incident rates of 20–30 % in western countries and 5–18 % in Asia and closely linked to the global obesity epidemic. Recent work has shown perturbation of the microbiome and specific microbiome-associated metabolites contribute to the phenotype of NAFLD. This talk will present findings from recent integrated systems biology studies examining the role of the microbiome in NAFLD, highlighting potential new biomarkers for the disease and areas that require further study.

17:40-18:10



HERMAN SPAINK

Professor of Molecular Cell Biology, University of Leiden, The Netherlands

New tools for high throughput functional microbiomics

The last years several new technological advances have speeded up the identification of functional traits of microbes that confer beneficial effects on the host. For instance new sequencing technologies make it possible to quickly get insights in the composition and functionalities of complex microbiomes based on metagenomics. We have used a combination of Oxford Nanopore and Illumina sequencing technologies to obtain metagenomics data that can accurately show the identity of the majority of microbes in complex microbiomes. In addition, gnotobiotic animal test models have been developed using zebrafish larvae that can identify functional traits of microbiomes at high throughput. Especially with respect to the effects of the microbiome on the host innate immune system the larval screens are useful for human microbiome diagnostics.

3RD PROBIOTICS FORUM

PROBIOTICS & PREBIOTICS COMPANY SHOWCASES:

Short presentations from some of the most exciting small and medium-sized companies in the industry



17:10-17:30 SØREN KJÆRULF

CEO, Lactobio, Denmark

New probiotic strains with functional properties

- Lactobio has built a proprietary discovery and screening platform that identify the best probiotic

strains to target microbiome dysfunctions associated with specific diseases.

- Humans have spent the last 80 years trying to clean “germs” from our homes and bodies. The use of antibiotics to fight infections have saved countless numbers of lives, but with unintended consequences to our microbiomes that we are only beginning to understand. Lactobio has developed several lactic acid bacteria with activity against multi-resistant bacteria.
- In Lactobio we focus on creation of new microbial solutions based on probiotics, we work with the gut, oral, skin and vaginal microbiota to create new products targeted to specific needs.

17:10-18:10

17:30-17:50 SENIOR REPRESENTATIVE (Reserved)

Finch Therapeutics, USA



17:50-18:10 ANNICK MERCENIER

CIO, NutriLeads, Switzerland

NL-01, a novel carrot derived polysaccharide modulating immunity and gut microbiota

NutriLeads has identified that an active

polysaccharide motive can be extracted from crops and deliver immune stimulating properties similar to those reported for ginseng extracts thus providing a solution for critical cost and sourcing issues related to ginseng derived functional ingredients. Preclinical work showed that this extract stimulates especially the innate arm of the immune system, leading to protection against Salmonella infection in mice. This immune effect was confirmed in a PoC trial in healthy adults and led to design further clinical trials aiming at demonstrating protection against respiratory infections. The mouse study and in vitro faecal fermentation experiments also demonstrated that RG-I crop derived pectic polysaccharides are definitively modulating the gut microbiota and this was again confirmed in the human situation.

SKIN MICROBIOME & COSMECEUTICALS CONGRESS

17:10-17:40

CROSS EVENT ROUNDTABLE DISCUSSIONS:

Roundtables are informal, small-group interactive discussions on key topics in the field. Discussion leaders will introduce sub-topics/questions for discussion and roundtable attendees are encouraged to participate actively in the session.



Table 1: Harnessing the gut-skin-brain axis microbiome in health and disease

LIONEL BRETON

Scientific Director, L'Oréal Advanced Research, France

As crucial interface organs, the gut, brain and skin have much in common. Emerging research has shown that skin microbiota may play a critical role at the interface of all three organs. Therefore, it is not surprising that conditions affecting one organ's microbiota may also have manifestations in the two others. More importantly, a better understanding of the intestinal microflora and its subsequent relationship with our skin may provide new insights into developing unique product candidates that will accurately treat a spectrum of skin disease indications with current unmet needs. As the microbiome continues to enter the scientific mainstream, this multiple complexity organ is largely unexplored so join this unique workshop to discuss new translational approaches, advanced clinical links and the route to commercially viable therapeutics.

17:10-18:10



Table 2: Are live probiotic cultures safe to be used on skin?

MAYA IVANJESKU

Chief Scientific Officer – LaFlore Probiotic Skincare, USA

- What are the strains of live probiotics used on skin
- Opinion in using topical application that contains live and probiotic cultures
- What studies should be done to show safety and efficacy of live and active cultures



Table 3: Gut Microbiota and Antibiotic Resistance

IVANA HALUSKOVA BALTER

Independent consultant, Science for health partnership and preventive medicine, French Society of Immunology

- AR Genes transfer



17:40-18:10

Continued



17:10-18:10

Continued



17:10-18:10

- Clostridium infection and microbiota after ATB treatment
- ATB effect - gut/lung axis

18:10-19:10

End of Day One / Networking Drinks Reception

08:00-09:00

Room: Shipping Hall

Refreshments



Room: Diamond Room I&II

THE MICROBIOME AND IMMUNITY

Session Chair: Momo Vuyisich, Chief Science Officer, Viome, USA

**GER RIJKERS**

Professor in the Biomedical and Life Sciences
University College Roosevelt, The Netherlands

Antibiotics and probiotics: balancing gut microbiota during treatment for infectious diseases

- A well balanced gut microbiota is essential for maintenance of health.
- Antibiotics are powerful drugs for treatment of infectious diseases.
- Diarrhea is a common side effect of antibiotic therapy, and is most frequently associated with the use of broad spectrum antibiotics.
- Selected strains of probiotics, either single strain or consortia, reduce the incidence and severity of antibiotic-associated diarrhea.
- Lactobacillus rhamnosus GG has been studied most and shows a relative risk reduction of 0.30 (95% CI 0.16–0.55).
- Clear communication to consumers, patients, and health care professionals now is needed for optimal implementation in practice.

09:00-09:35

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

09:35-10:05

**3RD PROBIOTICS FORUM**

Room: Penn Room I&II

PROBIOTICS R&D

Session Chair: Carine Blanchard, R&D Specialist, Nestlé Research Center, Switzerland

**JEAN-FRANÇOIS BRUGÈRE**

Associate Professor, Université Clermont
Auvergne, France

Time to consider Archaea as pharmabiotics for cardiovascular disease and more

Archaea are not bacteria nor eukaryotes, but microorganisms fundamentally different that possess some unique features. No pathogen has been described so far as well for humans, animals or plants. Some of them are consistently retrieved within most human- and animal-associated microbiota, sometimes at elevated levels. Considering the genetic and metabolic specificities of some of them, encompassing those of humans-hosted archaea, these microorganisms seem to be appropriate and even unique for some applications in humans. Tackling intestinal TMA, a product of intestinal bacteria metabolism that leads to the atherogenic plasma compound TMAO provides an example of their usefulness in cardiovascular disease prevention. All of this contributes to propose that it is time to consider archaea as a reservoir of workable next-generation pharmabiotics.

09:00-09:35

**WENDY DAHL**

Associate Professor, Food Science and Human Nutrition, University of Florida, USA

A randomized, double-blind trial of Bifidobacterium animalis ssp. lactis B94 on gastrointestinal outcomes in adults with Prader-Willi syndrome

Meta-analysis data support the efficacy of Bifidobacterium animalis ssp. lactis strains for normalizing stool frequency and form in adults with functional constipation. However, the efficacy of B. lactis strains in managing constipation and

09:35-10:05

**SKIN MICROBIOME & COSMECEUTICALS CONGRESS**

Room: Mees Auditorium

COSMECEUTICALS

Session Chair: Lionel Breton, Scientific Director, L'Oréal Advanced Research, France



**KEYNOTE ADDRESS:
AUDREY GUÉNICHE**

Senior Clinical Expert, Advanced Research
L'Oréal Research & Innovation, France

A specific skin care prebiotic cream for skin microbiome recovery after skin aggression

Face cleansing is an important daily gesture that allows oils, dirt, sebum to be washed from the skin. However, whereas mild cleanser is recommending, cleansing using soap can diffuse into the stratum corneum layer of the skin and disturb ordered lipid and cellular structures might be detrimental also for microbiota. On 30 volunteers, clinical expert evaluation and self-assessment revealed that soap cleansing increases dryness, roughness and discomfort and these skin alterations do not recover during the day. This soap wash decreased the quantity, the bacterial richness and evenness (alpha diversity) and changed the bacterial communities (beta diversity) that did not recover during the day. One application of a specific skin cream helps to restore bacterial alpha diversity and decrease tightness. Very interestingly, 15 days' cream application allows the skin and bacteria community to better resist against aggression and to quickly completely recover post cleansing. All these important findings show that it is important to propose a skin routine that will firstly clean by respecting the diversity of skin microbiota and, secondly, will feed the skin microbiota and facilitate its recovery. The specific prebiotic formula, in vivo, and is very useful to preserve skin and microbiome quality.

09:00-09:35



**SOLUTION PROVIDER
PRESENTATION:
SENIOR REPRESENTATIVE**

Metabolon
Title TBC

09:35-10:05

**6TH MICROBIOME R&D
& BUSINESS COLLABORATION FORUM**

09:35-10:05

Continued

**EVELINA MUNUKKA**Research Director, Faculty of Medicine
University of Turku, Finland**MAPPAC (Microbiology Appendicitis
Acuta) trial: Acute appendicitis and
microbiota -etiology and effects of the
antimicrobial treatment**

Still to date, appendectomy is the most common emergency abdominal surgery, and has traditionally been the standard treatment for acute appendicitis. The appendicitis treatment with antibiotics (ABs) has been tested in various RCTs lately. Recently, Finnish multicenter APPAC trial (n=530) compared the AB therapy with appendectomy in the treatment of uncomplicated acute appendicitis. Results showed that over 70 % of patients were successfully treated with ABs alone (Salminen et al. 2015, JAMA). Despite the knowledge that uncomplicated acute appendicitis is treatable by ABs the role of the gut microbiota (GM) in the pathogenesis and etiology of appendicitis have not been clarified yet. Further, there is only limited amount of evidence on the appendix microbial composition in humans. Currently MAPPAC trial, a microbiological continuum to APPAC, aims to evaluate the possible role and differences in the microbiological etiology of complicated and uncomplicated appendicitis.

10:05-10:30

3RD PROBIOTICS FORUM

09:35-10:05

related gastrointestinal symptoms common in many patient populations requires investigation. Constipation in adults with the genetic disorder, Prader-Willi syndrome, is thought to be due to motility issues and a restrictive diet. The aim of this study was to determine the effect of daily consumption of Bifidobacterium animalis ssp. lactis B94 on gastrointestinal function, symptoms, and microbiota in adults with PWS. Participants (n=25; 15F:10M) completed a 20-week randomized, placebo-controlled, crossover study, receiving 15 billion CFU of B. lactis B94 or placebo each for 4 weeks, preceded by a 4-week baseline and followed by 4-week washouts. Daily questionnaires provided records of stool frequency and stool form. Stools per period were collected for strain viability and exploratory microbiota analysis. Dietary intake by 7-day food records was also collected. Preliminary data analyses suggest that adults with Prader-Willi syndrome consuming a low energy and low fiber diet, may have attenuated discomfort with gastrointestinal dysfunction. Further analyses is underway to explore the specific effects of B. lactis B94 and the microbiome profile of this patient population.

10:05-10:30

**CAROLINE KURTZ**Senior Vice President and Head of Metabolic
Programs, Synlogic Inc., USA**Synthetic Biotic Medicines for the Treatment
of Rare Inborn Errors of Metabolism and
Metabolic Disease**

This talk will describe the design, preclinical data and early clinical data for two distinct synthetic biotic strains engineered from E. coli Nissle for the treatment of hyperammonemia disorders and for phenylketonuria respectively.

**SKIN MICROBIOME &
COSMECEUTICALS CONGRESS**

09:35-10:05

Continued

**MARIE DRAGO**

Founder, Gallinée, UK

**Communicating on the skin microbiome to
consumers**

- How Gallinée learned to talk about bacteria
- The shifting definitions of pro, pre and postbiotics
- What claims for beauty brands

10:05-10:30

10:30-11:40

Room: Shipping Hall

Morning Refreshments / One-to-One Meetings / Odd-Numbered Poster Presentations

6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM

GUT MICROBIOME AND DISEASE



30 MINUTE SOLUTION PROVIDER PRESENTATION: **HANSOO PARK**

CEO & CSO (Co-founder), Genome & Company
**Comprehensive Multi-Omic Analysis
Reveals Strain-Specific Microbiome
Enhancing Anti-PD-1 Efficacy**

The gut microbiome of cancer patients has recently been highlighted as a critical factor for cancer therapy. Although several gut bacterial species have been suggested as onco-probiotics, the multi-omic characteristics of anti-tumor bacteria strains have not been fully clarified. Genome & Company provide an additional dimension to bacterial strain-specific determination of cancer therapeutics efficacy, by integrating metagenome, bacterial whole genome/transcriptome, mouse intestinal transcriptome/serum metabolome data.



POSTER COMPETITION WINNERS TALK

If interested in submitting a poster and/or applying to present a poster on the programme download the submission form at www.global-engage.com/event/microbiota before the deadline 19th April 2019.

50 MINUTE PANEL DISCUSSION:

Regulatory Hurdles and Other Obstacles on the Path to Microbiome Market

Along with the enormous promise there is lot of uncharted territory in the world of microbiome. Separating what we believe we know and what we truly know about the microbiome is essential to directing research and commercialization efforts. From scoping microbiome-based modalities and sourcing new platforms, to identifying regulatory strategies and insights there are a number of steps to development and commercialization from both the industry and start up point of view. To explore the latest on this topic from the bench through clinical solutions Johnson & Johnson Innovation gathered a panel of trailblazers

3RD PROBIOTICS FORUM

PROBIOTICS CASE STUDIES

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

POSTER COMPETITION WINNERS TALK

If interested in submitting a poster and/or applying to present a poster on the programme download the submission form at www.global-engage.com/event/microbiota before the deadline 19th April 2019.



KOEN VENEMA

Professor of Gut Microbiology, Centre for Healthy Eating & Food Innovation, Maastricht University – campus Venlo, The Netherlands
Ingestion of probiotic *Bacillus coagulans* GBI-30, 6086 increases plant protein

digestion in a dynamic, computer-controlled in vitro model of the small intestine (TIM-1)

- Due to the growing world population and consumptions patterns, animal protein resources are becoming more scarce in the next decades.
- Plant proteins are a viable alternative, but have a lower digestibility than animal proteins.

SKIN MICROBIOME & COSMECEUTICALS CONGRESS

COSMECEUTICALS



KRISTIN NEUMANN

Author & Founder,
MyMicrobiome

Setting new standards in the (microbiome) cosmetics industry

MyMicrobiome.info teaches the public

comprehensively about the microbiome. In doing so, we make sure that we transmit scientific facts easily understandable to a broad audience. Thus, we are the only microbiome information platform that makes the topic accessible to the general public. One mission of MyMicrobiome is to scrutinize products for the microbiome and inform the public about products which are scientifically proven to be beneficial for the microbiome. In this context MyMicrobiome.info developed a Microbiome Quality Standard which classifies cosmetic products as "Microbiome-friendly". Cosmetic products are tested in cooperation with an ISO-certified laboratory and receive a "Microbiome-friendly" certificate after passing all tests. Thus MyMicrobiome sets a new quality standard for the cosmetics industry.

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

POSTER COMPETITION WINNERS TALK

If interested in submitting a poster and/or applying to present a poster on the programme download the submission form at www.global-engage.com/event/microbiota before the deadline 19th April 2019.



ELSA JUNGMAN

Founder and CEO, ELSI Skin Health

Microbiome, Clean Beauty and Skin Sensitivity: How to design the new generation of beauty products

We're witnessing a radical shift in the beauty

industry. With new research that improves our understanding of the microbiome, we are becoming increasingly pro-bacterial. Simultaneously, a rise in skin conditions such as sensitive skin and new concerns about toxic ingredients are driving consumers towards cleaner and gentler products. This presentation will explain how these different factors are influencing the new generation of beauty products and how to integrate them for product development.

6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM

for a look at case studies and historical learnings to help better understand if this is truly the golden age of microorganisms.

Potential topics covered:

- What are the regulatory hurdles at European level?
- What is the approach of the EMA?
- Is the US FDA more advanced on this front, and is the FDA's approach affecting the EU market?
- What are the clinical hurdles to be overcome?
- What is the consumer path for microbiome-based solutions?
- How will products be marketed in terms of different regulations?
- What are the thoughts on the intellectual property challenges?
- How have start-ups thought about the regulatory approach and the IP concerns?



AMY LEBLANC (Chair)
Editor in Chief, BioVox



COLETTE SHORTT
Director Global Regulatory Affairs, J&J Consumer



BERNHARD PAETZOLD
Co-Founder & Chief Scientific Officer,
S-Biomedic, Spain



ERIC DE LA FORTELLE
Partner, Seventure Partners

12:25-13:15

3RD PROBIOTICS FORUM

12:25-12:50

- In a validated, dynamic in vitro model of the upper GI tract the effect of simultaneous addition of BC30 on plant protein digestion was evaluated
- BC30 led to increased protein digestion of pea protein, rice protein and soy protein when evaluated by alpha-amino nitrogen analyses
- Subsequent metabolomics analyses showed increased free amino acids and dipeptides in the fraction of the in vitro model that mimicked absorption by the body
- This data is promising in increasing protein digestion of plant protein, and can be applied to several population, such as vegetarians, athletes on high-protein diets, etc

12:50-13:15



OLAF LARSEN
Science Manager, Yakult
Nederland, Assistant Professor
(0.2FTE), VU University Amsterdam
Towards a rational design of faecal transplant analogues

Although the gut microbiota has been studied intensively for the last decades, the understanding of the fundamental mechanisms underlying signal transduction between the microbial species is still in its infancy. In this lecture, results will be shown that explain these fundamental signalling pathways from a first order perspective using elementary graph (network) theory. Using this approach, the mechanistic rationale underlying the empiric notion that a higher microbiota richness is linked to a more robustness can be elucidated. Moreover, recent results provide ingredients to rationally design faecal transplant analogues, also providing a mechanistic bridge from probiotic single strain to multi-strain preparations.

Yakult

12:25-12:50

12:50-13:15



RICHARD ANDREWS
President and CEO, Azitra Inc., USA
Leveraging the microbiome to address skin health and treat skin disease

Abstract: Skin disease and skin conditions are often the result of a complicated interaction between dysbiosis (an abnormal microbiome on the skin) and protein deficiencies, tissue injury and/or the immune system. Azitra has developed proprietary topical treatments using natural commensal organisms that address both the underlying cause of a disease or skin condition and work to resolve the challenges of inflammation associated with dybiosis. Azitra is advancing microbiome treatments for Eczema, orphan indications such as Netherton Syndrome and for treating and preventing rashes associated with cancer therapies.

Continued

13:15-14:15 Room: Shipping Hall Lunch / One-to-One Meetings

SPONSORED BY: **Yakult**

Room: Diamond Room I&II

Session Chair: Koen Venema, Professor of Gut Microbiology, Centre for Healthy Eating & Food Innovation, Maastricht University – campus Venlo, The Netherlands

Room: Penn Room I&II

Session Chair:

Room: Mees Auditorium

Session Chair: Richard Andrews, President and CEO, Azitra Inc., USA

6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM



TARIQ IQBAL

Professor of Gastroenterology, University of Birmingham, UK

FMT: a national service for the UK

- How to set up a national service
- Early results from the STOP-COLITIS trial for UC
- FMT for other conditions

14:15-14:45



PAUL FORSYTHE

Assistant Professor, Firestone Institute for Respiratory Health and Brain-Body Institute
McMaster University, Canada

Psychoneuroimmunology and Gut Microbes

Psychoneuroimmunology is the study of the interaction between the brain, neural functions and immune processes. It is now clear that the gut microbiota is an important modulator of these relationships. This presentation will focus on studies designed to investigate mechanisms linking gut microbes, brain function and immunity. While the enteric nervous system and vagus nerve play a critical role in transmitting anti-depressant signals to the brain, the balance between pro-inflammatory and

14:45-15:15

3RD PROBIOTICS FORUM



GRÉGORY LAMBERT

CEO & Vice President of R&D,
TargEDys SA, France

ProbioSatys, Naturally modulating the appetite via the microbiome

TargEDys is a French clinical stage biotech company aiming to control metabolic disease by modulating the appetite through an intervention on the microbiome. TargEDys' innovative, satiety inducing technology (ProbioSatys), is based on a unique understanding of appetite regulation by the microbiome at the molecular level. Bacteria can send signals of satiety to the brain from the gut by molecularly mimicking satiety hormones, thus activating natural satiety pathways. This gut-brain axis is the bidirectional communication between the central and enteric nervous systems, linking the emotional and cognitive centres of the brain with peripheral intestinal functions. Gut bacteria are very important in influencing these interactions. The basis of TargEDys' ProbioSatys technology is a commensal, enterobacteria probiotic strain, *Hafnia alvei*, that produces the ClpB protein. ClpB is a mimetic of the satiety hormone (α -MSH) that regulates food behavior at both peripheral and central levels. When released, ClpB directly stimulates the intestinal enteroendocrine L-cells to produce satiety hormones. ClpB also enters the bloodstream to act on satiety regulation in the central nervous system by mimicking α -MSH. The resulting effect is the feeling of satiety or fullness after a meal. The mechanism of *Hafnia* has been proven in vitro and in vivo and is currently being tested in humans. This probiotic will be now launched in France as a food supplement since December 2018. The preclinical results indicate that after 3 months of treatment customers can expect to safely lose 3-5% of their body weight, see a 5-10% reduction in food intake, improved body composition and activation of lipolysis.

14:15-14:45



CATHERINE DANIEL

Group Leader in the Laboratory of Lactic Acid Bacteria and Mucosal Immunity, Center of Infection and Immunity, Institut Pasteur Lille, France

In vivo imaging to study the behavior of fluorescent probiotics in the gut

In order to better understand the interactions between probiotics and the host gastrointestinal tract, we have set up new tools allowing us to trace microorganisms in the gut of mice. We thus developed different luciferase-expressing probiotic strains (*Lactobacillus plantarum*, *Lactococcus lactis*, and *E. coli* Nissle) to follow them in the digestive tract of mice by non-invasive in vivo imaging technologies in healthy as well as in experimental

14:45-15:15

SKIN MICROBIOME & COSMECEUTICALS CONGRESS



TOM VERLINDEN

CEO, Yun (Probiotherapy) NV, Belgium

Disrupting the skin industry by creating a bacterial (r)evolution

YUN is a Belgian biotech company that succeeded in building an innovative and unique R&D platform and technology, allowing to keep bacteria alive in water-based environments. Use of live beneficial lactobacilli provides an antibiotics alternative by impacting the skin microbiome. With our current data, YUN believes this will initiate a new era of skin therapeutics based on microbiome modulation, and provides a new therapeutic option to reduce antibiotic and antimycotic use for common skin conditions.

14:15-14:45



PETER JENS

CEO ANDBiopharma / Koppert Biologicals

DNA self toxicity, a proven principle to manage bacterial and fungal skin conditions

The research for new products against pathogens and parasites implies huge scientific and economic efforts. Traditional approaches are based on random screening procedures searching for bioactive compounds from different sources. However, the development of new products, in most cases, is limited by side effects on biological systems other than the target and by the induction of resistance in the target organisms. Consequently, despite the major and increasing efforts on research of

14:45-15:15

**6TH MICROBIOME R&D
& BUSINESS COLLABORATION FORUM**

anti-inflammatory immune responses also contributes to the behavioral effects of gut microbes. Both the nervous and immune systems contribute to the effect of gut microbes on the brain and behavior. A better understanding of the mechanisms involved will help in determining the therapeutic potential of gut microbes in mood disorders.

HELOISE BRETON

Product Manager, Microbiome Product
Development, DNA Genotek

**A look forward: Durable standard setting
for reproducibility and scalability in novel
microbiome research and multi-omics**

The impressive pace of change in microbiome research and the expectations that accompany a large influx of discovery capital means we are at an important inflection point in the field. Research has led to many ground-breaking theories and novel proofs-of-concept which are revolutionising medicine and healthcare, but to achieve true innovation (i.e. utility and lasting impact) requires significant standardisation (i.e. rigor and reproducibility). Based on lessons learned, this talk will look at "what's next" for the field of microbiome and multi-omics, from participant engagement to processing and analysis. With the recent merger of DNA Genotek and CoreBiome, creating a leading solutions provider for multi-omics, we will also discuss how partnerships and collaborations can lead to greater discovery potential.

**SENIOR REPRESENTATIVE**

Viaomer
Title TBC



3RD PROBIOTICS FORUM

colitis mice models. Moreover, we have also used in vivo imaging to follow the behavior of probiotics in the gut and the respiratory mucosa after intranasal administration. Finally, we have constructed fluorescent probiotic strains to follow them in the gut by fluorescence in vivo imaging and study their interactions with intestinal cells ex vivo by multi-photon microscopy.

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

**SKIN MICROBIOME &
COSMECEUTICALS CONGRESS**

new medicinal products, the rate of approval decreased in recent years. The recent discovery of the inhibitory effect of extracellular self-DNA opens up new perspectives for highly species-specific inhibitory products for bacterial and fungal skin conditions, with relevant patient and economic advantages. Patent WO/2014/020624 (PCT/IT2013/000193).

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

15:45-16:35

Room: Shipping Hall

Afternoon Refreshments / One-to-One Meetings / Even-Numbered Poster Presentations

6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM

Room: Diamond Room I&II

BOUSHRA DALILE

PhD Student, Translational Research Center for Gastrointestinal Disorders, KU Leuven, Belgium

Contextualising Short Chain Fatty Acids in Microbiota-Gut-Brain Crosstalk: Where Do We Stand?

- SCFAs are a candidate mediating mechanism in the microbiota-gut-brain axis as they might affect the brain by affecting specific cellular signaling mechanisms (gene expression, binding to g-protein coupled receptors) or interacting with gut-brain pathways (immune, endocrine, neural routes).
- SCFAs are indirectly implicated in the effects of dietary intervention on psychological functioning.
- Animal and human studies inconsistently implicate SCFAs in neuropsychiatric disorders.
- Need for systematic research of the impact of SCFAs on brain function: Discussion of methodological limitations and future directions

16:35-17:00

GUT-BRAIN AXIS COMPANY SHOWCASES:

Short presentations from some of the most exciting small and medium-sized companies in the industry



17:00-17:20 CHRISTOPHER REYES

CSO and Founder, Bloom Science, USA

The Microbiome-Gut-Brain Axis in Epilepsy

- Gut microbes communicate with the brain through various mechanisms
- Select bacteria are sufficient to mediate seizure protective effects
- Biochemical interactions between bacteria modulate metabolites that regulate brain neurotransmitters



17:20-17:40 PIERRE LESTAGE

CEO, NeribiOm, France

From microbiota-gut-brain-axis to live biotherapeutic products as treatment for neurodevelopmental / neurodegenerative diseases

17:00-18:00

3RD PROBIOTICS FORUM

Room: Penn Room I&II

SUSAN JOYCE

College Lecturer, School of Biochemistry and Cell Biology; Faculty and Funded Investigator, APC Microbiome Institute & University College Cork, Ireland

The role of bile acid in host-microbial dialogue for health and disease

The range and diversity of bile acids and their conjugated (either to Taurine or to glycine) salts is dictated by the gut microbiota. Besides their role in aiding the emulsification of lipids and the release of fat soluble vitamins, bile acids and their conjugated salts are now recognised as potent signalling molecules with the potential to influence health and disease status. They can act as ligands binding to receptors, they can influence their own synthesis through cross-talk with the liver, they can adjust transporter systems and nutrient uptake and they also play a role in determining gut microbial residency. Therefore bile metabolizing microbes have a central role in gut homeostasis and health. We have investigated the role and the implications of bile acid metabolism in the regulation of host physiology through bile acid alterations and microbiome signatures. Here, we present our work in correlating microbial bile acid metabolism and disease states. We profile isolated potential bespoke probiotic strains isolated on the basis of either rational (genetic targeting to isolate certain BSH types and activities) or random (non-genetic selection for any bile acid modification) selection. These strains, their effects on the gut microbiota, BA metabolism and their implications for gut health and disease status are discussed.

16:35-17:00

PANEL DISCUSSION:

Moving probiotics forward

Exploring topics such as consumer acceptance, regulation, scientific rigor



BRUNO POT (Chair)

Research Group of Industrial Microbiology and Food Biotechnology, Faculty of Sciences and Bioengineering Sciences, Vrije Universiteit Brussel, Belgium



CARINE BLANCHARD

R&D Specialist, Nestlé Research Center, Switzerland

17:00-18:00

SKIN MICROBIOME & COSMECEUTICALS CONGRESS

Room: Mees Auditorium

BJÖRN ANDERSSON

Professor, Department of Cell and Molecular Biology, Karolinska Institute, Sweden

Deep characterization of the skin microbiome in psoriasis and atopic dermatitis; insights regarding strain and virus abundance, and skin sites

In order to understand microbial diversity in skin homeostasis, and the relevance of microbial dysbiosis in inflammatory disease, large studies, where several types of data are produced, are needed. We have therefore studied the skin microbiome in atopic dermatitis and psoriasis in a large European study. We have produced both 16S and deep shotgun data, and coupled this with transcriptome data from skin biopsies. The data analysis showed that the microbiome of atopic dermatitis and psoriasis samples showed clear differences from those of healthy volunteers. While the two diseases show completely different patterns, we found associations of the microbiome with changes in gene expression for both and identified pathways of interest in both skin bacteria and host. In addition, there were clear differences in the microbiome and associated disease severity between body sites. Further results involve specific bacterial genes and strains, as well as fungi and viruses.

16:35-17:00

CROSS EVENT ROUNDTABLE DISCUSSIONS:

Roundtables are informal, small-group interactive discussions on key topics in the field. Discussion leaders will introduce sub-topics/questions for discussion and roundtable attendees are encouraged to participate actively in the session.



Table 1: Beauty Brands and the microbiome MARIE DRAGO

Founder, Gallinée, UK

- Barriers and solutions to formulation
- How can packaging help us
- How to preserve products
- Live or not?
- What testing can we use?
- The rise of inside-out beauty

17:00-18:00

**6TH MICROBIOME R&D
& BUSINESS COLLABORATION FORUM**

During the last decade, preclinical and clinical studies have demonstrated that gut microbiota could influence Central Nervous System physiology and function. Recently, gut dysbiosis has been shown in neurodevelopmental and neurodegenerative diseases. Moreover, very early during the time course of certain neurological diseases (Autism and Parkinson's) gastrointestinal symptoms appear. In this context, modulation of gut microbiota using Live Biotherapeutic Products (LBPs) could be an innovative, disruptive, safe and pleiotropic way to treat very effectively neurological diseases. We have built an original collection of bacterial strains from human faeces. These bacteria have been selected regarding their in vitro capacities to release neuroactive molecules, to have anti-inflammatory and immunologic activities. Some examples of this strategy will be described. Results allowed to obtain new innovative LBPs which are into preclinical studies as potential novel treatments against Autism Spectrum disorders and Parkinson's disease.

17:40-18:00 **FINN TERJE HEGGE**

CTO and Head of Operations, Genetic Analysis
AS, Norway

**Transition of microbiota analysis from research
tool to clinical utility**



The GA-map® technology represents a unique approach to microbiome analysis. By combining information from a well-defined set of pre-determined markers it enables highly reproducible and standardized information to be derived from the complex human gut microbiota. This information enables actionable results such as disease progression prediction and treatment response prediction. Examples of the clinical utility of the GA-map® technology will be presented.

3RD PROBIOTICS FORUM

Continued

**SKIN MICROBIOME &
COSMECEUTICALS CONGRESS**

**Table 2: The role of probiotics on human skin
(organocultures and RHE's)**

JOHANNA GILLBRO

Co-founder and Chief Scientific Officer, Skinome Research
AB, Sweden



Table 3: Gut-brain axis

PAUL FORSYTHE

Assistant Professor, Firestone Institute for
Respiratory Health and Brain-Body Institute,
McMaster University, Canada

- Hype and speculation versus the state of the art.
- What are the major gaps in our knowledge?
- What is the potential of microbe based strategies in mood disorders?
- What is the potential of microbe based strategies in neurodevelopmental/neurodegenerative disorders?
- The utility of preclinical models and the challenges of clinical translation.



Table 4: Microbiome and early life
HIMANSHU KUMAR

Senior Scientist, Danone Nutricia Research,
The Netherlands

- Transfer of microbiota to infants - maternal influence
- Development of microbiota – factors influencing it
- Microbiome modulation in early life
- Opportunities and challenges in the field

18:00

Room: Shipping Hall

End of Day Two / Networking Dinner

08:00-09:00

Room: Shipping Hall

Refreshments



Room: Diamond Room I&II

TOOLS & TECHNIQUES FOR STUDYING THE MICROBIOME

Session Chair: Hugo Roume, Operational Manager of Quantitative Metagenomic Sequencing Platform, MetaGenoPolis Unit, INRA, France

**CHRISTOPHE LACROIX**

Professor, Laboratory of Food Biotechnology, Department of Health Sciences and Technology, ETH Zürich, Switzerland

Novel technologies for the production of strict anaerobic gut microbes

Production of probiotics uses almost exclusively batch fermentations of suspended (planktonic) cells with single strains. In contrast, intestinal microbes have evolved to grow in continuous fermentation comprising both planktonic and sessile (biofilm-associated) bacterial populations, in a complex trophic network with high degree of cross-feeding. New therapeutic strategies with living gut microbes to promote health are also increasingly aiming at consortia of strict anaerobic bacteria that are difficult to grow and highly sensitive to environmental stresses. In this presentation, new strategies to improve the manufacturing of live biotherapeutic products (LBPs) of single strains, consortia and standardized intestinal microbiota will be discussed, including: continuous fermentations, bacterial immobilization, and microbial biomass stabilization. Breakthrough technologies are urgently needed for efficiently manufacturing LBPs while reducing costs for global health applications.

09:00-09:35

**TINGTING ZHOU**

General Manager, Novogene

Advanced meta sequencing solutions for microbiota research

Amplicon-based meta sequencing and shotgun meta sequencing are gaining more and more popularity in human research. Here Novogene present its latest developed techniques and recent case studies to give an insight of how meta sequencing benefits human health.

09:35-10:05



Room: Penn Room I&II

PREBIOTICS & DIET

Session Chair: Rob Beudeker, Investment Director, DSM Venturing

**PAUL DE VOS**

Full Professor of Immunology, University Medical Center Groningen, The Netherlands

Immune effects of dietary fiber consumption

The gastrointestinal tract harbors approximately 80% of the human immune system. It is in continuous contact with the luminal content of the intestine and equipped with unique cell types to distinguish the good from the bad. The gut immune system has to be tolerant to the 100 trillion bacteria that support our metabolism and immunity but delete any pathogen or toxin. During recent years we have learned how to support immunity in the intestine with specific food components. By applying new technologies and better analytical approaches to characterize dietary fibers, we are more than ever able to identify efficacious immune regulating carbohydrates.

09:00-09:35

09:35-10:05

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

**MICROBIOME & PROBIOTICS SERIES: EUROPE**

Room: Mees Auditorium

DISCOVERY & PRE-CLINICAL DEVELOPMENT OF MICROBIOME THERAPIES

Session Chair: Colette Shortt, Director Global Regulatory Affairs, J&J Consumer

**BRIAN KLEIN**

Senior Staff Scientist, Vedanta Biosciences, USA

Discovery and preclinical strategy for microbial therapeutics

Vedanta Biosciences is developing live biotherapeutic products (LBPs) for treatment of a variety of infectious and immune diseases including Clostridium difficile and Multi-Drug Resistant. Organism-associated infections, Inflammatory Bowel Disease, Food Allergy and Cancer. Vedanta develops rationally-designed consortia-based products consisting of isolated, extensively characterized, healthy human gut-derived commensal bacteria, which are manufactured under cGMP conditions. By sourcing diverse healthy human biospecimens, performing both compositional sequencing and exhaustive microbial isolation, and then combining genetic and phenotypic capabilities, Vedanta has generated a large, diverse, well-characterized microbial culture collection thereby enabling the selection of desirable beneficial strains and generation of a variety of therapeutic LBPs tailored for the treatment of specific diseases.

09:00-09:35

09:35-10:05

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM



MACHA NIKOLSKI

Head of Bioinformatics Center; Research Director LaBRI / CNRS, University of Bordeaux, France

Computational approaches for microbiome analysis and specificities for virome studies

One of the main goals of microbiome projects is to characterize the microbial communities in terms of the identity and diversity of species present in a given environment. Current NGS technologies have provided an opportunity for doing this analysis routinely. Software tools for automated taxonomic assignment for organisms such as bacteria and fungi have since become a mature technology and are now widely used in microbiome studies. The abundance of literature on the analysis of metagenomic data has generated quite a variable terminology, which makes navigating the underlying computational concepts a complex task. In this talk we will first address classical approaches for metagenomic data generation and analysis. We will further focus on the trends in current research for the identification of viral sequences in a microbiome sample, pinpoint the experimental and computational difficulties, illustrate them on examples from our own research, and suggest possible avenues to overcome them.

10:05-10:30

3RD PROBIOTICS FORUM



JAN PETER VAN PIJKEREN

Assistant Professor, Food Science
University of Wisconsin – Madison, USA

Dietary fructose and microbiota-derived short-chain fatty acids promote bacteriophage production in the gut symbiont *Lactobacillus reuteri*

The mammalian intestinal tract contains a complex microbial ecosystem with many lysogens. Lysogens are bacteria that contain dormant viruses (prophages) inserted into their genomes. Many intestinal viruses (phages) are derived from lysogens, suggesting that lysogens are exposed to triggers that promote phage production. We show that prophages of the gut symbiont *Lactobacillus reuteri* are activated during gastrointestinal transit. A diet enriched in fructose further increases phage production. We demonstrated that fructose and exposure to short-chain fatty acids activate the Ack pathway, involved in generating acetic acid, which in turn triggers the bacterial stress response that promotes phage production. Inactivation of the *L. reuteri* Ack pathway or RecA, a stress response component, exhibit decreased phage production. Thus, prophages in a gut symbiont can be induced by diet and metabolites affected by diet, which provides a potential mechanistic explanation for the effects of diet on the intestinal phage community.

10:05-10:30



MICROBIOME & PROBIOTICS SERIES: EUROPE



ASSAF ORON

Chief Business Officer,
BiomX, Israel

Novel phage therapies for IBD and acne in pre-clinical/clinical development

- Challenges in customizing phage therapies
- In-vitro and in-vivo models for phage therapies
- Clinical trial design for phage therapeutics

10:05-10:30

10:30-11:40 Room: Shipping Hall Morning Refreshments / One-to-One Meetings / All Poster Presentations



ADRIEN NIVOLIEZ

Chief Executive Officer, Biose

Bugs as Drugs

Quality plays a major role in the safety and efficacy profile of LBPs. It is the responsibility of the LBP developer & manufacturer to ensure that the manufacturing process is adequate and that appropriate measures are put in place to safeguard the quality of the product.

11:40-11:55



SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

11:55-12:10

11:40-12:10

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764



SANDRA ROBELET

CSO, Syncrosome

Discussion between gut microbiota and other organs

Significant interest in recent years has focused on gut microbiota–host interaction because accumulating evidence has revealed that intestinal microbiota play an important role in human health and disease, including cardiovascular, metabolic, neurodegenerative and intestinal diseases. Changes in the composition of gut microbiota associated with disease, referred to as dysbiosis, have been linked to pathologies such as heart failure, Parkinson's disease, Crohn's disease as well as type 2 diabetes mellitus or non-alcoholic steatohepatitis. Several Examples of preclinical models and their link with gut microbiota will be discussed.

11:40-11:55

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

11:55-12:10

6TH MICROBIOME R&D & BUSINESS COLLABORATION FORUM

Room: Diamond Room I&II

MICROBIOME COMPANY SHOWCASES:

Short presentations from some of the most exciting small and medium-sized companies in the industry



12:10-12:40 **JONATHAN DE JONGE**

COO, ARTPred, The Netherlands

Collaborations as an accelerator for high-impact discoveries in the microbiome

ARTPred (ARTPred.com) is a Dutch research-driven company in the field of reproduction, that envisions to fundamentally improve global fertility-care by break-through technologies. Together with strategic alliances ARTPred develops innovative solutions for implantation failure. A first step has been the development of their CE-certified personalized predictive test for IVF outcome, named ReceptIVFity. ReceptIVFity (ReceptIVFity.com) improves insight into the chances of success of IVF or ICSI treatment. This test is performed prior to an IVF or ICSI treatment and examines by analyzing the vaginal microbiome whether the conditions in the womb are right for an embryo to implant. As a second step ARTPred is focusing on the development of therapeutic solutions in order to improve pregnancy chance for those women.



12:40-13:10 **MOMO VUYISICH**

Chief Science Officer, Viome, USA

Toward personalized nutrition: a robust metatranscriptomic technology for population-scale studies of diet, gut microbiome, and human health

- We have developed Viomega: an automated, high-throughput, low-cost, sample to result, stool metatranscriptomic technology
- Viomega output is microbial taxonomy and biochemical functions
- We applied Viomega to 10,000 human stool samples
- We also performed several clinical studies
- Results presented will include:
 - Clinical validation of Viomega
 - Taxonomy and KEGG orthology findings from the large cohort, including healthy people
 - The effects of diet on gut microbiome

3RD PROBIOTICS FORUM

Room: Shipping Hall

CROSS EVENT ROUNDTABLE DISCUSSIONS:

Roundtables are informal, small-group interactive discussions on key topics in the field. Discussion leaders will introduce sub-topics/questions for discussion and roundtable attendees are encouraged to participate actively in the session.



Table 1: Delivery to the microbiome

YOAV LIVNEY

Associate Professor, Head, Lab of Biopolymers for Food & Health, Technion, Israel Institute of

Technology

- How can we effectively increase the proportion of the desired probiotics in expense of the undesired microorganisms?
- Which is more effective: consuming probiotics, prebiotics, both? Is encapsulation of probiotics effective?
- Can we selectively target probiotics to promote them?
- What are the safety and regulatory concerns of these additives, and of manipulating the microbiome?

Table 2: Regulatory Perspectives for Live Biotherapeutic Products (LBPs)

MAGALI CORDAILLAT-SIMMONS

Scientific and Regulatory Affairs Director, Pharmabiotic Research Institute, France

Table 3: Strategies for metagenomic analysis

Table 4: Industry-academia collaboration

Table 5: Diet and the microbiome



MICROBIOME & PROBIOTICS SERIES: EUROPE

Room: Mees Auditorium



JOS SEEGBERS

Operations Manager, Caelus Health, The Netherlands

Development of microbiome-derived products for cardio-metabolic indications

- FMT as discovery tool
- Reducing risk in product development
- Data-mining and strain identification
- Preclinical development, incl.
 - Strain optimization and functional testing
 - Formulation development
 - In-vivo testing
- Clinical development, incl.
 - Study design
 - Deep metagenomics



CAROLE SCHWINTNER

Pharmaceutical Development Director, MaaT Pharma, France

Develop a Microbiota-based product

Developing a full microbiome-based product to treat iatrogenic dysbiosis in severe-pathologies context means the rising of various challenges: ethical, technical, regulatory... Since 2014, our approach is to maintain a full ecosystem in our product, giving the ability to repopulate a highly altered microbiota in patients. Challenges taken, our first clinical studies in onco-hematology demonstrate the interest of this approach.

13:10-14:10 Room: Shipping Hall Lunch / One-to-One Meetings

SPONSORED BY: **Yakult**



Room: Diamond Room I&II

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

Room: Diamond Room I&II

COMPUTATIONAL STRATEGIES FOR MICROBIOME ANALYSIS

Session Chair: Hugo Roume, Operational Manager of Quantitative Metagenomic Sequencing Platform, MetaGenoPolis Unit, INRA, France

**GEORG ZELLER**

Team Leader, Structural & Computational Biology, EMBL, Germany

Computational and statistical analysis tools for clinical microbiome studies

We will be discussing computational analysis tools that are of relevance for many clinical microbiome studies exploring changes in microbiome composition associated with disease (case control designs) or resulting from medical interventions (for instance by comparing treatment arms). In particular we will cover

- High-resolution and high-accuracy taxonomic profiling of human microbiomes using mOTUs2,
- Statistical tests and models for case-control microbiome disease association studies using the SIAMCAT toolbox,
- Methods for addressing confounding and batch effects in microbiome meta-analyses.

**KAROLINE FAUST**

Assistant Professor, Department of Microbiology and Immunology, KU Leuven, Belgium

Insights from synthetic gut communities

We need to better understand community dynamics in order to manipulate human gut microbiota. Such an understanding can be encoded in models, which can quantify community stability and investigate the effects of perturbations. However, a large number of basic parameters is still unknown, including pH and nutrient preferences of gut microorganisms, their interactions among themselves and with the host. Human gut communities consist of hundreds of species, which are living and evolving in a spatially structured environment. It is currently

Room: Shipping Hall

PREBIOTICS & DIET**Session Chair:****KIERAN TUOHY**

Group Leader, Nutrition and Nutrigenomics
 Fondazione Edmund Mach, Germany

Diet: Microbe interactions in the gut for improved health - talking molecules**HERMIE HARMSSEN**

Associate Professor, Department of Medical Microbiology, University Medical Center Groningen, The Netherlands

Vitamins and micronutrients as "prebiotics" for microbiota manipulation

The human gut microbiota plays an important role in both, health and disease, and its composition is mainly driven by diet. Current in vitro studies show the effects of food ingredients, such as vitamins and micronutrients, as stimulus for the growth of beneficial anaerobic bacteria. For instance *Faecalibacterium prausnitzii* can be stimulated by riboflavin (vitamin B2) since it can protect itself against oxidative stress by the use of this vitamin as electron mediator in its respiration. Pilot experiments

Room: Mees Auditorium

SOLUTION PROVIDER PRESENTATION

For sponsorship opportunities contact Gavin Hambrook:
gavin@globalengage.co.uk / +44 (0) 7538 368 764

Room: Mees Auditorium

CLINICAL DEVELOPMENT & COMMERCIALIZATION OF MICROBIOME THERAPIES**Session Chair:****PANEL DISCUSSION:****VC & Investment in the microbiome space****MALCOLM KENDALL** (Chair)

Co-Founder & CEO, Microbiome Insights, Inc., Canada

**ERIC DE LA FORTELLE**

Partner, Seventure Partners

**6TH MICROBIOME R&D
& BUSINESS COLLABORATION FORUM**

15:05-15:30

not clear which of several modeling strategies is the most promising. Synthetic gut communities grown in well-controlled conditions allow addressing some of these issues. We need to go beyond the few existing synthetic community studies to address the challenges of gut microbial community modeling.

**HUGO ROUME**

Operational Manager of Quantitative Metagenomic Sequencing Platform, MetaGenoPolis Unit, INRA, France

A rapid and precise approach for gut microbiota analysis using nanopore
technology in shotgun metagenomics sequencing

Gut microbiota constitutes an ecosystem of major interest for the biomedical field. However, despite their importance, only a fraction of the thousands of different microbial species is known and has sequenced genomes. This is mainly due to the difficulties of cultivating microbes from natural systems in the laboratory. The current alternative approach is to retrieve individual microbial genomes from complex samples upon shotgun short-read sequencing (approx. 150 bp) combined with metagenomics assembly and differential coverage binning approaches. However, retrieving individual bacterial genomes from complex microbial communities using short reads is challenging time consuming and only partially successful, due to the presence of repeated regions in bacterial genomes hampering assemblies and closely related strains/species in complex ecosystems. In this talk, we will share our experience in using high-throughput long-read data from Oxford Nanopore in combination with short Ion Proton reads to recover genomes from human intestinal samples. We shall also demonstrate rapid characterization of human gut microbiome composition, using exclusively Oxford Nanopore long reads. Such characterisation is central for biomarker discovery.

15:30-15:55

15:55

Conference Close

3RD PROBIOTICS FORUM

15:05-15:30

supplementing humans with a high dose of riboflavin for two weeks indeed show stimulation of faecalibacteria, which is now validated in a larger trials. Currently, the effect of other redox mediating micronutrients on the gut microbiota is studied, to eventually use them as "prebiotic" supplements.

**FIONA CRISPIE**

Technologist, Teagasc Food Research Centre and APC Microbiome Ireland

You are what you eat: Fermented foods and their impact on our health

- What are fermented foods- give examples
- Health claims associated with fermented foods
- What is kefir
- Microbial composition of kefir and how it changes during fermentation
- Genetic pathways encoded
- Modifying kefir to improve flavour or health characteristics
- Are fermented foods really good for you- some examples of work we've done
- Cautionary slides
- Future perspectives

15:30-15:55


**MICROBIOME & PROBIOTICS
SERIES: EUROPE**

14:40-15:30

Continued

**MAGALI CORDAILLAT-SIMMONS**

Scientific and Regulatory Affairs Director
Pharmabiotic Research Institute, France

Clarifying the expectations of drug authorities for Microbiotic Medicinal Products – a European Regulatory perspective

Regarding the latest developments surrounding food and pharma regulations, it would seem important to clarify the different initiatives and changes relative to living micro-organisms and their consequences for developers. On the pharma side, clarification of the expectations of drug authorities is of the utmost importance. In this presentation, we will address certain key points facing the industry today: medical device status and robust clinical design, among others...

15:30-15:55

MAKING A POSTER PRESENTATION

Poster presentation sessions will take place in breaks and alongside the other breakout sessions of the conference. Your presentation will be displayed in a dedicated area, with the other accepted posters from industry and academic presenters. We also issue a poster eBook to all attendees with your full abstract in and can share your poster as a PDF after the meeting if you desire (optional). Whether looking for funding, employment opportunities or simply wanting to share your work with a like-minded and focused group, these are an excellent way to join the heart of this congress.

In order to present a poster at the congress you need to be registered as a delegate. Please note that there is limited space available and poster space is assigned on a first come first served basis (subject to checks and successful registration). We charge an admin fee of £100 to industry delegates to present, that goes towards the shared cost of providing the poster presentation area and display boards, guides etc. This fee is waived for those representing academic institutions and not for profit organisations.

POSTER COMPETITION - CLOSING DATE 19TH APRIL 2019

- Submit your entry prior to the closing deadline (1 entry per person)
- Three entries for the Microbiome & Probiotics Series: Europe will be selected by the judges
- The winner of the poster presentation will be given a 15-minute speaking position on the conference agenda and notified in advance of the meeting
- The judge(s) will make the decision based on the abstract(s) submitted
- The winner will also receive a certificate from the organisers
- Representatives from solution provider organisations are not eligible to enter the competition but are welcome to present posters at the meeting as normal

Submission instructions

We will require the form (downloadable below) to be submitted by the 19th April to enter the competition. To simply have your poster at the meeting, submissions must be made no later than 3rd May. This is the formal deadline however space is another limiting factor so early application is recommended. Therefore please contact us with any questions you have as soon as possible.





Postillion Convention Centre WTC Rotterdam

Parkeergarage Beurs-WTC,
Rodezand 19,
3011 AM Rotterdam

www.postillionhotels.com/en-gb/conferenties-events/rotterdam-convention-centre

In the vibrant heart of the Rotterdam metropolis: you cannot get more central than this. Wherever you are in the world, a World Trade Center is a special place. It is an (inter)national corporate community, in a unique building that meets the highest standards. From high-spec office space to high-tech meeting rooms, shops, restaurants and a wide range of additional services.

- A non-stop high-speed train runs between Rotterdam and Schiphol (Amsterdam airport) every 20 minutes. The journey time is 20 minutes. Cost €22 Euros
- Located in the city centre (surrounded by shops, architecture, museums, restaurants and the Port of Rotterdam)
- Walking distance from the international train station
- Rotterdam – The Hague airport with flights to at least 30 international destinations is a short taxi ride
- A large number of parking facilities can be found in the area
- A wide variety of hotels are within walking distance. (Details will be sent to you in your welcome letter when you register)





DON'T DELAY, BOOK YOUR PLACE TODAY!

Places are limited and are based on a first come, first served basis so to avoid disappointment contact us today to reserve your place at Global Engage's Microbiome & Probiotics Series: Europe, with congresses featuring Microbiome, Probiotics and Skin Microbiome and Cosmeceuticals on the 20th-22nd May 2019, Rotterdam, The Netherlands.

PHONE BOOKING

+44 (0) 1865 849841

Our conference team will make all the necessary arrangements.

ONLINE BOOKING

Visit the website to book your place

Microbiome: www.global-engage.com/event/microbiota

Probiotics: www.global-engage.com/event/probiotics-europe

Skin Microbiome & Cosmeceuticals: www.global-engage.com/event/skin-microbiome

THE CONGRESS PACKAGE INCLUDES:

- All Conference Sessions
- Lunches and Refreshments
- Access to Exhibition Room
- Networking Drinks Reception
- Conference Workbook
- E-Document Pack

HOTEL ACCOMMODATION

Hotel accommodation will be available at a group rate.

FREE NEWSLETTER

For updates on the Microbiome and Probiotics Series: Europe, plus free resources and reports, as and when our speakers authorise their release dates, check for updates at:

Microbiome: www.global-engage.com/event/microbiota

Probiotics: www.global-engage.com/event/probiotics-europe

Skin Microbiome & Cosmeceuticals: www.global-engage.com/event/skin-microbiome

SPONSORSHIP AND EXHIBITION OPPORTUNITIES AVAILABLE

For more details contact Gavin Hambrook at

gavin@globalengage.co.uk or call **+44 (0) 7538 368 764**

T: +44 (0) 1865 849841
E: info@globalengage.co.uk
www.global-engage.com

