JAHRESTAGUNG

ANNUAL CONFERENCE

OF THE ASSOCIATION FOR GENERAL AND APPLIED MICROBIOLOGY **2022**

DIGITAL

21–23 FEBRUARY 2022

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PROGRAMME

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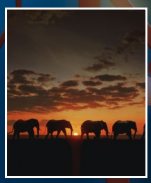

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ORGANISATION AND IMPRINT

Date
21–23 February 2022

Hosting Society
Association for General and Applied Microbiology (VAAM) | www.vaam.de

Conference Chairs
Michael Feldbrügge
Heinrich Heine University Düsseldorf
Institute for Microbiology

Julia Frunzke
Forschungszentrum Jülich
Institute of Bio- and Geosciences
IBG-1: Biotechnology

Organising Committee
Ilka Axmann, Institut für synthetische Mikrobiologie, HHU
Michael Bott, Institut für Bio- und Geosciences, FZJ & HHU
Johannes Hegemann, Institut für funktionelle Genomforschung, HHU
Lutz Schmitt, Institut für Biochemie, HHU
Karl-Erich Jaeger, Institut für Molekulare Enzymtechnologie, FZJ & HHU

Conventus Congressmanagement & Marketing GmbH
Dorothee Gröninger & Lisa Maria Schaaf
Carl-Pulfrich-Straße 1 | 07745 Jena (DE)
vaam-kongress@conventus.de | www.conventus.de

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Association for General and Applied Microbiology (VAAM)

President
Prof. Dr. Franz Narberhaus
Ruhr-Universität Bochum
Lehrstuhl Biologie der Mikroorganismen

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Office VAAM
Association for General and Applied Microbiology (VAAM)
Dr. Katrin Muth
www.vaam.de

WELCOME NOTE OF THE CONFERENCE PRESIDENTS

Dear colleagues and friends,
Dear microbiologists,

Julia Frunzke and Michael Feldbrügge

It is incredible unfortunate that we cannot host you at the VAAM 2022 in the real world of Düsseldorf. However, microbes evolve and we must adapt – your safety and your health is of utmost importance to us. Therefore, we have accepted the challenge to host the first digital VAAM meeting and to make it a successful platform for interactions in the digital world of Düsseldorf.

The research area of microbiology is shaped by a long-standing and close cooperation between the Heinrich Heine University and the Forschungszentrum Jülich. We are proud to cover a broad range of microbiological topics including, applied microbiology, cell biology, pathogenicity, evolution and structural biology. We also study a broad range of microbial organisms ranging from bacteria and bacteriophages to fungi with heterotrophic and phototrophic lifestyles. Microbial research is at the heart of local collaborative research initiatives like the plant excellence cluster CEPLAS and the CRC1208 investigating membrane biology. Competitive education programmes at the HHU link for example microbiology and quantitative biology ranging from bachelor, master to PhD programmes like the Manchot graduate school *Molecules of Infection*.

We hope that you will enjoy the attractive scientific programme and participate actively to foster scientific exchange in our community even during these difficult times. At least we will not run out of food.

Come and meet us at the largest digital bar of the world!

Yours
Julia Frunzke and Michael Feldbrügge

Dear colleagues and friends,

Franz Narberhaus

On behalf of the board of the Association for General and Applied Microbiology (VAAM) I warmly welcome you to our annual meeting. Our hope was to meet all of you in person in Düsseldorf but with a heavy heart and full of disappointment we had to accept reality, which forced us to move to an online format.

The last time many of us met was two years ago at the conference in Leipzig. Thanks to the commitment of our special groups, we had a fantastic online meeting in 2021. Now we are back to online although most of us were confident that 2022 would be the year to meet and greet in Düsseldorf. The ongoing interest in our annual conference is reflected by almost 1000 registrations already two months before the scheduled conference. I was very pleased by this encouragingly high number and hope that you will bear with us in these challenging times. Let us all contribute to an active Microbiology community!

I am extremely grateful to the local organisers for their patience and perseverance throughout the last two years. Although their first attempt to host us in Düsseldorf in 2021 failed due to the pandemic, they were not discouraged. With great enthusiasm they went straight ahead to plan this years' conference. It is certainly noteworthy that the invited speakers stayed on board with the perspective to speak to a real audience and enjoy the hospitality in Düsseldorf in 2022. Although this is not going to happen, they immediately accepted to speak to us in a digital conference. Thank you very much for this loyalty! But foremost and as representatives of the local organization team, I want to thank Julia Frunzke and Michael Feldbrügge for their enormous efforts to make this a successful and enjoyable meeting against all odds!

Let us look forward to an attractive programme comprised of award ceremonies, plenary lectures, short talks, ePoster sessions, an "Industry meets Academia" symposium, the kick-off of our VAA*Mentoring* programme and much more.

With best wishes
Franz Narberhaus | President of the VAAM

Institut für Mikrobiologie

To learn more, feel free to check out the website or approach your colleagues directly:
www.mikrobiologie.hhu.de

Prof. Dr. Michael Feldbrügge: We study eukaryotic microbiology focusing on (i) Cell biology (ii) Pathogenicity and (iii) Biotechnology. (i) In the cell biology group, we investigate the close link between RNA and membrane biology in the corn smut *Ustilago maydis*. We discovered endosomal co-transport as novel mechanism for long-distance trafficking of mRNAs, a logistic process that is conserved in plants and neurons. Furthermore, we recently identified a distinct set of mRNAs present in extracellular vesicles from infectious hyphae. This suggests that transfer of mRNAs to the host might also be involved in plant/pathogen interaction. (ii) The group studying fungal pathogenicity is headed by PD Dr. Vera Göhre. They established the smut fungus *Thecaphora thlaspeos* as an emerging model system to investigate smut infection of *Brassicaceae* hosts like *Arabidopsis thaliana*. Comparing *U. maydis* and *T. thlaspeos* opens up new opportunities to learn about monocot/dicot and or annual/biannual infection strategies. Interestingly, in contrast to *U. maydis*, *T. thlaspeos* has retained its RNAi machinery. Thus, the group is currently addressing whether small RNAs are transported in extracellular vesicles for communication with the host. (iii) Dr. Kerstin Schipper is heading the group of fungal biotechnology. They discovered a mechanism of unconventional secretion in *U. maydis* and apply this knowledge to export valuable heterologous proteins like different antibody formats to the medium for efficient downstream processing. Moreover, they improved strains for the usage of plant biomass as nutritional source. On these grounds, they launched different projects focusing on bioeconomical approaches like sustainable production of biosurfactants.

Institut für Biochemie
To learn more, feel free to check out the website or approach your colleagues directly:
www.biochemistry1.hhu.de

Prof. Dr. Lutz Schmitt: The research of our group focuses on membrane transport processes with a special emphasis on active transport mediated by ABC transporters. To understand the structure, dynamics and functions of these ATP-dependent transport machineries we apply a large variety of approaches ranging from in vivo imaging to structural biology. Currently, we focus on the following model systems: (i) the secretion of the pore-forming toxin hemolysin A, a paradigm type I secretion systems of Gram-negative bacteria, (ii) Pdr5 from *S. cerevisiae*, a key player of the pleiotropic drug resistance network of yeast, which is functional identical to human multidrug resistance, (iii) the nisin maturation and secretion machinery from *L. lactis*. Nisin is a prototype of so-called lantibiotics, i.e. peptides with an bactericidal mode of action, (iv) hepatic ABC transporters of the canalicular membrane that are involved in bile formation and (v) as an ABC transporter independent process, the Ca2+-dependent regulation of the potassium channel AKT1 in *A. thaliana*. Based on these model systems, we aim to understand on a molecular level how transporters of the same family that likely share a similar substrate transport mechanism are capable of transporting molecules ranging from intact proteins with a molecular weight of 110 kDa (hemolysin A), peptides with a molecular weight of approximately 5 kDa (nisin A) to small drugs with a molecular weight of a couple of hundred Daltons in the case of Pdr5 or bile acids and lipids as in the case of the biliary ABC transporters.

Institut für Funktionelle Genomforschung der Mikroorganismen
To learn more, feel free to check out the website or approach your colleagues directly:
www.genom-forschung.hhu.de

Prof. Dr. Johannes H. Hegemann: Our research focusses on the characterization of the pathogenicity mechanisms of the obligate intracellular human pathogenic bacteria *Chlamydia trachomatis* and *Chlamydia pneumoniae*. Infections with both pathogens occur worldwide and infection rates are increasing. *C. trachomatis* infections of the genital tract or the eye can lead to female infertility or blindness respectively. *C. pneumoniae* infections cause upper and lower respiratory conditions and are associated with several chronic diseases including Alzheimer´s disease, atherosclerotic cardiovascular disease, asthma, and lung cancer. We are studying the chlamydial entry process into host cells by identifying the bacterial cell surface proteins, the adhesins, and their host cell receptors, by employing a wide variety of biochemical, cell biological and microscopical techniques. Moreover, we identify chlamydial effector proteins, which are secreted into host cells during infection to manipulate host cell processes to the benefit of the pathogen. Because *Chlamydiae* are approximately 700 million years old, they have developed adhesins and effector proteins with unique biochemical activities, which we characterize and currently translate into medically relevant tools. Finally, in collaboration with immunologists, we develop a multi-subunit vaccine against *Chlamydiae*, which is not yet available.
Institutes I Heinrich Heine Universität Düsseldorf, HHU

Apl.-Prof. Dr. Ursula N. Fleig: (Research Group of Eukaryotic Microbiology): Small molecule secondary messengers are crucial elements in cellular decision-making processes. Our focus is on inositol pyrophosphate (IPPs) messengers, a highly phosphorylated subgroup within the class of soluble inositol phosphates. IPPs are exclusively eukaryotic molecules that adapt numerous biological processes to changing environments via protein modification. IPPs controlled processes in fungi encompass genome stability, phosphate homeostasis and morphogenesis. IPPs are generated by two highly conserved enzyme families and our work with the yeast *Schizosaccharomyces* pombe PPIP5K/Vip1 has defined these proteins as bifunctional enzymes controlling the intracellular concentration of a specific IPP class. Using mitosis and synthesis of inorganic polyphosphate as tools to understand how IPPs control biological processes, we found that IPPs alter the architecture of the molecular machines and modulate protein function, respectively. At present, we study how these messengers intertwine the function of cellular organelles and the dynamics cytoskeleton.

Institute of Medical Microbiology and Hospital Hygiene

To learn more, feel free to check out the website or approach your colleagues directly: *www.medmikrobio.hhu.de*

Prof. Dr. Klaus Pfeffer: The Institute of Medical Microbiology and Hospital Hygiene is dedicated to the research and diagnosis of infectious diseases caused by bacteria, parasites, and fungi and their immunologic defense. The research activities of the members of the Institute focus on host-pathogen interactions and immunity to pathogens to unravel fundamental mechanisms of host defense. A central element of this research is the identification and characterization of immune effectors of the innate and acquired immune system, the elucidation of the roles of proinflammatory cytokines, especially interferons and tumor necrosis factors in infectious diseases. Other focus areas are genomic microbiology/microbiome research, antimicrobial resistance against antibiotics as well as the investigation of virulence mechanisms of selected pathogens. In addition to basic research, research also is directed towards the documentation and analysis of nosocomial infection chains employing molecular epidemiology and bioinformatics approaches. Also, the development of molecular and next generation sequencing assays as tools for the advancement of molecular microbial diagnostics is constantly being pursued. Recently, real time sequencing for SARS-CoV-2 was implemented in cooperation with the Institute of Virology and local health authorities (covgen.hhu.de). Scientists of the Institute are members of research consortia such as the CRC 1208 “Identity and Dynamics of Membrane Systems”, the Manchot Graduate School “Molecules of Infections”, the RTG 1949 “Immune Response in Infectious Diseases”, the RTG 2158 “Natural products and natural product analogs against therapy-resistant tumors and microorganisms”, the Manchot Research Group “Decision-making with the help of Artificial Intelligence”, DeCOI (German COVID-19 OMICS Initiative) and NUM (Netzwerk Universitätsmedizin (COVID19)).

Institut für Synthetische Mikrobiologie
To learn more, feel free to check out the website or approach your colleagues directly:
www.synmikrobiologie.hhu.de

Prof. Dr. Ilka Maria Axmann: Our group researches molecular regulatory processes in microorganisms influenced by internal factors like the circadian clock, small RNA molecules, and supercoiling of DNA. Learning from the plethora of regulatory mechanisms, we design and test synthetic switches, heterologous metabolic pathways, and biosensors. By implementing these parts and devices into microorganisms, we are aiming at a smart, automated, and dynamic control of signaling and metabolic pathways. Particular focus is placed on the engineering of Cyanobacteria as future hosts for a sustainable biotechnology.
Meet the group of cyanobacteria enthusiasts at our Cyano Online Seminar Series to learn more about the latest research around cyanobacteria by invited guests and experts from around the world – you can also follow us on Twitter: @CyanoWorld1 and @Synmibi

Institut für Zoologie und Organismische Interaktionen
To learn more, feel free to check out the website or approach your colleagues directly:
www.organismicinteractions.hhu.de

Prof. Dr. Sebastian Fraune: We are fascinated by the fact, that the microbiome affects nutrition, development, immunity and even adaptation of animals. In our research, we are investigating the underlying interactions between animals and bacteria, while focusing on the communication from host-to-microbe, microbe-to-host and microbe-to-microbe. We use the cnidarian model systems Hydra and Nematostella to study fundamental principles of animal-microbe interactions at the molecular, cellular and organismal level. Cnidaria preserved much of the genetic complexity of the common metazoan ancestor and the insights obtained from these taxa may be relevant for more derived animals, where they are more difficult to study because of the generally higher complexity of signaling processes and microbiota. Using these model organisms, our current research projects are (i) “Microbiome mediated plasticity – Mechanisms of fast acclimation and adaptations”. Here we use bacterial transplantation experiments to prove the contribution of bacterial colonizers to thermal adaptations. (ii) In the project “ROS mitigation – a microbiome-mediated mechanism for animal acclimation” we investigate the influence of bacterial ROS scavenging enzymes on mitigating environmentally induced ROS stress in animals. (iii) The project “Inter-kingdom communication at the epithelial interface” investigates the role of bacterial QS signals as general communication signals between host and symbionts. (iv) In this project we aim to elucidate general mechanisms influencing holobiont establishment during ontogeny focusing on bacteria-bacteria interaction (v) Co-speciation of Hydra and Curvibacter on the level of extracellular polymeric substances (EPS). Here, we investigate the EPS structure of bacterial symbionts of Hydra as potential structures that coevoleved with its host.

Institute of Quantitative and Theoretical Biology
To learn more, feel free to check out the website or approach your colleagues directly:
www.qtb.hhu.de/en/

Prof. Dr. Oliver Ebenhöh: The Institute of Quantitative and Theoretical Biology pursues theoretical research aiming at deciphering fundamental principles underlying the design and organisation of living systems. For this, we develop mathematical models and perform computer simulations of a wide range of biological systems. The focus currently lies on energy and storage metabolism, photosynthesis, signalling and regulatory pathways, and microbial growth. We employ our theories and models to understand to what extent metabolic and signalling pathways are optimal. Regarding microbial growth, we address the question, whether the catabolic growth process driven by anabolism is close to optimal efficiency. A major challenge in microbiology is to predict microbial growth rates from environmental parameters and nutrient availability. We explore to what extent growth rates can be understood and predicted by applying thermodynamic concepts and principles to microbial growth. To this end, we closely collaborate with experimental groups to develop thermodynamic theories of microbial growth, simulate unicellular organisms as thermodynamic energy converters, and in general apply concepts and principles from statistical physics to cellular growth. Microbes almost never live in isolation. We strive to understand the principles according to which microbial ecosystems are organised. In close collaboration with soil biologists and marine researchers, we develop mathematical models describing ecosystem dynamics and composition with the aim to predict ecosystem complexity and resilience from environmental parameters.

Institut für Mikrobielle Zellbiologie
To learn more, feel free to check out the website or approach your colleagues directly:
www.mikrobielle-zellbiologie.hhu.de

Prof. Dr. Eva Nowack: The focus of the research of my group is the evolutionary transformation of bacterial endosymbionts into genetically integrated organelles. As model organisms we use (i) the cercozoan amoeba *Paulinella chromatophora* which contains unusual photosynthetic organelles (termed chromatophores) and (ii) the trypanosomatid *Angomonas deanei* that contains a nutritional β-proteobacterial endosymbiont. Our ongoing research has demonstrated that the chromatophores evolved from cyanobacteria independently from and much more recently than plastids; the size of the chromatophore genome is intermediate, between the genomes of free-living cyanobacteria and the highly reduced genomes of plastids; chromatophore and nucleus-encoded functions are highly complementary; and hundreds of nucleus-encoded proteins are imported into the chromatophore where they compensate for functions lost from the chromatophore genome or add novel functionality. These findings characterize the chromatophore as a newly evolved genetically integrated organelle. A long-term goal of our research on *P. chromatophora* is to understand the molecular basis for protein and metabolite exchange across the chromatophore envelope membranes as well as the cellular functions of chromatophore-targeted proteins. In parallel, we established Angomonas deanei as a complementary and genetically tractable endosymbiosis model. Currently, we take advantage of the genetic tools established to explore how a handful of endosymbiont-targeted host proteins that we identified establishes nuclear control over key aspects of the endosymbiont's biology (e.g., synchronization of the endosymbiont's cell cycle with the one of the host cell).

Institut für Molekulare Enzymtechnologie
Located at FZJ
To learn more, feel free to check out the website or approach your colleagues directly:
www.iet.uni-duesseldorf.de

Prof. Dr. Karl-Erich Jaeger: Our work focuses on enzymes and photoactive proteins from bacteria. Research topics include the identification of novel enzyme genes using metagenomics and the development of novel bacterial expression systems. Further topics are enzyme secretion, biochemical characterization, structure determination and optimization by rational protein design and directed evolution. Biotechnological applications of enzymes are exploited within collaborative projects with diverse industries. The group "Bacterial Photobiotechnology" headed by Dr. Thomas Drepper develops novel optogenetic tools for light-mediated control of microbiological processes and uses photosynthetic bacteria as platform organisms for the production of secondary metabolites including terpenes. *Pseudomonas putida* is developed as a chassis organism by the group "Natural product biosynthesis" (Dr. Anita Loeschke and Dr. Stephan Thies). Plastic-degrading enzymes as well as bioactive compounds such as prodiginines and biosurfactants are produced by heterologous biosynthesis. The group "Molecular Biophotonics" (Dr. Ulrich Krauß) studies photoreceptors of the LOV family and photocatalytic enzymes, which drive substrate conversion by light. Recently, this group has developed novel enzyme immobilizates by fusion of self-assembling protein domains forming catalytically active inclusion bodies (CatIBs) which have proven valuable for applications in synthetic chemistry and biocatalysis. Enzymes produced by the opportunistic human pathogen *Pseudomonas aeruginosa* are studied in the group "Bacterial Enzymology" (Dr. Filip Kovacic) with a focus on (phospho) lipases and proteases. Recently, this group has developed a system for cloning and expression of more than 1000 genes of unknown function (GUFs) that allows to identify candidate virulence factors as putative drug targets.

Institute of Bio- and Geosciences 1: Biotechnology
To learn more, feel free to check out the website or approach your colleagues directly:
www.fz-juelich.de/ibg/ibg-1

Prof. Dr. Michael Bott (Topic 'Systemic Microbiology' and Department 'Metabolic Regulation and Engieering'): Our research aims at a systemic understanding of metabolic and regulatory networks in industrially relevant microbes such as *Corynebacterium glutamicum* and *Gluconobacter oxydans* and application of the resulting knowledge for the development of new microbial cell factories by metabolic engineering and synthetic biology. These cell factories contribute to the transition from a petroleum-based economy to a bioeconomy based on renewable carbon sources. Major topics studied by us in *C. glutamicum* are (i) the citric acid cycle, including regulation of 2-oxoglutarate dehydrogenase activity by a novel signal transduction cascade, relevant for the synthesis of TCA cycle-derived products such as various organic acids, (ii) the respiratory chain with its cytochrome bc1-aa3 supercomplex, relevant for all aerobic production processes such as amino acid fermentation, (iii) iron homeostasis, including pupylation of iron storage proteins as a new mechanism for iron release, relevant for the plethora of iron-dependent enzymes, and (iv) the transcriptional regulatory network, including one- and two-component systems, relevant for adaptation and coordination of cellular metabolism as well as for the design and application of metabolite biosensors. For the development of producer strains, e.g. for amino acids, organic acids, or drugs, we combine a variety of approaches including metabolic engineering, adaptive laboratory evolution, biosensor-based high-throughput screening, omics technologies, and co-cultivation strategies. Automated genetic engineering is currently established to speed up strain development.
Website: *https://www.fz-juelich.de/ibg/ibg-1/EN/Research/SystemicMicrobiology/*

Prof. Dr. Julia Frunzke (Department of 'Bacterial Networks and Interaction'): We are interested in the design and dynamics of complex regulatory networks that enable microorganisms to adapt to constantly changing environmental conditions and to interact with other biological entities. We focus on the interaction of bacteria and the viruses (phages) infecting them by studying the molecular mechanisms enabling phages to target key regulatory hubs of the host cell and how bacteria protect themselves against this attack. We recently discovered a new type of 'chemical' defense, by showing that aminoglycoside antibiotics – produced by *Streptomyces* – are potent inhibitors of phage infection in widely divergent bacterial hosts. We are also interested in how bacteria control and domesticate their prophages by means of xenogeneic silencing proteins. Furthermore, we are studying gene regulatory networks and signal transduction cascades controlling iron and heme homeostasis in the biotechnological platform organism *Corynebacterium glutamicum*. We exploit and incorporate these sensory mechanisms and fundamental insights for applications in synthetic biology and biotechnology. This is exemplified by the design and application of transcription factor-based biosensors used in high-throughput screening approaches and evolutionary engineering.

Prof. Dr. Jan Marienhagen (Department of 'Synthetic Cell Factories'): Our group wants to contribute to the understanding of the prokaryotic metabolism and is interested in expanding the biosynthetic capabilities of bacteria for applied purposes. In this context, we focus on the microbial production of aromatic compounds such as hydroxybenzoic acids, plant (poly) phenols and other polyketides. Furthermore, we work on the efficient microbial utilization of carbon-rich waste streams from agriculture and food industries. For all of these applications we design synthetic pathways, develop novel molecular techniques and apply the latest methods of metabolic engineering and protein engineering. This includes the construction and custom-made engineering of transcription-factor based biosensors for the detection of small molecules in single cells. In combination with fluorescence-activated cell sorting, we use such biosensors for the ultra-high-throughput screening of genetically diverse libraries.

Department of Microbial Catalysis

To learn more, feel free to check out the website or approach your colleagues directly:
www.fz-juelich.de/ibg/ibg-1/EN/Research/SystemicMicrobiology/catalysis/catalysis_research.html

Prof. Dr. Nick Wierckx: Our goal is to develop microbial biotechnology concepts that can ultimately be applied to solve grand challenges such as pollution and climate change. Our scientific focus is on the development of microbial catalysts for the production of chemicals from bio-based or waste-based feedstocks, and the fundamental understanding of the underlying cellular processes including metabolism and tolerance. We apply this knowledge to the bio-upcycling of plastic waste, the bacterial production of aromatics from renewable resources, and the fungal production of organic acids and other chemicals from industrial waste streams. Our main workhorses are bacteria from the genus Pseudomonas and fungi from the *Ustilaginaceae* family. Our methods revolve around synthetic biology, metabolic engineering, laboratory evolution, systems analysis, and bioprocess technology.

MEDILOC
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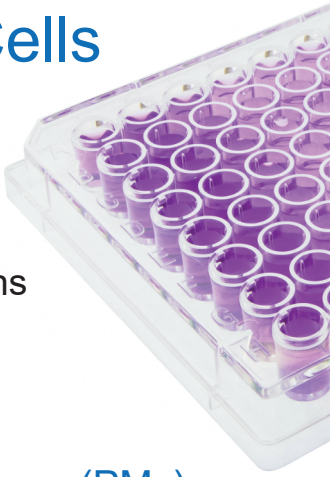
Characterize Microbial Cells

✓Bacteria ✓Yeasts ✓Filamentous Fungi



- Correlate genotypes with phenotypes
- Measure changes in cell metabolism
- Optimize cell lines and culture conditions
- Characterize cell phenotypes

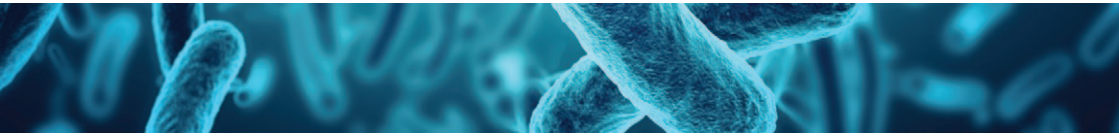
Phenotype MicroArrays (PMs)

are preconfigurated 96 well plates. Each well contains a specific substrate to interrogate a metabolic pathway which is visualized through color formation.

Evaluate up to 2000 phenotypes of a microbial cell in a single experiment.

PM 1 - 10
- ✓ Carbon-, Nitrogen-, Phosphorus- and Sulfur Sources
- ✓ Osmotic and Ionic Effects
- ✓ pH Effects

PM 11 - 20
- ✓ Chemical Sensitivity Assays (Antibiotics and other antimicrobials)



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MediLoc Laborsysteme GmbH, Werftstr. 20, 32423 Minden
Telefon: +49 571 - 94599070 mail@mediloc-labsys.com

Einladung zur Mitgliederversammlung der VAAM

Hiermit lade ich alle Mitglieder der VAAM zur Mitgliederversammlung ein. Sie wird in auch diesem Jahr am Mittwoch, den 23. Februar, um 14:00 Uhr online stattfinden.

Bitte melden Sie sich auf der Homepage der VAAM unter **www.vaam.de** zur digitalen Mitgliederversammlung bis zum 22. Februar 2022 an, der Einladungslink wird Ihnen dann nach Überprüfung der Mitgliedschaft zugesandt.

Vorläufige Tagesordnung:

1. Festlegung der Tagesordnung und Genehmigung der Niederschrift der online Mitgliederversammlung am 19. März 2021 (siehe BIOspektrum 3/21, Seiten 304 und 305)
2. Bericht aus dem Vorstand, u.a. Ort und Zeit der nächsten Jahrestagung, Aktivitäten der Fachgruppen, VBIO, Öffentlichkeitsarbeit, Haushalt 2021 und Haushaltsplan 2022
3. Bericht der Kassenprüfer
4. Entlastung des Vorstandes
5. Mikrobe des Jahres
6. Verschiedenes

Hubert Bahl
Schriftführer

Special group meetings

For further informations about the dates and times of the special grouo meetings please see the congress homepage **www.vaam-kongress.de**.

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Present across Europe

I&L Biosystems

08:30–09:00	Opening
Stream 1	Opening of the Conference & Introduction to the online format J. Frunzke (Jülich/DE) & M. Feldbrügge (Düsseldorf/DE), F. Melchior (Jülich/DE; Member of the Board of Directors for Scientific Division FZJ) A. Steinbeck (Düsseldorf/DE; Rector of HHU), F. Narberhaus (Bochum/DE)
09:00–09:45	VAAM Honorary award
Stream 1	Laudatio: F. Narberhaus (Bochum/DE) Honory Award: Climate change microbiology: novel insights into methane cycling archaea C. Welte (Nijmegen/NL)
09:45–10:25	VAAM PhD awards
Stream 1	Laudatio: J. Stülke (Göttingen/DE)
10:25–10:35	Microbe of the Year
Stream 1	
Chair	C. Jogler (Jena/DE)
10:45–12:15	Plenary session 1
Stream 1	
Chair	L. Schmitt (Düsseldorf/DE)
10:45	Natural products shaping microbial communities
PS001	A. Brakhage (Jena/DE)
11:15	Phenotypic variability of *Escherichia coli* in response to acid stress and the
PS002	underlying molecular mechanism K. Jung (Martinsried/DE)
11:45	One ring to rule them all – DNA segregation in bacteria
PS003	M. Thanbichler (Marburg/DE)
12:15–13:15	Lunch Symposium
Stream 1	Leibniz-Institut DSMZ – Deutsche Sammlung von Mikroorganismen und Zellkulturen NFDI, DSI, CBD: What changes and policies might affect how you use data in the future? For further information see Page 65
12:15–13:15	Young creators – iGEM winning teams
Zoom 1	Young creators – iGEM winning teams present ideas and experiences
Moderator	A. Störiko (Hofheim am Taunus/DE)

13:15–15:15	Short lecture
Zoom 1	Antropogenically influenced enviroments
Chair	R. U. Meckenstock (Essen/DE), S. Thies (Jülich/DE)
13:30	An attempt to identify the sources and hosts of antibiotic resistance genes in
ST002	receiving water bodies
	S. Heß, T. U. Berendonk, K. David (Dresden/DE)
13:45	Microplastic Ingestion Affects the Gut Microbiome of Woodlice and
ST003	Associated Production of Molecular Hydrogen
	L. Hink (Hannover/DE), A. Holzinger, A. Bernstein (Bayreuth/DE), T. Sandfeld Jensen
	A. Schramm (Aarhus/DK), H. Feldhaar (Bayreuth/DE) M. A. Horn (Hannover/DE)
14:00	Polluted marine habitats as prolific sources for polyester degrading enzymes
ST004	R. Molitor, A. Bollinger (Jülich/DE), R. Dierkes, W. R. Streit (Hamburg/DE)
	S. Thies, K.-E. Jaeger (Jülich/DE)
14:15	Towards biorecycling of plastics: Strategies of *Pseudomonas capeferrum*
ST005	TDA1 to grow on a polyurethane oligomer and monomers
	C. Eberlein, O. Puiggene, M. J. Cardenas Espinosa, D. Schlosser, S. Thies
	H. J. Heipieper (Leipzig/DE)
14:30	Inhibition of sulfate-reducing bacteria in a natural oil reservoir and in pure cultures
ST006	L. Voskuhl, D. Brusilova, V. Brauer, R. U. Meckenstock (Essen/DE)
14:45	The current state of development of Exocube – an *in-situ* astrobiology
ST007	exposure platform onboard the International Space Station
	D. Burr (Berlin/DE), L. Gillet de Chalonge, C. Favreau (Paris/FR)
	A. Perfumo (Potsdam/DE), A. Kish (Paris/FR), A. Elsaesser (Berlin/DE)
15:00	Resistomes from 5943 metagenome-assembled genomes recovered from
ST008	165 active sludge and wastewater samples reveal almost 90% of species have
	antimicrobial resistance genes and that most of them may resist multiple drugs
	N. Abdulkadir, J. Pedro Saraiva, U. Nunes da Rocha (Leipzig/DE)

13:15–15:15	Mini symposium
Zoom 2	Next generation biotransformation VAAM Special group Biotransformation
Chair	A. Pelzer (Zwingenberg/DE), D. Tischler (Bochum/DE)
13:15 IL-SG001	Phylogenetics and database mining – complementary approaches towards novel enzyme catalysts A. Schallmey (Braunschweig/DE)
13:45 ST009	Design of a synthetic enzyme cascade for the *in vitro* fixation of a C_1 carbon source to a functional C_4 sugar S. Güner, V. Wegat, A. Pick (Straubing/DE) V. Sieber (Brisbane/AU; Garching, Straubing/DE)
14:00 ST010	Tailoring *Clostridium ljungdahlii* for Improved Ethanol Production by Genetic Engineering and Adaptive Evolution S. Schulz, L. T. Angenent, B. Molitor (Tübingen/DE)
14:15 ST011	Isolation and characterization of novel acetogens for syngas fermentation T. Böer, A. Lüschen, D. Schneider, R. Daniel, A. Poehlein (Göttingen/DE)
14:30 ST012	HyPerFerment II – Microbial Process Development and Evaluation of a Fermentative Hydrogen Production Pilot Plan F. Giebner, L. Kengelbacher, J. Kretschmer, P. Fischbock D. Heinemann (Gommern/DE), T. Birth (Magdeburg/DE) M. Wagner (Gommern/DE)
14:45 ST013	High versatility of IPP and DMAPP methyltransferases enables synthesis of C_6, C_7 and C_8 terpenoid building blocks L. Drummond, P. Haque (Frankfurt a. M./DE), B. Gu (Bonn/DE) J. S. Jung, H. Schewe (Frankfurt a. M./DE), J. S. Dickschat (Bonn/DE) M. Buchhaupt (Frankfurt a. M./DE)
15:00 ST014	Machine learning guided optimization of the new-to-nature CO_2-fixation cycle CETCH C. Diehl, A. Pandi (Marburg/DE), A. Yazdizadeh Kharrazi (Amsterdam/NL) N. Paczia (Marburg/DE), N. Socorro Cortina (San Francisco, CA/US; Marburg/DE) T. J. Erb (Marburg/DE)

13:15–15:15	Short lecture
Zoom 3	Regulation
Chair	K. Papenfort (Jena/DE), N. Tschowri (Hannover/DE)
13:15 ST015	A protein in search of a function – the c-di-AMP-binding protein DarA of *Bacillus subtilis* R. Warneke, C. Herzberg (Göttingen/DE), T. Schramm, H. Link (Tübingen/DE) J. Stülke (Göttingen/DE)
13:30 ST016	Characterization of the FNR-type regulator GoxR in the obligatory aerobic acetic acid bacterium *Gluconobacter oxydans* A. Kranz, S. Schweikert (Jülich/DE), T. Yakushi (Yamaguchi/DE), A. Filipchyk T. Polen, H. Etterich, S. Bringer, M. Bott (Jülich/DE)
13:45 ST017	The on-switchable phosphodiesterase PdeB creates heterogeneity V. Kreiling, T. Rick, K. Thormann (Giessen/DE)
14:00 ST018	Comparative analysis of redox-controlled activity of the 5 CSS domain c-di-GMP phosphodiesterases of *Escherichia coli* K. Preßler, M. Lorkowski, R. Hengge (Berlin/DE)
14:15 ST019	The DUF1127 protein CcaF1 from *R. sphaeroides* is a novel RNA-binding protein involved in sRNA maturation and RNA turnover J. Grützner (Giessen/DE), F. Billenkamp (Braunschweig/DE), D.-T. Spanka T. Rick, G. Klug (Giessen/DE)
14:30 ST020	DNA interference states of the hypercompact CRISPR–CasΦ effector from huge bacteriophages P. Pausch (Vilnius/LT), K. M. Soczek, D. A. Herbst, C. A. Tsuchida B. Al-Shayeb, J. F. Banfield, E. Nogales, J. A. Doudna (Berkeley, CA/US)
14:45 ST021	Identification and characterization of RNA-binding proteins in the cyanobacterial model *Synechocystis* sp. PCC 6803 L. Hemm, M. Riediger (Freiburg i. Br./DE), S. Watanabe (Tokyo/JP) W. R. Hess (Freiburg i. Br./DE)
15:00 ST022	RNAylation of proteins – a new post-translational protein modification mediated by NAD-RNAs and a T4 phage ADP-ribosyltransferase K. Höfer, M. Wolfram-Schauerte, N. Pozhydaieva (Marburg/DE)

13:15–15:15	Short lecture
Zoom 4	Extrem(ophiles) – from bench to field & Fundamental and applied aspects of phototrophic metabolism
Chair	A. Wilde (Freiburg/DE), M. Eisenhut (Düsseldorf/DE)
13:15 ST023	Autophosphorylation of ArlH and its influence in the archaellum motor complex N. de Sousa Machado, L. Vollmar, J. Schimpf, P. Chaudhury, R. Kumaryia C. van der Does, T. Hugel, S.-V. Albers (Freiburg i. Br./DE)
13:30 ST024	2-oxoglutarate activates the glutamine synthetase of the methanogenic archaeon *Methanothermococcus thermolithotrophicus* via an allosteric site M.-C. Müller, T. Wagner (Bremen/DE), S. Shima (Marburg/DE) S. Engilberge (Grenoble/FR)
13:45 ST025	Effects of ydrogen in anaerobic, extremely halophilic microbial cultures from the Zechstein formation L. Schwab (Leipzig/DE), G. Nowack (Gommern/DE), H. Stryhanyuk, C. Vogt P. Bombach (Leipzig/DE)
14:00 ST026	Hmx1 and Hmx2 function as manganese importer in cyanobacteria M. Schultz (Düsseldorf/DE), F. Brandenburg (Leipzig/DE), A. Plett (Düsseldorf/DE) S. Metzger (Cologne/DE), M. Eisenhut (Düsseldorf/DE)
14:15 ST027	Effect of biotransformation reactions as heterologous electron sinks on the cyanobacterial metabolism R. Kourist, L. Assil-Companioni, L. Yap-Malihan, Y. Allahverdiyeva (Graz/AT)
14:30 ST028	Photosynthetic driven H_2 production in *Synechocystis* sp. PCC 6803 with the help of an oxygen tolerant hydrogenase J. Toepel, S. Lupacchini, B. Bühler, A. Schmid (Leipzig/DE)
14:45 ST029	Continuous Stirred-Tank Bioreactor for the Winning of Zinc and Indium by Bioleaching B. Monneron, M. Schlömann (Freiberg/DE)
15:00 ST030	Productivity of *Nannochloropis salina* and *Synechocystis* sp. PCC 6803 in autotrophic batch cultures with CellDEG cultivators and balanced media with high nitrate concentration L. Guder, A. Wüstenberg, L. Bähr, R. Steuer, R. Ehwald (Berlin/DE)

13:15–15:15 Short lecture
Zoom 5 Small molecules shaping the living world
Chair E. Stegmann (Tübingen/DE), T. Classen (Jülich/DE)

13:15 Identification of non-canonical terpene biosynthetic routes in bacteria
ST031 N. Magnus, F. Braack (Rostock/DE), S. von Reuß (Neuchâtel/CH)
B. Piechulla (Rostock/DE)

13:30 Temporal expression of biosynthetic gene clusters in the myxobacterium
ST032 *Sorangium cellulosum* Soce836
J. Boldt, L. Lukoševičiūtė (Braunschweig/DE)
M. Steglich (Hannover, Braunschweig/DE), B. Bunk, V. Junker, A. Gollasch
B. Trunkwalter, K. I. Mohr, M. Beckstette (Braunschweig/DE)
N. Zaburannyi (Braunschweig, Saarbrücken/DE), C. Fu (Saarbrücken/DE)
J. Wink (Braunschweig/DE), R. Müller (Braunschweig, Saarbrücken/DE)
J. Overmann, U. Nübel (Braunschweig/DE)

13:45 Evolving *Pseudomonas putida* as robust production platforms for the
ST033 synthesis of bioactive natural products
N. L. Bitzenhofer, C. Höfel, L. Kruse, S. Thies, J. Pietruszka, K.-E. Jaeger
A. Loeschcke (Jülich/DE)

14:00 Generation of novel pristinamycin derivatives by mutasynthesis approaches
ST034 O. Hennrich, Y. Mast, F. Surup, K. Harms (Braunschweig/DE)
A. Kulik (Tübingen/DE), J.-W. Youn (Stuttgart/DE)

14:15 Double use of *Alternaria alternata* polyketide synthase A (PksA) for melanin
ST035 and perylenequinone (PQ) biosynthesis
J. Gao, R. Fischer (Karlsruhe/DE)

14:30 *[S,S]-EDDS* – Insights into its biosynthesis and its role in mediating bacterial
ST036 interactions
N. Hernandez Perez, C. C. Hughes, D. Petras, E. Stegmann
W. Wohlleben (Tübingen/DE)

14:45 Identification, biosynthesis and ecological role of secondary metabolites
ST037 produced by *Actinobacteria* associated with fungus growing termites
J. Schwitalla, F. Schalk, H. Guo, R. Benndorf (Jena/DE)
M. Poulsen (Copenhagen/DK), W. Z. de Beer (Pretoria/ZA)
C. Beemelmanns (Jena/DE)

15:00 Back to soil – Awakening the production of cryptic antibiotics in *Streptomyces*
ST038 J. K. Schniete, J. Paros, L. Fernández-Martínez (Ormskirk/GB)

13:15–15:15 Short lecture
Zoom 6 Synthetic microbiology and systems biology
Chair R. Steuer (Berlin/DE), M. Zurbriggen (Düsseldorf/DE)

13:15 A synthetic carboxylation module to improve photosynthesis
ST039 D. Marchal, M. Scheffen, S. Schuller, J. M. Schuller, J. Zarzycki
T. J. Erb (Marburg/DE)

13:30 Synthetic Co-Culture for the Production of Bioplastics from Light and CO2:
ST040 Deciphering the Interplay of *Synechococcus elongatus* and *Pseudomonas putida*
F. Kratzl, K. Pflüger-Grau, A. Kremling (Garching/DE)

13:45 Lights on and action – Optogenetic on- and off-switches for light-induced
ST041 control of microbial processes
F. Hilgers, N. L. Bitzenhofer, O. Klaus, F. Hogenkamp (Jülich/DE)
A. Burmeister, A. Grünberger (Bielefeld/DE), J. Pietruszka, K.-E. Jaeger
T. Drepper (Jülich/DE)

14:00 Unraveling the Physiological Response of *Escherichia coli* Under High ATP
ST042 Demand
G. Slaviero, S. Boecker (Magdeburg/DE), T. Schramm (Marburg, Tübingen/DE)
W. Szymanski (Marburg/DE), R. Steuer (Berlin/DE), H. Link (Marburg, Tübingen/DE)
S. Klamt (Magdeburg/DE)

14:15 A Natural Language Processing tool for information extraction of microbial
ST043 phenotypes from unstructured text
A. Halder (Cologne/DE), J. Koblitz, L. C. Reimer
J. Overmann (Braunschweig/DE), G. K. Shahi, S. Auer (Hannover/DE)
K. Förstner (Cologne/DE)

14:30 Development of a modular T7 RNA polymerase based genetic platform for
ST044 the efficient production of heterologous proteins in *Pseudomonas putida*
M. Beentjes, H. Löwe, A. Kremling, K. Pflüger-Grau (Garching/DE)

14:45 Controlled interkingdom communication – crosstalk between bacteria
ST045 *Bacillus subtilis* and the eukaryote *Saccharomyces cerevisiae* by utilizing
bacterial quorum sensing peptides
T. Vološen, A. Stammberger, J. Korp, L. Schuster, U. Gey, K. Ostermann
D. Wolf (Dresden/DE)

15:00 Modulating bacterial data models – how databases can improve research
ST046 T. Pedreira, J. Stülke (Göttingen/DE)

13:15–15:15	Mini symposium
Zoom 7	VAAM special group Microbiome
Chair	M. Schloter (Munich/DE), C. Moissl-Eichinger (Graz/AT)
13:15	The new era of gut microbiome research via cultivation
IL-SG002	T. Clavel (Aachen/DE)
13:45	Archaea in the human microbiome
IL-SG003	C. Moissl-Eichinger (Graz/AT)
14:00	The lung microbiome – Interface between environment and our body
IL-SG004	M. Schloter (Munich/DE)
14:15	Ecology impacts the decrease of Spirochaetes and *Prevotella* in the fecal gut
ST047	microbiota of urban humans
	L. Thingholm, C. Bang, M. C. Rühlemann, A. Starke (Kiel/DE)
	F. Sicks (Berlin/DE), V. Kaspari (Neumuenster/DE), A. Jandowsky
	K. Fröhlich (Warder/DE), G. Ismer (Gettorf/DE), A. Bernhard (Leipzig/DE)
	C. Bombis (Hamburg/DE), B. Struve (Schwaigern/DE), P. Rausch, A. Franke (Kiel/DE)
14:27	News from the cyanosphere – Metagenomic insights into low complexity
ST048	microbiomes
	J. Petersen (Braunschweig/DE)
14:39	Impact of Quantitiy and Quality of Dietary Fibre on the Gut Microbiome in
ST049	Mouse Studies
	A. Dötsch, D. Graf, S. Louis, M. von Süsskind-Schwendi
	B. Watzl (Karlsruhe/DE)
14:51	Introducing the National Research Data Infrastructure for the Research of
ST050	Microbiota (NFDI4Microbiota)
	B. Görtz (Cologne/DE), A. Becker (Marburg, Cologne/DE)
	P. Bork (Heidelberg, Cologne/DE), T. Clavel (Aachen, Cologne/DE)
	U. Nunes da Rocha (Cologne, Leipzig/DE)
	A. Goesmann (Giessen, Cologne/DE), M. Marz (Jena, Cologne/DE)
	J. Overmann (Braunschweig, Cologne/DE)
	K. Sauerwein (Brunswick, Cologne/DE), A. Sczyrba
	J. Stoye (Bielefeld, Cologne/DE), J. Vandendorpe (Cologne/DE)
	A. McHardy (Cologne, Brunswick/DE), K. Förstner (Cologne/DE)

13:15–14:45 **Short lecture**
Zoom 8 Infection biology
Chair S. Häußler (Hannover/DE), M. Hensel (Osnabrück/DE)

13:15
ST051
An increase in surface hydrophobicity formed by *N*-chlorinated residues mediates chaperone activity of RidA from *Escherichia coli*
M. Varatnitskaya, J. Fasel, A. Müller, N. Lupilov (Bochum/DE)
Y. Shi (Jupiter, FL/US), K. Fuchs, M. Krewing (Bochum/DE), C. Jung
T. Jakob (Ulm/DE), B. Sitek, J. E. Bandow (Bochum/DE)
K. Carroll (Jupiter, FL/US), E. Hoffmann, L. I. Leichert (Bochum/DE)

13:30
ST052
Super-resolution microscopy to decipher the dynamic subcellular localization of pneumococcal proteins during an immunological challenge
C. Vilhena, Z. Cseresnyés, A. Jost (Jena/DE), T. Kohler
S. Hammerschmidt (Greifswald/DE), C. Eggeling (Jena/DE, Oxford/GB)
M. T. Figge, P. F. Zipfel (Jena/DE)

13:45
ST053
Deciphering the role of host-derived extracellular vesicles in the fight against *Aspergillus fumigatus*
F. Rivieccio, A.-K. Zimmermann, C. Visser, M. Rafiq, A. Bruch, K. González Rojas
T. Krüger, O. Kniemeyer, M. G. Blango, A. A. Brakhage (Jena/DE)

14:00
ST054
Role of nuclear targeted effectors of Brassicaceae smut fungus *Thecaphora thlaspeos* in modulation of host transcription
S. Gul, V. Goehre (Düsseldorf/DE)

14:15
ST055
RNA-Seq based transcriptomic profiling to understand off-target effects of antisense antibiotics
J. Jung, L. Popella, P. Thao Do, P. Pfau, J. Vogel, L. Barquist (Würzburg/DE)

14:30
ST056
Presence of human pathogens of the *Borrelia burgdorferi* sensu lato complex shifts the sequence read abundances of tick microbiomes in two German locations
A. Hoffmann (Coburg/DE), T. Müller (Weiden/DE), V. Fingerle (Munich/DE)
M. Noll (Coburg/DE)

15:15–15:45 **Special Group Meetings**

15:15–15:45 **Meet the speakers**
Meet the short lecture speakers

15:30–17:00 DFG-Antragsstellung-Beratung
For further information see page 64

15:30–17:00 ePoster session 1
Zoom 1
For further information to this Session see page 68

17:00–19:00 Mini symposium
Zoom 1 The chemical and functional diversity of signaling nucleotides
VAAM Special group Regulation and signal transduction in prokaryotes
Chair N. Tschowri (Hannover/DE), J. Lassak (Munich/DE)

17:00 Principles of high-specificity local and global c-di-GMP signaling
IL-SG005 R. Hengge (Berlin/DE)

17:30 (p)ppGpp coordinates lipopolysaccharide biosynthesis in *Escherichia coli*
IL-SG006 S. Brückner (Bochum/DE)

17:45 A new facet of c-di-AMP mediated regulation in *Bacillus subtilis*
IL-SG007 J. Stülke (Göttingen/DE)

18:15 Cross-talk between cAMP and c-di-AMP signaling via carbon sensor protein
IL-SG008 SbtB – Linking CO2 homeostasis with diurnal metabolic switch
K. Selim (Tübingen/DE)

18:30 Cyclic Nucleotide Signalling in virus – host conflict
IL-SG009 M. White (St Andrews/GB)

17:00–19:00 Mini symposium
Zoom 2 Communication in Fungi
VAAM Special group Fungal biology and biotechnology
Chair D. Nordzieke (Göttingen/DE), A. Weiberg (Munich/DE)

17:00 The mycoparasitic interaction of *Trichoderma atroviride* with prey fungi is
IL-SG010 governed by environmental and endogenous cues as well as developmental stage-specific responses
S. Zeilinger-Migisch (Innsbruck/AT)

17:30 Fungal Fight – Biotic Interactions based on the Biosynthesis of Secondary
ST057 Metabolites associated with *Neonectria ditissima*
L. Heck, S.-K. Bühring, F. Schmidt, K. Andresen, E. Thines (Mainz/DE)

17:45 ST058
Unconventional suppression of plant defence responses by the signal peptide peptidase Spp1 in the *Ustilago maydis* – maize interaction
N. M. Kühne, N. Pinter, C. Hach, A. Poehlein, R. Daniel, K. Heimel (Göttingen/DE)

18:00 ST059
Cross-kingdom RNAi in the interaction of smut fungi with model plants
T. Adeshara, V. Göhre (Düsseldorf/DE)

18:15 ST060
Identification of biosynthetic pathways of volatile organic compounds in the mushroom *Cyclocybe aegerita*
N. Hoberg, D. Karrer, A. Orban, N. Sella, A. Atamasov, V. Weigel
M. Rühl (Giessen/DE)

18:30 ST061
Multicellularity in fruiting body development of the mushroom *Coprinospsis cinerea*
S. Subba, M. Winkler, U. Kües (Göttingen/DE)

18:45 ST062
CLR-3 as a key factor in the cross-talk between cellulose and hemicellulose signaling in *Neurospora crassa*
Y. Zhang, S. Seidl (Freising/DE), C. Tian (Tianjin/CN), J. P. Benz (Freising/DE)

17:00–19:00 Zoom 3
Mini symposium
Soil Microbial Interactions and Functioning
VAAM Special group Environmental microbiology
Chair
A. J. Probst (Essen/DE), S. Liebner (Potsdam/DE), E. Ruff (Falmouth MA/US)

17:00 IL-SG025
Unearthing the impact of climate change on soil viruses
J. Jansson (Richland/US)

17:35 ST063
Crop host signatures are constituted by co-association patterns of keystone bacteria in the rhizosphere microbiota
S. Lewin, D. Francioli, A. Ulrich (Müncheberg/DE), S. Kolb (Müncheberg, Berlin/DE)

17:50 ST064
Microplastic-polymer specific modulation of the soil microbial community: Selection of a plastisphere microbiome
S. Rohrbach (Hannover/DE), G. Gkoutselis (Bayreuth/DE)
L. Hink (Hannover/DE), A. Weig, M. Obst (Bayreuth/DE), A. Diekmann
A. Ho (Hannover/DE), G. Rambold (Bayreuth/DE), M. A. Horn (Hannover/DE)

18:05 ST065
Microbe-substrate interactions following simulated microbial inoculation to thawed yedoma permafrost in anaerobic environments
J. Heslop, S. Liebner, M. Winkel, S. Yang (Potsdam/DE)
K. Walter Anthony (Fairbanks, AK/US), R. Spencer (Tallahassee, FL/US)
D. Podgorski, P. Zito (New Orleans, LA/US)

18:20 ST066
Microbial necromass in soil organic matter – implications for soil microbial ecology
M. Kästner (Leipzig/DE)

18:35 ST067
Analysis of microbial populations in plastic–soil systems after exposure to high poly(butylene succinate-co-adipate) load using high-resolution molecular technique
B. Tanunchai (Halle a. d. S./DE), K. Juncheed (Leipzig/DE), S. F. M. Wahdan
V. Guliyev, M. Udovenko (Halle (Saale)/DE), A. Lehnert, E. G. Alves (Jena/DE)
B. Glaser (Halle a. d. S./DE), M. Noll (Coburg/DE), F. Buscot, E. Blagodatskaya
W. Purahong (Halle a. d. D./DE)

18:40 ST068
Soil properties influence the emission of the microbial volatile sodorifen of *Serratia plymuthica*
P. K. Ruciaka, M. C. Lemfack, B. Piechulla (Rostock/DE)

18:45 ST069
A closer look into cellular organization, physiological limits, and genomic features of cold-tolerant *Nitrotoga* strains
S. Keuter, K. Sass, S. Wegen, N. Lee, H. Koch, S. Lücker, E. Spieck (Hamburg/DE)

18:55 ST071
Endophytic actinobacteria as a biological tool to improve phytoremediation of heavy metals contaminated soils in the United Arab Emirates
K. El-Tarabily, S. AbuQamar, F. Omer, A. Altaee (Al-Ain/AE)

17:00–19:00 Zoom 4
Mini symposium
Novel microbial viral defense systems beyond CRISPR
VAAM Special group Microbial viruses
Chair
S. Barbirz (Berlin/DE), T. E. F. Quax (Freiburg/DE)

17:00 IL-SG011
Quorum sensing anti-activation in the phage-host evolutionary arms race
K. Maxwell (Toronto/CA)

17:30 ST072 — Molecular multitasking – Aminoglycoside antibiotics protect bacteria from phage infection
L. Kever (Jülich/DE)

17:40 ST073 — Interrogating the Thoeris novel anti-phage defense system in its native bacterial host
F. Englert (Würzburg/DE), S. Meaden, P. Fineran (Dunedin/NZ)
C. Beisel (Würzburg/DE)

17:50 ST074 — Harnessing synthetic sRNAs to unravel phage resistance mechanisms
G. Smyrlis, M. Siemers, M. Richard, K. Papenfort (Jena/DE)

18:00 ST075 — Interaction between haloarchaeal virus HFTV1 and its *Haloferax* host
S. Schwarzer (Freiburg i. Br./DE), H. M. Oksanen (Helsinki/FI)
T. E. F. Quax (Freiburg i. Br./DE; Groningen/NL)

18:10 ST076 — Prevalence, traits and fate of phage-plasmids
E. Pfeifer, J. Sousa, M. Touchon, E. Rocha (Paris/FR)

18:20 ST077 — Viruses' potential roles in carbon and nitrogen cycling during benzene degradation under nitrate-reducing conditions
F. Borim Corrêa, R. Kallies, S. Eziuzor, S. Kleinsteuber, C. Vogt
U. Nunes da Rocha (Leipzig/DE)

17:00–19:00 Short lecture
Zoom 5
Vorsitz
Microbial cell biology I
P. L. Graumann (Marburg/DE), N. Frankenberg-Dinkel (Kiel/DE)

17:00 ST078 — PspA Adopts an ESCRT-III-like Fold and Remodels Bacterial Membranes
B. Junglas (Jülich/DE), S. T. Huber (Heidelberg/DE), T. Heidler (Jülich/DE)
L. Schlösser (Mainz/DE), D. Mann (Jülich/DE), R. Hennig (Mainz/DE)
M. Clarke (Heidelberg/DE), N. Hellmann, D. Schneider (Mainz/DE)
C. Sachse (Jülich/DE)

17:15 ST079 — Multiscale characterization of the nitrite oxidoreductase (NXR) of anaerobic ammonium-oxidizing bacteria
K. Parey (Osnabrück, Frankfurt a. M./DE), T. Chicano (Heidelberg/DE)
L. Dietrich (Frankfurt a. M./DE), N. de Almeida (Nijmegen/NL), M. Akram
E. Hartmann, F. Leidreiter, D. Leopoldus, M. Mueller (Heidelberg/DE)
R. Sánchez (Frankfurt a. M./DE), G. Nuijten, J. Reimann (Nijmegen/NL)
K.-A. Seifert, I. Schlichting (Heidelberg/DE), L. van Niftrik
M. Jetten (Nijmegen/NL), A. Dietl (Heidelberg/DE), B. Kartal (Bremen/DE)
T. Barends (Heidelberg/DE)

17:30 ST080 — Structural insights into photosystem II assembly
M. Nowaczyk (Bochum/DE)

17:45 ST081 — Growth-rate dependency of ribosome abundance and translation elongation rate in *Corynebacterium glutamicum* differs from *Escherichia coli*
S. Matamouros, T. Gensch, M. Cerff, C. Sachs, I. Abdollahzadeh, J. Hendriks
L. Horst, N. Tenhaef, S. Noack (Jülich/DE), M. Graf, R. Takors (Stuttgart/DE)
K. Nöh, M. Bott (Jülich/DE)

18:00 ST082 — Deletion of SMC renders FtsK essential for completing DNA segregation in *Corynebacterium glutamicum*
F. Peng, G. Giacomelli, F. Meyer, M. Grafemeyer (Kiel/DE), M. Linder
M. Haak, C. Rückert, J. Kalinowski (Bielefeld/DE), M. Bramkamp (Kiel/DE)

18:15 ST083 — Archaeal SepF is essential for cell division in *Haloferax volcanii*
P. Nußbaum, M. Gerstner, M. Dingethal, C. Erb, S.-V. Albers (Freiburg i.Br./DE)

18:30 ST084 — Restoring functionality of a compromised *Bacillus subtilis* biofilm activator protein
F. Dempwolff, P. Bedrunka, P. Giammarinaro, G. Bange, E. Bremer (Marburg/DE)

18:45 ST085 — Single molecule dynamics of bacterial GTPases suggests ribosome assembly lines at polar regions of non-compartmentalized cells
J. Stoll, P. L. Graumann (Marburg/DE)

17:00–19:00 Short lecture
Zoom 6 — Physiology of pathogens
Chair — I. A. Berg (Münster/DE), H. Antelmann (Berlin/DE)

17:00 ST086 — The exo-β-N-acetylmuramidases NamZ1 and NamZ2 from the oral pathogen *Tannerella forsythia* are exo-lytic peptidoglycan processing enzymes with distinct substrate specificity
M. Borisova-Mayer, K. Balbuchta (Tübingen/DE)
A. Lovering (Birmingham/GB), A. Titz (Saarbrücken, Braunschweig/DE)
C. Mayer (Tübingen/DE)

17:15 ST087 — Discovery and biosynthesis of the mycobacterial redox cofactor mycofactocin
G. Lackner (Jena/DE)

17:30
ST089
Functional characterization of the putative tryptophan substrate-binding protein TrpA in *Streptococcus suis*
M. Dresen, D. Vötsch (Hannover/DE), J. Arenas Busto (Zaragoza/ES)
A. de Greeff (Lelystad/NL), A. Nerlich (Berlin/DE)
P. Valentin-Weigand (Hannover/DE)

17:45
ST090
The Old Yellow Enzyme (*ofrA*) contributes to *Staphylococcus aureus* stress response, virulence, and metabolism
E. S. Ibrahim, K. Ohlsen (Würzburg/DE)

18:00
ST091
THCz-Synthetic small molecules that target the bacterial cell wall precursor lipid II
K. C. Ludwig (Bonn/DE), E. Reithuber (Stockholm/SE), T. Wixe (Umeå/SE)
A. Müller (Bonn/DE), H. Uvell (Umeå/SE), F. Grein (Bonn/DE)
A. E. G. Lindgren (Umeå/SE), S. Muschiol, P. Nannapaneni (Stockholm/SE)
A. Eriksson (Umeå/SE), S. Normark, B. Henriques-Normark (Stockholm/SE)
F. Almqvist (Umeå/SE), P. Mellroth (Stockholm/SE), T. Schneider (Bonn/DE)

18:15
ST092
Actinobacterial Glutamine synthetase-like enzymes as novel drug targets
S. Krysenko (Tübingen/DE), N. Reiling (Borstel/DE)
F. Hausch (Darmstadt/DE), W. Wohlleben (Tübingen/DE)

18:30
ST088
Glutamate fermentation in Enterobacteria
J. Eggers, E. A. Cassens, S. König (Münster/DE), T. M. Steiner
W. Eisenreich (Munich/DE), S. A. Simon, A. J. Probst (Essen/DE)
I. A. Berg (Münster/DE)

17:00–19:00
Zoom 7
Vorsitz
Short lecture
Biotechnology I
N. Wierckx (Jülich/DE), A. Grünberger (Bielefeld/DE)

17:00
ST094
Engineering Nitrogenases for CO_2 Fixation inside *Rhodobacter capsulatus*
J. Rebelein (Marburg/DE)

17:15
ST095
Towards a holistic monitoring system for protein production and secretion in *Bacillus subtilis*
P. Lenz, M. Malek, T. Drepper (Jülich/DE)
A. Knapp (Jülich, Mönchengladbach/DE), K.-E. Jaeger (Jülich/DE)

17:30
ST096
Recombinant production of bacteriocins using *Corynebacterium glutamicum:* obstacles and solutions
O. Goldbeck, D. Weixler (Ulm/DE), G. M. Seibold (Lyngby/DK)
C. Herwig (Vienna/AT), C. Wittmann (Saarbrücken/DE)
N. S. Bar (Trondheim/NO), D. B. Diep (Ås/DE), C. U. Riedel (Ulm/DE)

17:45
ST097
Microscale cultivation of *Trichoderma reesei* strains enables strain phenotyping and bioprocess development in batch and fed-batch mode with higher throughput
K. Rohr, L. Gremm, H. Morschett, B. Geinitz, W. Wiechert
M. Oldiges (Jülich/DE)

18:00
ST098
ThermoCas9 – a new tool for the genomic manipulation of the extreme thermophilic bacterium *Thermus thermophilus* HB27
G. Gallo (Naples/IT, Munich/DE), I. Mougiakos (Wageningen/NL, Würzburg/DE)
M. Bianco (Wageningen/NL), M. Carbonaro, S. Bartolucci (Naples/IT)
J. van der Oost (Wageningen/NL), G. Fiorentino (Naples/IT)

18:15
ST099
CRISPR-Cas9 as a versatile molecular biological tool for genome editing in *Paenibacillus polymyxa*
M. Meliawati, G. Ravagnan, T. D. Konjetzko, C. Teckentrup, J. Schmid (Münster/DE)

18:30
ST100
Generation of novel glycopeptide antibiotics by using the mutasynthesis approach
I. Voitsekhovskaia, A. Kulik, E. Stegmann (Tübingen/DE)

18:45
ST101
Identification of aldehyde oxidizing enzymes in *P. taiwanensis* VLB120 and generation of a tolerance-optimized chassis strain
T. Lechtenberg, B. Wynands, N. Wierckx (Jülich/DE)

17:00–19:00 **Mini symposium**
Zoom 8 Astrobiology and space microbiology – from Earth to Space – What can we learn from microbial life on Earth?
VAAM Special group Space microbiology
Chair R. Möller (Köln/DE), K. Beblo-Vranesevic (Cologne/DE)

17:00 Extreme Viruses – Structure, Evolution and Applications
IL-SG012 K. Stedman (Portland, OR/US)

17:30 Salt Trek – The Next Generation
IL-SG013 A. Kish (Paris/FR)

18:00 Monovalent cations kill preferentially motile *B. subtilis* cells
ST102 Q. Cui, B. Steinfeld, T. Schmidt, I. Bischofs (Heidelberg/DE)

18:15 From extreme environments on Earth to space – *Buttiauxella* sp. MASE-IM-9
ST103 and *Salinisphaera shabanensis* as new model organisms in Astrobiology
K. Beblo-Vranesevic, J. Piepjohn (Cologne/DE), A. Antunes (Macau/CN)
P. Rettberg (Cologne/DE)

18:30 Laboratory evolution of *Thermoanaerobacter kivui* towards reduced growth
ST104 temperatures
M. Lehmann, E. Zschaubitz, A. Friedrichs (Rostock/DE)
A. Poehlein (Göttingen/DE), M. Basen (Rostock/DE)

18:45 Exploring viral infections of uncultivated archaeal cells using correlative
ST105 microscopy
I. Monsees, V. Turzynski, M. Hasenberg (Essen/DE), A. Klingl (Munich/DE)
A. J. Probst (Essen/DE)

19:00–19:30 **Special group Meetings**
for special group Environmental microbiology see also page 66

19:00–19:30 **Meet the speakers**
Meet the short lecture speakers

08:30–10:00 **Plenary session 2**
Stream 1
Chair J. Frunzke (Jülich/DE), I. M. Axmann (Düsseldorf/DE)

08:30 Coexistence and resistance among Cyanobacteria and their Phages in the Oceans
PS004 D. Lindell (Haifa/IL)

09:00 The evolution and ecology of bacterial CRISPR-Cas immune systems
PS005 E. Westra (Exeter/GB)

09:30 The deadly weapons of bacteria
PS006 S. Raunser (Dortmund/DE)

10:00–10:30 **Meet the speaker**
Stream 1 Meet the plenary speakers

10:30–12:30 **Short lecture**
Zoom 1 Aquatic microbiology
Chair C. Jogler (Jena/DE), E. Dittmann (Potsdam/DE)

10:30 Monitoring of the effects of a simulated hydrogen leakage on the groundwater
ST106 geochemistry and microbiome in a shallow aquifer
N. S. Keller (Leipzig/DE), G. Hornbruch, K. Lüders (Kiel/DE), U. Werban, R. Kallies
C. Vogt (Leipzig/DE), A. Dahmke (Kiel/DE), H.-H. Richnow (Leipzig/DE)

10:45 Monitoring sulfonamide resistance in a river from pristine source to
ST107 wastewater treatment plant impacted sites
S. Haenelt, G. Wang, H.-H. Richnow (Leipzig/DE), J. A. Müller (Karlsruhe/DE)
N. Musat (Leipzig/DE)

11:00 Stieleriacines, small molecules produced by the planctomycete *Stieleria*
ST108 *maiorica*, potentially act as biosurfactants that influence the bacterial community composition in marine biofilms
N. Kallscheuer, M. Staack, M. C. F. van Teeseling, C. Jogler (Jena/DE)

11:15 ST109
Microbial cell abundances in surface water and lower atmosphere along a 10.000 km transect in the Atlantic Ocean
I. Hrabe de Angelis, H. M. Aardema, H. A. Slagter, M. L. Calleja (Mainz/DE)
J. D. Brüwer (Bremen/DE), A. Dragoneas, T. Könemann, B. Nillius, R. Schiebel
G. H. Haug, U. Pöschl (Mainz/DE), Z. G. Cardon (Woods Hole, MA/US)
B. M. Fuchs (Bremen/DE), S. E. Ruff (Woods Hole, MA/US), C. Pöhlker (Mainz/DE)

11:30 ST110
Oligo- and copiotrophy – are (coastal) SAR11 really oligotrophs?
J. D. Brüwer (Bremen/DE), H. Klip, M. Boersma, C. Meunier (Helgoland/DE)
L. H. Orellana Retamal, R. Amann, B. M. Fuchs (Bremen/DE)

11:45 ST111
Timeseries analysis of Arctic pelagic bacterial and eukaryotic communities
E. Oldenburg (Düsseldorf/DE), M. Wietz, C. Bienhold (Bremen/DE), O. Popa
O. Ebenhöh (Düsseldorf/DE), K. Metfies (Düsseldorf, Bremerhaven/DE)

12:00 ST112
Nucleotide salvage as an energetic trade-off in slow-growing nitrifying prokaryotes
J. Barys, D. K. Ngugi (Braunschweig/DE)

12:15 ST113
Degradation of the marine polysaccharide laminarin by a particle-associated *Maribacter forsetii*
S. Kalenborn (Bremen/DE), D. Zühlke (Greifswald/DE), R. Amann, J. Harder (Bremen/DE)

10:30–12:30 Short lecture
Zoom 2 Biotechnology II
Chair T. J. Erb (Marburg/DE), M. A. Rosenbaum (Jena/DE)

10:30 ST114
eCetch – a CO2-fixation enzyme cascade powered by electricity
D. Adam (Marburg/DE)

10:45 ST115
Characterization of advanced exoelectrogenic biofilms using microfluidic reactors and an autonomous robotic imaging platform
E. Klein, R. Wurst, J. Gescher (Hamburg/DE)

11:00 ST116
Hydrogen-mediated extracellular electron transfer enables high performance microbial electrosynthesis in *Clostridium ljungdahlii*
S. Treceño Boto, M. A. Rosenbaum (Jena/DE)

11:15 ST117
Microbiome dynamics during *n*-caprylate production from ethanol and acetat
K. Gemeinhardt, B. S. Jeon, T.-N. Lucas, L. T. Angenent (Tübingen/DE)

11:30 ST118 Community dynamics during mixotrophic anaerobic fermentation with H_2, CO_2, CO, and ethylene supplementation
F. C. F. Baleeiro (Leipzig, Karlsruhe/DE), S. Kleinsteuber, H. Sträuber (Leipzig/DE)

11:45 ST119 Synthetic co-culture of *A. woodii* and *C. drakei* for the production of caproate from H_2 + CO_2
A. Mook, F. R. Bengelsdorf (Ulm/DE)

12:00 ST120 Metabolic engineering of *Vibrio natriegens* for the anaerobic succinate production
F. Thoma, C. Schulze, C. Gutierrez-Coto, M. Hädrich, J. Huber, C. Gunkel
R. Thoma, B. Blombach (Straubing/DE)

12:15 ST121 Influence of biomass on hydrogen production with *Parageobacillus thermoglucosidasius* DSM 6285
M. Ardila, A. Neumann, H. Aliyu (Karlsruhe/DE)

10:30–12:30 Short lecture
Zoom 3 Fungal biology
Chair K. Heimel (Göttingen/DE), J. P. Benz (Freising/DE)

10:30 ST122 The glyoxysomal protease LON2 is involved in fruiting-body development, ascosporogenesis and stress resistance in *Sordaria macrospora*
A. Werner, K. Otte, G. Stahlhut, L. Hanke, S. Pöggeler (Göttingen/DE)

10:45 ST123 Spore-type specific chemotropic growth to maize roots determines root infection of *Colletotrichum graminicola*
A. Y. Rudolph, C. Sasse, J. Gerke, C. Schunke, G. Braus, S. Pöggeler
D. Nordzieke (Göttingen/DE)

11:00 ST124 RNA editing during fungal sexual development leads to new protein isoforms
I. Teichert, H. Strotmeier, J. Grygosch, M. Skendrou, K. Zilske (Bochum/DE)
B. Blank-Landeshammer (Dortmund/DE), M. Nowrousian (Bochum/DE)
A. Sickmann (Dortmund/DE)

11:15 ST125 Membrane proteins as virulence factors in the *Ustilago maydis* – maize pathosystem
P. Weiland, M. Lechner (Marburg/DE), F. Altegoer (Düsseldorf/DE)

11:30 ST126 Role of itaconate in the infection process of the human opportunistic pathogen *Candida albicans*
D. Hiller, M. Jahn, A. Fleißner, D. Jahn (Braunschweig/DE)

11:45 ST127
Identification of F-Box proteins involved in the regulation of sugar metabolism
L. T. Meyer, J. P. Benz (Freising/DE), G. H. Goldman
M. A. Crivelente Horta (São Paulo/BR)

12:15 ST129
New insights into the architecture of the fission yeast kinetochore at a nanometer resolution
J. Winkelmeier (Bonn/DE, Pittsburgh, PA/US, Marburg/DE)
I. Vojnovic (Bonn, Marburg/DE; Pittsburgh, PA/US), D. Virant (Marburg/DE)
M. Endesfelder (Munich/DE)
B. Turkowyd (Bonn, Marburg/DE; Pittsburgh, PA/US)
D. Lando (Cambridge/GB), U. Endesfelder (Bonn, Marburg/DE; Pittsburgh, PA/US)

10:30–12:30 Short lecture
Zoom 4
Pathways and enzymes in anaerobic microorganisms
Chair
K. Niehaus (Bielefeld/DE), B. J. Eikmanns (Ulm/DE)

10:30 ST130
How a methanogen fixes Sulfate
M. Jespersen, T. Wagner (Bremen/DE)

10:45 ST131
Stress in the microbial community – unraveling carbon, nitrogen and sulfur metabolic pathways throughout disturbances in a bioreactor mimicking anoxic brackish coastal sediments
M. J. Echeveste Medrano, P. Dalcin Martins (Nijmegen/NL)
A. Arshad (Boxmeer/NL), J. Kurt, H. Ouboter, H. Op den Camp, M. Jetten
C. Welte (Nijmegen/NL)

11:00 ST132
Identification of candidate enzymes for nitrite reduction in anaerobic ammonium oxidizing *Candidatus Kuenenia stuttgartiensis* strain CSTR1
E. Ude (Leipzig/DE), L. Adrian (Berlin, Leipzig/DE), C. Ding (Leipzig/DE)

11:15 ST133
Molecular basis of a novel electron bifurcation mechanism in the [FeFe]-hydrogenase HydABC
A. Katsyv (Frankfurt a. M./DE), A. Kumar (Frankfurt a. M., Marburg/DE), P. Saura
M. C. Pöverlein (Stockholm/SE), S.-A. Freibert (Marburg/DE)
S. Stripp (Berlin/DE), S. Jain (Frankfurt a. M./DE), A. P. Gamiz-Hernandez
V. R. I. Kaila (Stockholm/SE), V. Müller (Frankfurt a. M./DE), J. M. Schuller (Marburg/DE)

11:30 ST134
Structure and function of a 1 MDa electron-bifurcating, dearomatizing enzyme complex from *Geobacter metallireducens*
L. Appel (Freiburg i. Br./DE), K. Kayastha, U. Ermler (Frankfurt a. M./DE)
M. Boll (Freiburg i. Br./DE)

11:45 ST135
Tungsten containing Aldehyde Oxidoreductase from *Aromatoleum aromaticum* and Maturation of the Tungsten Cofactor
D. Hege (Marburg/DE), A. Winiarska (Kraków/PL), J. Heider (Marburg/DE)

12:00 ST136
Hydrogen-dependent CO_2 reductase forms nanowire-like filaments and bundles inside cells to maximize enzymatic activity
H. Dietrich (Frankfurt a. M./DE), R. Righetto, W. Wietrzynski (Basel/CH)
A. Kumar (Marburg, Frankfurt a. M./DE), S. Schuller (Marburg/DE)
R. Trischler (Frankfurt a. M./DE), J. Wagner (Munich/DE)
F. Schwarz (Frankfurt a. M./DE), B. Engel (Basel/CH), V. Müller (Frankfurt a. M./DE)
J. M. Schuller (Marburg/DE)

12:15 ST137
Naphthalene Carboxylase – elucidating the first reaction mechanism of a polycyclic aromatic hydrocarbon carboxylating enzyme
I. Heker (Essen/DE)

10:30–12:30 Mini symposium
Zoom 5 Microbial Pathogenicity
Chair S. Wagner (Tübingen/DE), A. Lührmann (Erlangen/DE)

10:30 IL-SG014
The use of antigen-coated OMVs as a versatile vaccine development platform
J. Luirink (Amsterdam/NL)

11:00 ST138
Eeyarestatin 24 inhibits protein secretion and induces DNA damage in Gram-positive bacteria
A.-B. Schäfer (Gothenburg/SE), M. Steenhuis, K. K. Jim (Amsterdam/NL)
J. Neef (Groningen/NL), S. Halbedel (Wernigerode/DE)
J. M. van Dijl (Groningen/NL), J. Luirink (Amsterdam/NL)
M. Wenzel (Gothenburg/SE)

11:15 ST139
Chlamydia pneumoniae Pmp21 fragments form Aβ-like oligomers, bind to the cellular prion protein and therefore provide a further link between a chlamydial infection and the development of the Alzheimer's disease
S. Wintgens, F. Hasecke, N. Rösener, W. Hoyer, J. Hegemann (Düsseldorf/DE)

11:30 ST140
Different modes of action of pneumococcal pneumolysin and *Staphylococcus aureus* alpha-hemolysin on platelets
K. Jahn, S. Handtke, R. Palankar, T. Kohler (Greifswald/DE)
M. Rohde (Braunschweig/DE), J. Wesche, A. Greinacher
S. Hammerschmidt (Greifswald/DE)

11:45 ST141
Messengers outer space – extracellular vesicles of the fungus *Ustilago maydis* and their mRNA cargos
S. Kwon (Düsseldorf/DE), O. Rupp (Giessen/DE), A. Brachmann (Munich/DE)
M. Feldbrügge (Düsseldorf/DE)

12:00 ST142
Membrane stress induced by low pH decreases the susceptibility of *Pseudomonas aeruginosa* to antibiotics
N. Mozaheb, M.-P. Mingeot-Leclercq (Brussels/BE)

12:15 ST143
The external pH regulates the activity of the *Yersinia enterocolitica* type III secretion system
S. Wimmi, A. Balinovic, H. Jeckel (Marburg/DE), I. Meuskens
D. Linke (Oslo/NO), K. Drescher, U. Endesfelder, A. Diepold (Marburg/DE)

10:30–12:30 Zoom 6
Mini symposium
News in omics –Tech
VAAM Special group Functional genomics and bioinformatics
Chair
M. Nowrousian (Bochum/DE), A. Busch (Jena/DE)

10:30 IL-SG015
Sequencing the Tree of Life
K. Howe (Cambridge/GB)

11:00 ST144
scRadio-Seq – a novel method of selecting members from a microbial community with a specific metabolic function for single-cell genomics
H.-Y. Lo (Leipzig, Eggenstein-Leopoldshafen/DE), K. Wink, H. Nitz, M. Kästner
D. Belder (Leipzig/DE), J. A. Müller, A.-K. Kaster (Eggenstein-Leopoldshafen/DE)

11:15 ST145
Persistence against benzalkonium chloride promotes rapid evolution of tolerance during periodic disinfection
N. Nordholt, O. Kanaris, S. B. I. Schmidt, F. Schreiber (Berlin/DE)

11:30 ST146
Rational engineering and Adaptive Laboratory Evolution of *Saccharomyces cerevisiae* to establish synthetic formatotrophy via the Reductive Glycine Pathway.
V. R. Bysani Kondagari, F. Machens, A. Bar-Even (Potsdam/DE)

11:45 ST147
Construction and characterization of the Sc2.0 tRNA neochromosome
D. Schindler (Marburg/DE), R. Walker (Sydney/AU), Y. Cai (Manchester/GB)

12:00 ST148
Engineering synthetic formatotrophy via the Serine Threonine Cycle in *E. coli*
S. Wenk (Potsdam/DE)

12:15 ST149
Proteogenomics provides a powerful strategy to re-annotate and discover novel ORFs in the cyanobacterium *Synechocystis* sp. PCC6803
P. Spät (Tübingen/DE), V. Krauspe, W. R. Hess (Freiburg i. Br./DE), B. Maček N. Nalpas (Tübingen/DE)

10:30–12:30 Zoom 7
Mini symposium
Archaea
VAAM Special group Archaea
Chair
D. Grohmann (Regensburg/DE), C. Moissl-Eichinger (Graz/AT)

10:30 IL-SG016
Small but effective! Newly Identified Players in Nitrogen Regulation in Methanosarcina mazei
R. A. Schmitz-Streit (Kiel/DE)

10:55 ST150
Polyphosphate metabolism in the thermoacidophilic Crenarchaeon *Sulfolobus acidocaldarius*
S. Hoefmann, C. Bräsen, B. Siebers (Essen/DE)

11:10 ST151
Molecular basis for N_2-fixation in a thermophilic methanogen
N. Maslac, T. Wagner, M.-C. Müller, C. Sidhu, H. Teeling (Bremen/DE)

11:25 IL-SG017
Microbial methane metabolism in oxygen-limited ecosystems by novel Archaea
M. Jetten (Nijmegen/NL)

12:00 ST152
New isolates of strictly hydrogen-dependent methyl-reducing *Methanosarcinales* from arthropod guts
E. Protasov, V. Hervé, A. Brune (Marburg/DE)

12:15 ST153
Making Ribosomes in Archaea? Towards understanding common and specific principles of ribosome biogenesis across the different domains of life
S. Ferreira-Cerca (Regensburg/DE)

10:30–12:30 **Mini symposium**
Zoom 8 Evolution and systematics of cyanobacteria
VAAM Special group Identification and systematics
Chair A. Lipski (Bonn/DE), R. Hahnke (Braunschweig/DE)

10:30 A chronology of multicellularity evolution in cyanobacteria
IL-SG018 T. Dagan (Kiel/DE)

11:10 Infection with intracellular parasite *Amoeboaphelidium protococcarum*
ST155 induces shifts in associated bacterial communities in microalgae cultures
A.-L. Höger (Coburg, Köthen/DE), C. Griehl (Köthen/DE), M. Noll (Coburg/DE)

11:22 The evolution and consequences of RubisCOs interaction with- and
ST156 dependence on its small subunit
L. Schulz (Marburg/DE), Z. Guo, O. Müller-Cajar (Signapore/SG), T. J. Erb
G. K. A. Hochberg (Marburg/DE)

11:34 Extrachromosomal location and horizontal transfer of ribosomal genes in the
ST157 marine environment
H. M. Freese, J. Overmann (Braunschweig/DE)

11:46 From single cell growth to microbial ecosystems – Insights from mathematical
ST158 modelling
R. Steuer (Berlin/DE)

11:58 A novel KaiA extends the KaiB3-KaiC3 system and gives hints about the
ST159 evolution of the circadian clock in prokaryotes
N. Schmelling (Düsseldorf/DE), C. Köbler (Freiburg i. Br./DE)
A. Pawlowski (Düsseldorf/DE), P. Spät (Tübingen/DE)
N. M. Scheurer (Freiburg i. Br./DE), L. Berwanger (Düsseldorf/DE)
B. Maček (Tübingen/DE), I. M. Axmann (Düsseldorf/DE)
A. Wilde (Freiburg i. Br./DE)

12:30–13:00 **Special Group Meetings**

12:45–13:45 **VAA*Mentoring***
Zoom 1 Von Mikrobiologen für Mikrobiologen
For further information to this session see page 64

13:45-14:15 **Meet the VAAM-Office**
Zoom 9

14:15–15:45 **Plenary session 3**
Stream 1
Chair M. Bott (Jülich/DE)

14:15 New Routes to Sustainable Fermentative Production of Functionalized Amines
PS007 V. Wendisch (Bielefeld/DE)

14:45 Functional microbiome research using synthetic microbial communities
PS008 B. Stecher (Munich/DE)

15:15 The leaf microbiota – Responses and impacts on plants
PS009 J. Vorholt (Zürich/CH)

15:45–16:15 **Meet the speakers**
Meet the plenary speaker

15:45–16:15 **Meet the speakers**
Meet Monday's plenary speaker

16:00–18:00 **DFG Antragsberatung**
For further information see page 64

16:15–17:45 **Industry meets Academia**
Zoom 2
Chairs C. Lang (Berlin/DE), S. Pelzer (Halle-Westfalen/ DE)

16:15 Microbiomes in Animal Health – Applications and Perspectives for Sustainable Animal Production
J. Seifert (Stuttgart/DE), G. Loh (Essen/DE)

16:45 Cas-Mining – from Scratch to Activity
D. Niopek (Darmstadt/DE), M. Krohn (Zwingenberg/DE)

17:15 Biodegradation of Aliphatic-Aromatic Polyesters by Marine Microbial Consortia – Synergy Is Key
B. Öztürk (Braunschweig/DE)

17:30 Biodegradable and biobased materials for a circular economy
A. Kuenkel (Ludwigshafen/DE)
For further information to this session see page 67

16:15–17:45 ePoster session 2
Zoom 1 For further information to this session see page 93

18:00–19:30 Plenary session 4
Stream 1
Chair J. Hegemann (Düsseldorf/DE)

18:00 Mechanisms of intracellular transport
PS010 S. Reck-Peterson (San Diego/US)

18:30 Autonomous dynamic control of metabolic pathways
PS011 K. Prather Jones (Boston/US)

19:00 Chlamydia is a master cell biologist – the secret life of an intracellular
PS012 pathogen
J. Engel (San Francisco/US)

19:30–20:00 Meet the speakers
Meet the plenary speaker

20:00–22:00 Social programme
Social Evening in Gather-town
For further information see page 122

08:30-09:00 **Special Postdoc Lecture**
Stream 1 M. Schoelmerich (Berkeley, CA/US)
Chair K.-E. Jaeger (Jülich/DE)

09:00–11:00 **Short lecture**
Zoom 1 Terrestrial microbiology and enviromental methods
Chair A.-K. Kaster (Karlsruhe/DE), R. Heermann (Mainz/DE)

09:00 ST160 Insights into the microbial community structure and function of a unique terrestrial subsurface ecosystem located in a geologically active rift region
D. Lipus, M. Sondermann, Z. Jia, A. Kitte, D. Wagner, J. Kallmeyer (Potsdam/DE)

09:15 ST161 Transcriptomic analysis of the ultramicrobacterium OP3 LiM in a methanogenic enrichment community provides insight into a predatory niche
A. Lonsing, A. Resteu, J. Kizina, J. Harder (Bremen/DE)

09:30 ST162 Borgs use dynamic perfect nucleotide tandem repeats to create intrinsically disordered regions in proteins central to host association
M. C. Schoelmerich, R. Sachdeva, L. Waldburger, J. West-Roberts, B. Al-Shayeb L. Valentin-Alvarado, J. F. Banfield (Berkeley, CA/US)

09:45 ST163 How clear is our current view on microbial dark-matter? (Re-)assessing public MAG & SAG-datasets with “MDMcleaner”
J. Vollmers, S. Wiegand, F. Lenk, A.-K. Kaster (Eggenstein-Leopoldshafen/DE)

10:00 ST164 Metabolic niche partitioning during cross-feeding is linked to diversity in leaf bacterial communities
M. Murillo-Roos, H. S. M. Abdullah, M. Debbar, N. Ueberschaar, M. Agler (Jena/DE)

10:15 ST165
The Methane-Driven Interaction Network in Terrestrial Methane Hotspots
T. Kaupper, M. A. Horn, A. Ho Kah Wye (Hannover/DE)

10:30 ST166
The chemical and enzymatic fight of entomopathogenic *Photorhabdus luminescens* against phytopathogenic fungi
F. Platz, N. Dominelli, R. Heermann (Mainz/DE)

10:45 ST167
Bakta – rapid & standardized annotation of bacterial genomes via alignment-free sequence identification
O. Schwengers, L. Jelonek, M. Dieckmann, S. Beyvers, J. Blom, A. Goesmann (Giessen/DE)

09:00–11:00 Zoom 2 Vorsitz
Short lecture
Emerging research areas in bioeconomy and biotechnology
U. Schwaneberg (Aachen/DE), A. Loeschke (Jülich/DE)

09:00 ST168
Membrane transport as crucial screw for metabolic engineering of microbial cell factories
M. Sauer (Vienna/AT)

09:15 ST169
Engineering polyketide production routes in amoeba by exploiting native and synthetic hybrid enzymes
C. Reimer, J. Kufs, J. Rautschek, L. Regestein, V. Valiante, F. Hillmann (Jena/DE)

09:30 ST170
UstiLisa – a Sars-CoV2 antigen test based on unconventional secretion and immobilization of *U. maydis* chitinase Cts1
M. Philipp, K. Hußnätter, K. Müntjes, K. Schipper, M. Feldbrügge (Düsseldorf/DE)

09:45 ST171
Generation of nano-magnetic hybrid materials by genetic engineering and functionalization of bacterial magnetosomes
F. Mickoleit (Bayreuth/DE), C. Jörke (Jena/DE), S. Geimer (Bayreuth/DE)
J. P. Müller, J. H. Clement (Jena/DE), D. Schüler (Bayreuth/DE)

10:00 ST172
Microalgae Microbiomes – a Natural Source for the Prevention and Treatment of Diseases in Aquaculture
I. Krohn, L. Bergmann, M. K. Peters, W. R. Streit (Hamburg/DE)

10:15 ST173
Microbial risk assessment with focus on plant oil-derived fuels
M. Surger, L. M. Blank (Aachen/DE)

10:30 ST174
Powering an artificial enzymatic cascade for the synthesis of *N*-heterocycles with electrical energy
A. Al-Shameri (Munich, Berlin/DE), M. Petrich (Berlin/DE), K. j. Puring
U.-P. Apfel (Oberhausen, Bochum/DE), B. Nestl (Stuttgart/DE), L. Lauterbach (Berlin/DE)

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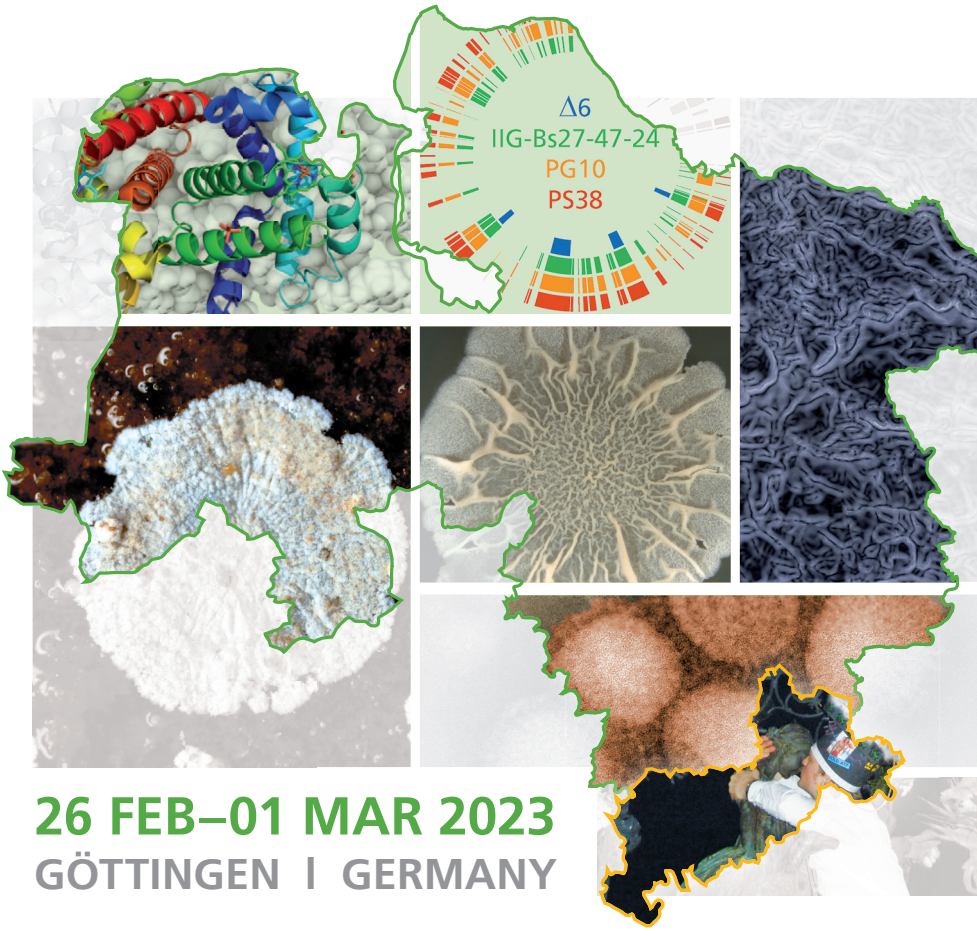
OF THE ASSOCIATION FOR GENERAL AND APPLIED MICROBIOLOGY 2023



26 FEB–01 MAR 2023

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10:45
ST175

Lignin-based aromatic amino acid synthesis by aminomutases and ammonia lyases – conversion studies, mutagenesis experiments, and evolutionary considerations
F. Peng, H. Aliyu, A. Delavault, U. Engel, J. Rudat (Karlsruhe/DE)

09:00–11:00 Short lecture
Zoom 3
Chair

Evolution of microbial pangenomes
T. Dagan (Kiel/DE), S. Gould (Düsseldorf/DE)

09:00
ST176

A multi-scale genomic approach to explore Acidovorax interaction with a model plant host, Lotus japonicus
R. Siani (Neuherberg/DE), G. Stabl, C. Gutjahr (Freising/DE), M. Schloter V. Radl (Neuherberg/DE)

09:15
ST177

Planctomycetes In The Global Context – comparison and analysis of genomic architectures of bacterial and archaeal clades
L. Claret Fernández, S. Peeters (Nijmegen/NL), S. Wiegand A.-K. Kaster (Eggenstein-Leopoldshafen/DE), L. van Niftrik (Nijmegen/NL)

09:30
ST178

EDGAR3.0 – comparative genomics and phylogenomics on a scalable infrastructure
J. Blom (Giessen/DE)

09:45
ST179

Profiling the diversity of antiphage defense systems in nitrifying prokaryotes reveals host-specific viral defense strategies and infecting phage types
D. K. Ngugi, M. Pester (Braunschweig/DE)

10:00
ST180

Self-transmissible plasmids are highly prevalent in members of the genera *Thauera* and *Aromatoleum* and form a novel IncP-1 subgroup
H.-Y. Lo (Eggenstein-Leopoldshafen, Leipzig/DE), A.-K. Kaster J. A. Müller (Eggenstein-Leopoldshafen/DE)

10:15
ST181

Functional Metagenomics as a tool to identify novel CODH enzymes
R. Bährle, S. Böhnke-Brandt, M. Perner (Kiel/DE)

10:30
ST182

Ecophysiological and metagenomic evidence for differences in the contribution of comammox *Nitrospira* clade A and clade B to nitrification in groundwater
M. Krüger (Jena/DE), N. Chaudhari (Jena, Leipzig/DE), B. Thamdrup, L. Bristow (Odense/DK), W. Overholt (Jena/DE), K. Küsel (Leipzig, Jena/DE) M. Herrmann (Jena, Leipzig/DE)

10:45 ST183 — Acquisition of a *scr*-gene cluster coding for sucrose metabolization enzymes enables isolates of *Vibrio parahaemolyticus* and *Vibrio vulnificus* to utilize sucrose
J. A. Hammerl, C. Goellner, C. Jaeckel, F. Swidan, H. Gutmann, J. Nekat
E. Strauch (Berlin/DE)

09:00–11:00 Short lecture
Zoom 4
Microbial cell biology II
Chair
F. Altegoer (Düsseldorf/DE), R. Fischer (Karlsruhe/DE)

09:00 ST184 — Contact-dependent predation processes of the predatory soil bacterium *Myxococcus xanthus* rely on protein secretion systems
S. Thiery, C. Kaimer (Bochum/DE)

09:15 ST185 — Progression of the late-stage divisome is unaffected by the depletion of the cytoplasmic FtsZ pool
N. Silber, C. Mayer, C. Matos de Opitz, P. Sass (Tübingen/DE)

09:30 ST186 — Tat transport of homodimers – two signal peptides for one protein
A. N. Burdur, T. Brüser (Hannover/DE)

09:45 ST187 — Characterization of a HilD induced Motility Defect in *Salmonella enterica* Serovar Typhimurium
D. Saleh (Berlin/DE), J. Horstmann, A. C. Durai Raj, T. Strowig (Braunschweig/DE)
M. Erhardt (Berlin/DE)

10:00 ST188 — Cell-cell communication structures in the cyanobacterium *Nostoc* sp. PCC 7120
A.-K. Kieninger (Tübingen/DE), P. Tokarz, G. Weiss, M. Pilhofer (Zurich/CH)
I. Maldener (Tübingen/DE)

10:15 ST189 — Phenotypic plasticity, facultative multicellularity and an environmentally dependent life cycle
S. Tang (Kiel/DE), Y. Pichugin (Princeton, NJ/US), K. Hammerschmidt (Kiel/DE)

10:30 ST190 — Activation of the acid resistance network of *Escherichia coli* under *Nostoc* *Nostoc* increasing acid stress
S. Brameyer, K. Schumacher, K. Jung (Munich/DE)

10:45 ST191 — Unraveling microbial co-cultures at the single-cell level inside closed picoliter chambers
B. Wollenhaupt, S. Schito, S. Noack, J. Seiffarth, K. Nöh (Jülich/DE)
D. Kohlheyer (Aachen, Jülich/DE)

09:00–11:00 Short lecture
Zoom 5 Physiology of aerobic and of facultatively anaerobic organisms
Chair H. Jung (Munich/DE), T. Drepper (Jülich/DE)

09:00 Implementing two synthetic pathways bypassing EMP glycolysis in *E. coli*
ST192 C. Iacometti, K. Marx, H. Schulz-Mirbach, A. Satanowski
B. Dronsella (Potsdam/DE), M. Bouzon, V. Döring (Evry-Courcouronne/FR)
E. Noor (Rehovot/IL), A. Bar-Even (Potsdam/DE), S. Lindner (Berlin/DE)

09:15 Physiological Response of *Corynebacterium glutamicum* to Indole
ST193 T. Jilg (Osnabrück, Bielefeld/DE), K. H. Veldmann, S. Götker, T. Busche
C. Rückert (Bielefeld/DE), A. Beyraghdar Kashkooli (Tehran/IR, Wageningen/NL)
J. Paulus (Bielefeld/DE), K. Cankar (Wageningen/NL)
V. F. Wendisch (Bielefeld/DE)

09:30 Regulation of glycogen catabolism during the awakening from nitrogen
ST194 starvation in cyanobacteria
S. Doello, N. Neumann, P. Spät, B. Macek, K. Forchhammer (Tübingen/DE)

09:45 Using off-gas for insights – Monitoring the complete yeast volatilome online
ST195 using SESI-Orbitrap MS
H. G. Mengers, L. M. Blank (Aachen/DE)

10:00 Shutdown of secretory pathway by the bacterial alarmones (p)ppGpp
ST196 L. Czech, C.-N. Mais (Marburg/DE), H. Kratzat (Munich/DE)
P. Sarmah (Freiburg i. Br./DE), P. Giammarinaro, S.-A. Freibert (Marburg/DE)
J. Musial, O. Berninghausen (Munich/DE), W. Steinchen (Marburg/DE)
R. Beckmann (Munich/DE), H.-G. Koch (Freiburg i. Br./DE)
G. Bange (Marburg, Freiburg i. Br., Marburg/DE)

10:15 Involvement of the MxtR/ErdR two-component system in the utilization of
ST197 different carbon sources in *P. putida* KT2440
T. Henriquez, S. Kuppermann, H. Jung (Munich/DE)

10:30 Elucidating the role of protein load for the physiology of *Enterococcus faecalis*
ST198 E. Zitzow (Rostock/DE), A. Banaei-Esfahani (Heidelberg/DE)
R. Aebersold (Zurich/CH), N. Veith (Heidelberg/DE), T. Fiedler (Rostock/DE)

10:45 A novel metal-free CO synthase with distinct functions in prokaryotes and
ST199 eukaryotes
A. Kwiatkowski, A.-C. Schulz (Berlin/DE), C. Dunn (New Haven, CT/US)
S. Frielingsdorf, O. Lenz (Berlin/DE)

09:00–11:00 Short lecture
Zoom 6 Environmental and host-associated microbiomes
Chair A. J. Probst (Essen/DE), B. Stecher (Munich/DE)

09:00 ST200 Salinity exceeds dietary impact in shaping the gut bacterial community in an invertebrate model system
C. Kivistik, K. Käiro, H. Tammert (Vehendi küla/EE), V. Kisand (Vehendi küla, Tartu/EE)
D. Herlemann (Tartu/EE)

09:15 ST201 The native microbiome is crucial for offspring generation and fitness of *Aurelia aurita*
N. Weiland-Bräuer, N. Pinnow, C. M. Chibani, T. B. H. Reusch
R. A. Schmitz-Streit (Kiel/DE)

09:30 ST202 Bacterial interactions and chitin degradation determine bacterial successions in the model cnidarian *Nematostella vectensis*
H. Domin (Düsseldorf/DE), J. Zimmermann, J. Taubenheim, C. Kaleta (Kiel/DE)
S. Fraune (Düsseldorf/DE)

09:45 ST203 The Culturable Pacific Plastic Microbiome
B. Scales (Rostock/DE), C. Rummel, M. Schmitt, A. Jahnke
K. Wendt-Potthoff (Leipzig/DE), S. Oberbeckmann (Rostock/DE)

10:00 ST204 Using OMICS-technologies to unravel the mystery of malodour formation in washing machines and on washed laundry
S. Jacksch (Giessen, Villingen-Schwenningen/DE), C. König, D. Kaiser
L. Kaiser (Villingen-Schwenningen/DE), M. Weide (Düsseldorf/DE)
S. Schnell (Giessen/DE), H.-P. Deigner, M. Egert (Villingen-Schwenningen/DE)

10:15 ST205 How does draught impact soil (micro)biomes? A multi-proxy-comparison
H. Wang, M. Weil, T. Urich (Greifswald/DE)

10:30 ST206 Flooding Causes Dramatic Compositional Shifts and Depletion of Putative Beneficial Bacteria on the Spring Wheat Microbiota
D. Francioli (Müncheberg/DE), G. Cid (Gatersleben/DE), S. Kanukollu
A. Ulrich (Müncheberg/DE), M.-R. Hajirezaei (Gatersleben/DE)
S. Kolb (Müncheberg, Berlin/DE)

10:45 ST207 Microbial metagenomics of chronic lung disease – big data mining to improve knowledge, diagnostics and patient care
I. Rosenboom, L. Wiehlmann, C. F. Davenport (Hannover/DE)
D. Viemann (Würzburg/DE), J. D. Chalmers (Dundee/GB)
B. Tümmler (Hannover/DE)

09:00–11:00	Mini symposium
Zoom 7	Illumination of the black box – quality control of fermentation processes VAAM Special group Quality assurance and diagnostics
Chair	A. Seiffert-Störiko (Frankfurt a. M./DE)
09:00 IL-SG019	Advanced monitoring and control of anaerobic digestion – Development of a microbial electrochemical sensor and model predictive process control J. Kretzschmar (Leipzig/DE)
09:30 IL-SG020	Automatic pattern analysis for the control of artificial and natural microbial communities in bioprocesses C. Bruckmann (Leipzig/DE)
10:00 IL-SG021	Glucose and lactate analysis in fermentation processes and development of new amino acids analytics by Allianz WiPro-Project M. Hartlep (Braunschweig/DE)
10:30 IL-SG022	Bioprocess analytical technology for online monitoring of biomass D. Solle (Hannover/DE)
09:00–11:00	Mini symposium
Zoom 8	Symbiotic interactions – From the molecular basis to ecology and evolution VAAM Special group Symbiotic interactions
Chair	M. Kaltenpoth (Jena/DE), J. Petersen (Wien/AT)
09:00 IL-SG023	Marine N2-fixing bacterium in seagrass roots echoes terrestrial symbioses W. Mohr (Bremen/DE)
09:30 ST208	Aerobic bacteria produce nitric oxide through denitrification during microbial interactions E. Segev (Rehovot/IL)
09:45 ST209	*Candidatus* Pumilisymbium abstrusum, a highly reduced and deeply branching Alphaproteobacterium in symbiosis with marine invertebrate gutless oligochaetes T. Enders (Bremen/DE), M. Kleiner (Raleigh, NC/US), N. Leisch, A. Gruhl Y. Sato, N. Dubilier, H. Gruber-Vodicka (Bremen/DE)
10:00 IL-SG024	Evolution of Bacteroidetes bacteria – ancient symbionts across beetle families T. Engl (Jena/DE)
10:30 ST210	Reductive genome evolution in *Endomicrobia* – From intracellular mutualists of termite gut flagellates to energy parasites? U. Mies, V. Hervé, T. Kropp, A. Brune (Marburg/DE)

10:45
ST211
An unusual tripartite symbiosis in spirostomid ciliates (*Heterotrichea*, *Ciliophora*) reveals a genomically reduced, photosynthetic endosymbiont of the *Chromatiaceae* (*Gammaproteobacteria*)
S. Muñoz-Gómez (Cologne/DE), M. Kreutz (Konstanz/DE), S. Hess (Cologne/DE)

09:00–11:00 DFG-Antragsstellung-Beratung
For further information see page 64

11:00–11:30 Meet the Speakers

11:00–11:30 Meet the VAAM-Office
Zoom 9

11:30–11:45 VAAM Poster Awards
Stream 1

12:00–13:30 Plenary session 5
Stream 1
Chair K.-E. Jäger (Jülich/DE)

12:00
PS013
Plastic pollution, a global challenge – how do we find the best-plastic eating bacteria in global metagenomes
W. R. Streit (Hamburg/DE)

12:30
PS014
Focusing the ligand spectrum of a biosensor and application of this biosensor in high-throughput screenings
J. Marienhagen (Jülich/DE)

13:00
PS015
Evolution of Host Control Over Bacterial Endosymbionts
E. Nowack (Düsseldorf/DE)

13:30–13:45 Closing Remarks
Stream 1

13:30–14:00 Meet the plenary speakers
Zoom 1

14:00–15:30 VAAM Assembly
Zoom 1
For details see p. 26

VAA*Mentoring*: Von Mikrobiologen für Mikrobiologen
Tuesday 22 February
12:45–14:00
Zoom 1

Auf der Veranstaltung soll das neue VAA*Mentoring*-Programm der VAAM vorgestellt werden. Das Programm „Von Mikrobiologen für Mikrobiologen“ möchte Nachwuchswissenschaftler:innen über die vielfältigen beruflichen Möglichkeiten an Universitäten, Hochschulen in der Industrie oder im öffentlichen Bereich informieren, um so eine fundierte Basis für eine persönliche Karriereplanung zu bieten. Dafür werden Tandems aus jungen Mikrobiologen/-innen mit erfahrenen Kräften über einen Zeitraum von ca. 2 Jahren gebildet, die ihre Mentees beratend begleiten und fachspezifische Orientierung ermöglichen.

Das Programm richtet sich an Promovierende ab dem 2. Jahr und PostDocs, die in der akademischen Forschung bleiben möchten, aber genauso an Personen, die einen anderen beruflichen Weg einschlagen möchten.

In einer abschließenden Diskussionsrunde werden offene Fragen zum Programm und seinem organisatorischen Rahmen beantwortet.

DFG-Antragsstellung-Beratung
Monday, 21 February | 15:30–17:00
Tuesday, 22 February | 16:00–18:00
Wednesday, 23 February | 09:00–11:00

Registration for consultation appointments via
www.vaam-kongress.de/programme/consultation-german-research-foundation

Lunchsymposium DSMZ

NFDI, DSI, CBD – What changes and policies might affect how you use data in the future?

Monday 21 February
12:15–13:15

Stream 1

Chair: Jörg Overmann, Leibniz Institute DSMZ, Braunschweig
Moderator: Amber Hartman Scholz, Leibniz Institute DSMZ, Braunschweig

What do you do with your data when you finish your project? Where do you look for data when you need some? Do you produce or use sequence data in your research and ever ask yourself about the legal rights around these data? The world of science policy and politics has big practical implications for practicing scientists. The National Research Data Infrastructures (NFDI) and the international policy process around digital sequence information (DSI) could significantly impact your research in the future. Come learn what is new in the NFDI and the UN Convention on Biological Diversity and its Nagoya Protocol and, interestingly, how these two topics intersect. Policymakers and involved scientists from different sectors will provide an overview and update, discuss potential concerns and opportunities, and provide a glimpse of what the future might hold.

Programme:

12.15–12.20	Welcome and explanation of the proceedings Amber Hartman Scholz
12.20–12.25	Introduction to the DSI topic Jörg Overmann
12:25–13:10	Panel discussion with interactive audience involvement
13.10–13.15	Summary and Future/Outlook Amber Hartman Scholz

Panellists:
Barbara Ebert (NFDI4Biodiversity)
Konrad Förstner (NFDI4Microbiota)
Thomas Greiber (German Federal Agency for Nature Conservation)
Christian Böhm (German Federal Ministry for Research and Training/EU Commission DG Environment (temporary)

Special group Meeting environmental microbiology
Plenary discussion of the “SeqCode”

Monday 21 February
19:00–19:30

Zoom 3

The meeting of the panel Environmental Microbiology will feature a special open discussion this year at the VAAM – after the introduction of the new panel speakers and addressing general questions regarding the panel, we will have two speakers present the International Code of Nomenclature of Prokaryotes Described from Sequence Data (colloquially known as the SeqCode; https://www.isme-microbes.org/seqcode-initiative). Brian Hedlund will first introduce the basic principle behind the SeqCode[1], followed by Luis M. Rodriguez-R who will present the SeqCode Registry (both 5-7 min). The rest of the time will be an open discussion of the audience with many of the scientists of the SeqCode team[2] being present. We would like to note that this is the first time that the developed SeqCode will be discussed at a conference, and we strive for large participation also from other panels, including members of the panels Identification and Systematics, Microbiome, as well as Functional Genomics and Bioinformatics.

[1] The substantial increase of genomic sequences of Prokaryotes in public databases over the past decades has significantly bolstered our understanding of phylogenic and evolutionary relationships of microbes and rendered genome comparisons as the main method for delineating species. One of the main drivers of this database expansion was environmental genomics, which enabled researchers to reconstruct genomes of uncultivated microbial lineages from mixed populations. Since most Prokaryotes remain uncultivated under laboratory conditions, nomenclatural types beyond cultivated strains are necessary for naming the uncultivated majority and thus for proper science communication. The SeqCode was set out with the aim of closing this gap by providing a nomenclature code for prokaryotes based on genomic sequences.

[2] William B. Whitman, Maria Chuvochina, Brian P. Hedlund, Philip Hugenholtz, Konstantinos T. Konstantinidis, Alison Murray, Marike Palmer, Donovan Parks, Alexander J. Probst, Anna-Louise Reysenbach, Luis M Rodriguez-R, Ramon Rossello-Mora, Iain Sutcliffe, and Stephanus N. Venter

Industry meets Academia Symposium

Tuesday 22 February
16:15–17:45

Zoom 2

We are living in a fast-moving world which is continuously facing new challenges. Companies must develop sustainable solutions faster than ever before. New microbiology-driven solutions (products, services and processes) contribute significantly to a sustainable transformation of the industry. A close interaction of academic and industrial microbiological research is pivotal to accelerate the realization of disruptive solutions.
“Industry meets Academia” is a new format of the VAAM Annual Conference. This symposium is intended to show real examples of joint industrial und academic research on forward-looking topics. This year tandem presentation will address the exiting topics animal microbiome, cas-mining and biodegradation. This format will not only be an integral part of future VAAM Annual Conferences, we are also planning a continuous bimonthly “Industry Meets Academia Lunch Panel” which will strengthen networking activities.

15:30–17:00 ePoster session 1 (all ePosters with odd IDs)

Archaea and Extremophiles

eP001 Structure and function of the nitrogenase-like reductase CfbC/D involved in coenzyme F_{430} biosynthesis
A. Kussler (Freiburg i. Br./DE)

eP003 Biosynthetic pathways of unusual respiratory quinones from *Sulfolobus acidocaldarius*
F. Elling (Kiel/DE)

eP005 Improving shuttle vector pWM321 for protein production in different *Methanosarcina* species
J. Thomsen, R. A. Schmitz-Streit (Kiel/DE)

eP007 Natural transformation and type IV pilus biogenesis in *Thermus thermophilus*: DNA binding and interaction of pilins with the inner membrane platform
L. Kirchner, B. Averhoff (Frankfurt a. M./DE)

eP009 *Metallosphaera* sp. J1, a novel species of thermoacidophilic archaea
M. Hofmann (Freiberg/DE), P. R. Norris (Coventry/GB)
A. Schippers (Hannover/DE), J. Wolf, M. Neumann-Schaal (Braunschweig/DE)
G. Schmidt, S. Hedrich (Freiberg/DE)

eP011 Expanding the genetic toolbox for *Methanothermobacter thermautotrophicus* ΔH
L. Mühling, T. Schramm, C. Fink, L. T. Angenent, B. Molitor (Tübingen/DE)

eP013 Intermolecular gene conversion in the polyploid haloarchaeon *Haloferax volcanii*
D. Wasser, H. Özer, E. Ravaro, A. Borst, M. Hammelmann, K. Ludt
J. Soppa (Frankfurt a. M./DE)

eP015 Important roles of Zinc Finger µ-Proteins in *Haloferax volcanii*
D. Üresin, A. Borst, S. Zahn, D. Pyper, J. Soppa (Frankfurt a. M./DE)

eP017 Genetic engineering of *Methanosarcina acetivorans* for the production of isoprene and isoprenoids
A. Ulbricht, C. Schöne, M. Rother (Dresden/DE)

eP019 Characterization of unusual kinases in *Methanosarcina acetivorans* and their role in signal transduction
N. Georgiev, N. Frankenberg-Dinkel, T. Schmidt (Kaiserslautern/DE)

eP021 Investigations on high CO2 concentration adapted microbial communities and their physiology
Z. Jia, D. Lipus, A. Kitte, D. Wagner, J. Kallmeyer (Potsdam/DE)

eP023 HcgA is a radical SAM enzyme catalyzing formation of the pyridinol precursor in biosynthesis of the [Fe]-hydrogenase cofactor
F. J. Arriaza Gallardo, S. Schaupp, G. Angelidou, N. Paczia (Marburg/DE)
H. Pan, X. Hu (Lausanne/CH), S. Shima (Marburg/DE)

Fungal Biology

eP025 Using the filamentous ascomycete *Sordaria macrospora* to study the conserved histone chaperone ASF1
J. Breuer, M. Nowrousian, R. Lütkenhaus (Bochum/DE)

eP027 Biofouling and Biocorrosion of Aerospace Materials by the black mold *Aspergillus niger*
S. M. Koch, M. Cortesão (Cologne/DE), D. Müller (Saarland/DE), B. Milow
R. Möller (Cologne/DE)

eP029 Antimycotic effects of 11 essential oil components and their combinations on 13 food spoilage yeasts and molds
L. Nißl, F. Westhäuser, M. Noll (Coburg/DE)

eP031 The isoprenyl chain length of coenzyme Q mediates nutritional resistance of fungi to a predatory amoeba
N. Saeed, J. Kufs, V. Valiante, L. Regestein, F. Hillmann (Jena/DE)

eP033 Mg^{2+} transport and its role for virulence in the smut fungus *Ustilago maydis*
L. Plücker, V. Göhre, P. Wegjan (Düsseldorf/DE)

eP035 Sustainable *in vivo* biosynthesis of 7-aminocephalosporanic acid in the cephalosporin C producing fungus *Acremonium chrysogenum*
X. Lin, J. Lambertz, M. Nowaczyk, U. Kück (Bochum/DE)

eP037 Histone acetylation affects the production of soluble metabolites secreted by *Candida albicans* to escape macrophages
M. Conte, D. Eletto, M. Pannetta, E. Morretta, M. C. Monti, A. Tosco
A. Porta (Fisciano/IT)

eP039 Effect of bacterial volatiles on the mycelium growth of mushrooms
A. Orban, C. Suarez, J. Jerschow, S. Schnell, M. Rühl (Giessen/DE)

eP041 Rapid adaptation of signaling networks in the fungal pathogen *Magnaporthe oryzae*
K. Bersching, S. Bohnert, C. Grünewald, A. Yemelin, K. Andresen
S. Jacob (Mainz/DE)

eP045 A secreted protein from Maize smut pathogen suppresses reactive oxygen species response in the host plant
M. Prokchorchik (Bonn/DE), I. Saado (Gatersleben/DE), F. Navarrete
A. Alcântara (Vienna/AT), A. Djamei (Bonn/DE)

eP047 Amylase activities in cultures of white-rot basidiomycetes
M. Unger, U. Kües (Göttingen/DE)

eP049 Immunoproteome analyses identify *Aspergillus fumigatus* protein antigens specifically recognized by infected cystic fibrosis patients
S. Edenhart, M. Goldmann, J. Macheleidt (Jena/DE), P. Bacher (Kiel/DE)
C. Grehn (Berlin/DE), A. Scheffold (Kiel/DE), C. Schwarz (Potsdam/DE)
O. Kniemeyer, A. A. Brakhage (Jena/DE)

eP051 Structural studies on the key mRNA transporter on endosomes in *Ustilago maydis*
S. Shanmugasundaram, S. K. Devan, K. Müntjes
M. Feldbrügge (Düsseldorf/DE)

eP053 Cell death regulation and function in plant-fungal symbiosis
N. Dunken (Cologne/DE)

Biotechnology

ePO55 Towards a self-healing hydrogen fuel cell_2 – Immobilization techniques
M. Bilger, T. Grünert, J. Rudat (Karlsruhe/DE)

ePO57 Laterite bioleaching for the recovery of nickel and cobalt in Brazil
S. A. Hetz, S. Stankovic, A. Schippers (Hannover/DE)

ePO59 Medium-throughput screening of a production library for sustainable Perspex biosynthesis
C. Tilley (Nottingham/GB)

ePO61 Engineering *Corynebacterium glutamicum* for the production of itaconic acid from acetate
M. Schmollack, B. Blombach (Straubing/DE)

ePO63 Application of the fluorescent reporter proteins greenFAST and redFAST for multicolor approaches at single cell level in the anaerobic solventogen *Clostridium saccharoperbutylacetonicum*
M. Flaiz, T. Baur, J. Gaibler, C. Kröly, P. Dürre (Ulm/DE)

ePO65 Hexanoate production with metabolically engineered *Acetobacterium woodii* strains using hydrogen and C1-carbon sources
J. Gaibler, M. Flaiz, P. Dürre, F. R. Bengelsdorf (Ulm/DE)

ePO67 Expanded Toolbox for Convenient High-Throughput Identification and Characterization of Antimicrobial Peptides
S. J. Reich (Ulm/DE), L. Teichmann (Holdorf/DE), O. Goldbeck (Ulm/DE)
T. Neddermann (Holdorf/DE), C. U. Riedel (Ulm/DE)

ePO69 Fatty alcohol production in *Corynebacterium glutamicum*
F. Werner, B. Blombach, D. Siebert (Straubing/DE)

ePO71 Characterization of the cellulose synthesis genes of two *Komagataeibacter hansenii* strains
M. Bimmer (Freising/DE), A. Klingl (Munich/DE), C. Ludwig, W. Liebl
A. Ehrenreich (Freising/DE)

ePO73 Metabolic engineering of *Corynebacterium glutamicum* for the production of anthranilate
M. Mutz (Jülich/DE)

eP075 Enzymatic synthesis of non-canonical amino acids by carbamoylases
F. Schwab, U. Engel (Karlsruhe/DE)

eP077 Adjusting the surface properties of bacterial magnetosomes by the display of artificial peptides
S. Markert, F. Mickoleit, D. Schüler (Bayreuth/DE)

eP079 Submerged and solid-state fermentation to obtain keratinolytic enzymes of fungal origin
S. Timorshina, A. Osmolovskiy (Moscow/RU)

eP081 Sequential fermentation of C1-compounds to value-added products
C. Stark, F. Gaile, A. Schwentner, B. J. Eikmanns (Ulm/DE)

eP083 BM3-catalyzed testosterone hydroxylation by whole cells is boosted by co-expression of hydrophobic outer membrane pores
C. Bertelmann, M. Mock, A. Schmid, B. Bühler (Leipzig/DE)

eP085 High-yield production of prebiotic inulin-type fructooligosaccharides using crude inulosucrase from *L. gasseri* DSM 20604
F. Wienberg, U. Deppenmeier (Bonn/DE)

eP087 The microorganisms as the possible solution of degradation high-lipid food waste
N. Hanišáková, M. Vítězová (Brno/CZ), S. K.-M. R. Rittmann (Vienna/AT)

eP089 Lactose transport in the filamentous fungus *Neurospora crassa*
E. Tamayo, J. P. Benz (Freising/DE)

eP091 Enhancement of soluble heterologous protein expression in *V. natriegens* by co-expression of chaperones
G. Haeger, N. Tanzmann, J. Bongaerts, P. Siegert (Jülich/DE)

eP093 Lactate and ethanol as co-electron donors in a chain-elongating microbiome
H. Wang, L. T. Angenent (Tübingen/DE)

eP095 Automated atline activity measurement of antimicrobial peptides for bioprocess development
V. Steier, L. Diel (Jülich/DE), S. J. Reich, C. U. Riedel (Ulm/DE)
W. Wiechert, M. Oldiges (Jülich/DE)

eP097 Targeting three birds with one stone – RcsF-mimic peptide as a potential antimicrobial agent
N. Mohammed (Assiut/EG), M. Tag El Dein, L. Ziko, N. Hussein (Cairo/EG)

eP101 Production of tailored glycolipid biosurfactants in *Pseudomonas putida*
S. Kubicki, F. M. Anzalone Dias, L.-M. Kirschen (Jülich/DE)
T. Karmainski (Aachen/DE), J. Cui (Bonn/DE), T. Tiso (Aachen/DE)
G. Hölzl, P. Dörmann (Bonn/DE), L. M. Blank (Aachen/DE), K.-E. Jaeger
S. Thies (Jülich/DE)

eP103 Z-Parts – a Golden Gate Modular Cloning Toolbox for heterologous gene expression and genetic engineering in *Zymomonas mobilis*
G. Behrendt, J. Frohwitter, S. Klamt, K. Bettenbrock (Magdeburg/DE)

eP105 Enriching the diversity of polyethylene terephthalate (PET) degrading enzymes from metagenomes
H. Zhang (Hamburg, Kiel/DE), P. Perez-Garcia (Kiel, Hamburg/DE)
R. Dierkes (Hamburg/DE), V. Applegate, J. Schumacher
S. Smits (Düsseldorf/DE), J. Chow, W. R. Streit (Hamburg/DE)

eP107 Engineering a fluorinated C2 metabolism in *Escherichia coli*
A. De Maria (Lyngby/DK)

eP109 Bioleaching of waste materials with a newly isolated cyanide-producing *Pseudomonas* strain
C. Schuster (Darmstadt/DE), G. Kuippers, A. Klämke (Zwingenberg/DE)
M. Amberger (Darmstadt/DE), E. Gabor (Zwingenberg/DE)
A. Kletzin (Darmstadt/DE)

eP111 Development of tools for genetic engineering of *Clostridium cellulovorans*
A. I. Schöllkopf, L. M. Mendonca De Almeida, W. Liebl
A. Ehrenreich (Freising/DE)

eP113 Regulatable expression systems for the acetic acid bacterium *Gluconobacter oxydans*
P. M. Fricke, T. Link, J. Gätgens, M. Bott, T. Polen (Jülich/DE)

eP115 Lignin degradation by filamentous fungi – searching for new aromatic compounds
A.-L. Hiller, T. Pfrengle, J. Klein, L. Antelo, S. R. Waldvogel
E. Thines (Mainz/DE)

eP117 Production of mandelic acids by using recombinant *Escherichia coli* cells expressing hydroxymandelate synthase (HMS) from *Amycolatopsis mediterranei*
J.-W. Youn, C. A. Albermann, G. A. Sprenger (Stuttgart/DE)

eP119 In-situ resource utilization (ISRU) – microbial biomining of Lunar regolith EAC-1A
J. Figueira, A. Cowley (Cologne/DE), P. Tamagnini (Porto/PT), R. Möller
M. Cortesão (Cologne/DE)

eP121 Engineering microbial communities for the conversion of lignocellulose into medium-chain carboxylates
C. Schäfer, S. Kleinsteuber, M. L. Bonatelli, H. Sträuber (Leipzig/DE)

eP123 Searching for new plastic-degrading enzymes, bacteria and microbial consortia
P. Pérez-García (Kiel, Hamburg/DE), J. Chow, W. R. Streit (Hamburg/DE)
R. A. Schmitz-Streit (Kiel/DE)

eP125 Engineering hyper-solvent-tolerant *Pseudomonas taiwanensis* chassis strains
J. Rönitz, B. Wynands, N. Wierckx (Jülich/DE)

eP127 Anaerobic digestor sludge from biogas plants as a valuable phytosterol source for biotechnological applications
T. Weckerle, H. Ewald, B. Philipp, J. Holert (Münster/DE)

Environmental Microbiology and Ecology

eP129 The Impact of the Outbreak of Tomatoes disease Tuta Absoluta in Nigeria
M. Oke (Abuja/NG)

eP131 Interactions between microbial activity and enhanced benthic weathering of carbonate and olivine in the Baltic Sea
I. Diercks, S. Geilert, S. Böhnke-Brandt, A. W. Dale, M. Fuhr, M. Perner (Kiel/DE)

eP133 Frequency of colonization and bacterial activity in the leaves of *Arabidopsis thaliana* are influenced by plant defense metabolites
K. Unger, T. Mayer (Jena/DE), J. Stuttmann (Halle (Saale)/DE), M. Reichelt
J. Gershenzon, M. Agler (Jena/DE)

eP135 Early bacterial plant colonizers influence plant phenotypes and final microbial community outcome in a plant genotype-dependent way
T. Mayer, K. Unger, P. Baumann, M. Agler (Jena/DE)

eP137 Strep-CAMP – a computational tool for comparison of unknown *Streptomyces* isolates based on image analysis of colonies
L. Sagurna, A. Janßen, L.-S. Kaufmann, I. Stoyanov (Bochum/DE)
C. Rückert, T. Busche, J. Kalinowski (Bielefeld/DE), A. Tenberge
J. E. Bandow (Bochum/DE)

eP139 Thermophilic composting of human feces – fate of human pathogens, antibiotic resistance and virulence genes
K. Werner (Berlin/DE), A. Poehlein, D. Schneider (Göttingen/DE)
N. Diederich, L. Feyen (Berlin/DE), K. Axtmann (Bonn/DE)
T. Hübner (Leipzig/DE), N. Brüggemann, K. Prost (Jülich/DE)
R. Daniel (Göttingen/DE), E. Grohmann (Berlin/DE)

eP143 A multi-level approach to study cyanobacterial summer blooms in the Baltic Sea
M. Santoro, M. Hagemann, M. Labrenz (Rostock/DE)

eP145 Identification of a novel, putative metal-free hydrogen-converting enzyme drawn from a deep-sea hydrothermal vent metagenome
N. Adam-Beyer, M. Perner (Kiel/DE)

eP147 Characterization of the novel styrene-degrading actinobacterium *Gordonia rubripertincta* CWB7
M. Haarmann, D. Tischler (Bochum/DE)

eP149 The *cop* cluster of *Cupriavidus metallidurans* plays a significant role in controlling the cellular copper content
N. Hirth, C. Große, D. H. Nies (Halle (Saale)/DE)

eP151 uBin – a manual refining tool for metagenomic bins designed for educational purposes
T. L. V. Bornemann, S. P. Esser, T. L. Stach (Essen/DE), T. Burg (Koblenz/DE)
A. J. Probst (Essen/DE)

eP153 Microaerobic enrichment and description of benzene degrading bacteria
A. Bedics, S. Banerjee, K. Almási, M. Pápai, T. Benedek, P. Harkai, K. Balázs
A. Táncsics (Gödöllő/HU)

eP155 Site-specific microbial biological soil crust colonization of a potash salt heap gradient
J. Ohan, J. Kurth (Munich/DE), V. Sommer (Rostock/DE), R. Siani (Munich/DE)
U. Karsten (Rostock/DE), M. Schloter, S. Schulz (Munich/DE)

eP157 Bio-UGS – biological conversion of green hydrogen and CO2 to methane in porous underground storages (UGS)
L. Krasper, T. Pretzien (Gommern/DE), P. Bombach
H. Bueltemeier (Leipzig/DE), D. Pudlo (Jena/DE)

eP159 Response of Aerobic Methane Oxidation and Associated Methanotrophs to a Step-wise Increase in Ammonium Stress
H. E. van Dijk, T. Kaupper, M. A. Horn, A. Ho (Hannover/DE)

eP161 Intracellular and extracellular DNA – an improved method for separation and extraction from diverse terrestrial habitats
D. Medina, L. Horstmann (Potsdam/DE), T. Friedl (Göttingen/DE)
D. Wagner (Potsdam/DE), L. Ganzert (Potsdam/DE, Tromsø/NO)

eP163 Deciphering the electromicrobiology of *Desulfopila corrodens*
D. Stickel, M. Pester (Braunschweig/DE)

eP165 The Degradation of Antibiotics and Reduction of ARGs in Mesophilic and Thermophilic Anaerobic Digestion System
Z. Cheng, M. Nikolausz, U. Nunes da Rocha, N. Ulrich
N. Abdulkadir (Leipzig/DE)

eP167 Methanogenic community dynamics in Philippine rice field soil
X. Li, Q. Bei, W. Liesack (Marburg/DE)

eP169 Phthaloyl-CoA decarboxylase, a key enzyme in the anaerobic degradation of plasticizers
R. A. Geiger, M. Boll (Freiburg i. Br./DE)

eP171 The type VI secretion system is involved in phenotypic heterogeneity and interbacterial interaction of *Photorhabdus luminescens*
F. Pisarz, R. Heermann, A. Regaiolo (Mainz/DE)

eP173 Isolation and Characterization of an *Acidiphilium acidophilum* Strain Capable to Grow Lithotrophically with Arsenite at pH 2
C. F. Jorquera Roman, M. Schlömann (Freiberg/DE)

eP175 Microbial diversity in different Opalinus Clay facies at the Mont Terri rock laboratory
J. Mitzscherling, S. Genderjahn, D. Wagner, A. M. Schleicher (Potsdam/DE)

eP177 Effects of plastic surfaces on colonization and interactions within a biofilm community
L. Preuß, C. Vollstedt, N. Burmeister, W. Maison, W. R. Streit (Hamburg/DE)

eP179 The role of microbial pigmentation as resistance factor against a selection of state-of-the-art and novel decontamination methods
K. Runzheimer, S. M. Koch, K. Siems (Cologne/DE), L. Etzbach (Bonn/DE)
R. Moeller (Cologne/DE)

eP181 Improving phytoremediation of oil polluted soil in the United Arab Emirates using ACC deaminase producing actinobacteria under arid conditions
K. El-Tarabily, S. AbuQamar, M. Almansoori (Al-Ain/AE)

eP183 The deep biosphere in lake sediments – one core per habitat – Is it enough?
P. Steffen, A. Schwalb (Braunschweig/DE), R. Zech (Jena/DE)
M. Pester (Braunschweig/DE)

eP185 Identification of diclofenac, ibuprofen and carbamazepine degrading bacteria from a groundwater biofilm using shotgun metagenomic sequencing and analysis
M. Pápai, A. Táncsics (Gödöllő/HU), G. Maróti (Szeged/HU)
B. Kriszt (Gödöllő/HU), J. Plewka, A. J. Probst (Essen/DE)
O. Menashe (Tzemah/IL), T. Benedek (Gödöllő/HU)

eP187 Establishment of a bacterial necromass surrogate to assess nutrient-recycling within the subsurface microbial loop
L. Carstens, R. U. Meckenstock (Essen/DE)

eP191 Interactomic studies of proteins involved in energy metabolism of *Clostridium ljungdahlii*
K. E. Rennhack, C.-M. Klask, B. Molitor, L. T. Angenent (Tübingen/DE)

eP193 Enrichment and isolation of syntrophic hydrogen-producing microbes from the human gut
U. Biehain, S. Esquivel-Elizondo, T. Sun, N. Rohbohm, R. E. Ley
L. T. Angenent (Tübingen/DE)

Infection Biology

eP195 Whole genome analysis of the first XDR *Mycobacterium tuberculosis* isolate from Algeria
F. Djoudi, D. Benremila, H. Bousefsafa, F. Ait-Zenati (Bejaia/DZ)
A. Cabibbe, S. Battaglia, D.-M. Cirillo (Milan/IT)

eP199 Purification and characterization of the host defense protein S100A8/A9 (Calprotectin)
J.-L. Hau, H. Kremser, N. Metzler, S. Knogl-Tritschler, J. Steuber
G. Fritz (Stuttgart/DE)

eP201 Adhesion, Motility and Biofilm Formation – uncharacterised gene in the ancient story
A. Mustafayeva, J. M. Borrero de Acuña, D. Jahn (Braunschweig/DE)

eP203 Intracellular *Staphylococcus aureus* induced cell death and cytokine release in human macrophages
J. Bayer, X. Liu, A. P. M. Weber, C. Wolz (Tübingen/DE)

eP205 Identification of Interaction Partners of *Legionella pneumophila* Mip
M. S. Karagöz, C. M. Ünal (Braunschweig/DE), B. E. Mayer (Darmstadt/DE)
J. M. Borrero de Acuña (Sevilla/ES), M. Steinert (Braunschweig/DE)

eP207 „Novel points of attack" – exploiting capsule biosynthesis in *Streptococcus pneumoniae* for antibacterial treatment
V. Becker, M. Arts, M. Rausch, T. Schneider, A. Mueller (Bonn/DE)

eP213 Tracking the expression of eight different flavodoxins of *Clostridioides difficile* under iron limitation and oxidative stress
R. Knop, D. Troitzsch, S. Dittmann, F. Marek, T. Möller, L. Trän
S. Sievers (Greifswald/DE)

eP215 Characterization of the endosomal proteome during hantavirus infection
L. Gierse (Greifswald/DE), L. Menke, M. van Ham, L. Jänsch (Braunschweig/DE), R. Ulrich (Insel Riems/DE), C. Sieben (Braunschweig/DE)
S. Sievers (Greifswald/DE)

eP217 Antimicrobial Effects of Novel Gyrase Inhibitors Against Gram-Negative and Gram-Positive Bacteria
I. Abdelmesseh (Gothenburg/SE), A. M. K. El-Sagheir (Assiut/EG)
M. Wenzel (Gothenburg/SE)

eP219 Evaluation of Cytotoxicity effect and cell death mechanism of *Salmonella Typhimurium* Protein Fractions on breast Cancer Cell
S. Delfani (Khorramabad/IR), N. Solimani (Tehran/IR)

eP221 Antimicrobial properties of Mentha piperita loaded in chitosan nanogels against *Acinetobacter baumannii*
S. Delfani (Tehran/IR), P. Shakib (Khorramabad/IR)

eP223 Identification, Isolation, and characterization of a novel epilancin produced by *Staphylococcus epidermidis* A37
B. Winnerling (Bonn/DE), J. Power (Tübingen/DE), J.-S. Puls (Bonn/DE)
S. Heilbronner (Tübingen/DE), F. Grein (Bonn/DE)

eP225 Structural and mechanistic insights into membrane phospholipid remodeling by phospholipase A of *Pseudomonas aeruginosa*
F. Bleffert, J. Granzin, M. Caliskan (Jülich/DE)
S. N. Schott-Verdugo (Düsseldorf/DE, Talca/CL)
M. Siebers (Bonn, Düsseldorf/DE), B. Thiele (Jülich/DE)
L. Rahme (Boston, MA/US), S. Felgner (Braunschweig/DE)
P. Dörmann (Bonn/DE), H. Gohlke (Jülich, Düsseldorf/DE)
R. Batra-Safferling, K.-E. Jaeger, F. Kovacic (Jülich/DE)

eP227 A novel intracellular phospholipase PlaB is a virulence factor of *Pseudomonas aeruginosa* which affects biofilm assembly
A. J. Weiler (Jülich/DE), O. Spitz, G. Poschmann, M. Kamel, A. Kedrov
K. Stühler, L. Schmitt (Düsseldorf/DE), K.-E. Jaeger, F. Kovacic (Jülich/DE)

Phototrophic Microorganisms

eP229 Modular genetic engineering of cyanobacteria – expression of distinct heterologous genes from individual synthetic shuttle vectors
F. Opel, N. A. Siebert, S. Klatt, A. Hochkeppel (Leipzig/DE)
J. G. Hantke (Berlin/DE), J. Toepel, B. Bühler (Leipzig/DE)
D. Nürnberg (Berlin/DE), S. Klähn (Leipzig/DE)

eP231 Deciphering primary events in the evolution of phototrophic endosymbionts in a *Synechocystis-Dicytostelium* model
A. Iliou, H. Suma, P. Stallforth (Jena/DE), M. Hagemann (Rostock/DE)
F. Hillmann (Jena/DE)

eP233 Phycocyanobilin biosynthesis in an early diverging streptophyta
F. Frascogna, N. Frankenberg-Dinkel (Kaiserslautern/DE)

eP235 Characterisation of a cyanobacterial bacteriocin heterologously produced with *E. coli*
M. Witthohn (Bingen am Rhein/DE), D. Strieth, S. Eggert, S. Kins
R. Ulber (Kaiserslautern/DE), K. Muffler (Bingen am Rhein/DE)

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präsentierender Autor: L. Steffens (Jülich/DE)
A. Mall (Bergen/NO), S. König (Münster/DE), T. M. Steiner, W. Eisenreich (Munich/DE)
I. Berg (Jülich/DE)

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T. J. Erb (Marburg/DE)

eP493 The role of Extracellular-Polymeric-Substances in symbiotic host-microbe interactions
L. Becker, S. Fraune, I. M. Axmann, N. Schmelling (Düsseldorf/DE)

eP495 Nanopore Sequencing workflow for quick and cost-efficient amplicon, plasmid, and library analysis
A. Ramírez-Rojas, T. S. Koebel, D. Schindler (Marburg/DE)

eP497 Role of siderophores in public good-based interspecies communication within microbial communities
A. C. Zeisel, A. J. Weiler, L. Kruse, F. Hilgers, V. Svensson, K.-E. Jaeger
T. Drepper (Jülich/DE)

eP499 Microbial production of indole via bacterial TSA and plant IGL
L. Ferrer (Bielefeld/DE), M. Mindt, M. Suarez-Diez (Wageningen/NL)
T. Walter (Bielefeld/DE), M. Zagorščak (Ljubljana/SI)
V. F. Wendisch (Bielefeld/DE), K. Cankar (Wageningen/NL)

eP501 Metabolic characterisation of multiple strains of *Staphylococcus aureus*
H. Chapman, O. Ebenhöh (Düsseldorf/DE)

eP503 Computational combinatorial analysis of carbon fixation pathways
J. d. J. Garcia Lima, H. Löwe, A. Kremling (Garching/DE)

16:15–17:45 ePoster session 2 (all ePosters with even IDs)

Archaea and Extremophiles

eP002 A cobalamin-dependent Radical SAM enzyme is responsible for a unique C_{α}-methylation of methyl-coenzyme M reductase
J. Gagsteiger, S. Jahn, T. Friedrich, C. Lönarz, G. Layer (Freiburg i. Br./DE)

eP004 Selenium utilization in *Methanococcus maripaludis* – a genomic analysis
K. Funkner (Dresden/DE), A. Poehlein, R. Egelkamp, R. Daniel (Göttingen/DE)
M. Rother (Dresden/DE)

eP006 Heme synthase AhbD from *Methanosarcina barkeri* contains two auxiliary iron-sulfur clusters
I. Fix, G. Layer (Freiburg i. Br./DE)

eP008 Functional dissection of structural regions of the *Thermus thermophilus* competence protein PilW – Implication in secretin complex stability, natural transformation and pilus functions
D. Yaman, B. Averhoff (Frankfurt a. M./DE)

eP010 Establishing an *in vivo* reporter for analyzing SECIS-dependent UGA recoding in Archaea
N. Peiter, M. Rother (Dresden/DE)

eP012 Impact of viral infection on motility and adhesion in haloarchaea
Z. Aguirre Sourrouille (Groningen/NL), S. Schwarzer (Freiburg i. Br./DE)
H. M. Oksanen (Helsinki/FI), T. E. F. Quax (Groningen/NL)

eP014 Translational coupling via termination-reinitiation in *archaea* and *bacteria*
N. Vogel, M. Huber, A. L. Maisch, J. Soppa (Frankfurt a. M./DE)

eP016 *Mucithermus cthulhu* sp. nov. represents a novel genus of marine, hyperthermophilic Archaea within the family *Desulfurococcaceae* with tentacle-like protrusions
R. Reichelt, L. Dengler, G. Schmid, F. Grünberger, R. Rachel (Regensburg/DE)
S. Sievert (Woods Hole, MA/US), H. Huber, D. Grohmann (Regensburg/DE)

eP018 Archaeal biofilms – Exopolysaccharide composition, size and synthesis in *Sulfolobus acidocaldarius*
L. Kuschmierz, M. Meyer, B. Meyer (Essen/DE)
S.-V. Albers (Freiburg i.Br./DE), C. Bräsen, J. Wingender, O. J. Schmitz
B. Siebers (Essen/DE)

eP020 Using the endogenous CRISPR-Cas Type I-D system for genetic engineering in the thermoacidophilic archaea *Sulfolobus acidocaldarius*
J. Bost, A. Recalde, B. Waßmer, S.-V. Albers (Freiburg i. Br./DE)

Fungal Biology

ePO24 Molecular identification of *Alternaria alternata* causing black spot of pecans (*Carya illinoinensis*) and the antifungal activity effects of leaves and husk crude extracts against the pathogen
C. Achilonu, S. Ghosh, G. Marais, M. Gryzenhout (Bloemfontein/ZA)

ePO26 Analysis of the fungal STRIPAK complex – function of putative target proteins
M. Shariatnasery (Bochum/DE)

ePO28 A novel binding platform consisting of three MademoiseLLE domains links the key RNA transporter to endosomes
S. K. Devan (Düsseldorf/DE), S. N. Schott-Verdugo (Jülich/DE)
K. Muentjes, S. Smits, M. Feldbrügge (Düsseldorf/DE)

ePO30 Proximity-dependent labeling of cellular microenvironments in the ascomycete *Sordaria macrospora*
L. Hollstein, K. Schmitt, O. Valerius, G. Stahlhut, S. Pöggeler (Göttingen/DE)

ePO32 Sugar uptake of the Brassicaceae smut fungus *Thecaphora thlaspeos* during biotrophic interactions
N. Heßler, V. Göhre (Düsseldorf/DE)

ePO34 Action of Extracellular Proteases of *Aspergillus flavus*, *Aspergillus ochraceus* and *Aspergillus terreus* Micromycetes on PlasmaHemostasis Proteins
A. Osmolovskiy, A. Shestakova (Moscow/RU), A. Orekhova (Rome/IT)

ePO36 Characterization of the potential phosphatidylserine transporter SmOSH6 in the filamentous ascomycete *Sordaria macrospora*
S. Erb, S. Pöggeler (Göttingen/DE)

ePO38 Investigation of the posttranscriptional regulatory role of the RBP Khd4 during the infectious phase of *U. maydis*
L. Geißl, S. Sankaranarayanan, M. Feldbrügge (Düsseldorf/DE)

ePO40 A mycophagous amoeba uses fungolytic vesicles to kill fungal pathogens
S. H. Lau, S. Radosa, T. Krüger, O. Kniemeyer, A. A. Brakhage
F. Hillmann (Jena/DE)

ePO42 Alternative splicing as an element of signal transduction in multi-step phosphorelay systems in fungi
S.-K. Bühring, A. Yemelin, K. Andresen, M. Becker, S. Jacob (Mainz/DE)

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eP044 Mycoparasites infecting mushrooms in nature
S. Subba, K. Lakkireddy, W. Khonsuntia, U. Kües (Göttingen/DE)

eP046 Dark stipe mutants in fruiting body development of *Coprinopsis cinerea*
S. Subba, C. S. Man, U. Kües (Göttingen/DE)

eP048 The multi KH domain RNA binding protein Khd4 orchestrates membrane trafficking to promote polar growth of infectious hyphae
S. Sankaranarayanan, C. Haag, M. Feldbrügge (Düsseldorf/DE)

eP050 Identification and functional characterization of *Ustilago maydis* effectors targeting auxin signalling
M. Khan (Bonn/DE), J. Bindics, S. Uhse, B. Kogelmann, L. Baggely
D. Reumann, A. Stirnberg (Vienna/AT), K. Ingole (Bonn/DE), M. Darino
F. Navarrete (Vienna/AT), A. Rybecky, G. Doehlemann (Cologne/DE)
A. Djamei (Bonn/DE)

eP052 The fungal root endophyte *Serendipita vermifera* displays inter-kingdom synergistic beneficial effects with the microbiota in *Arabidopsis thaliana* and barley
L. Mahdi, R. Eichfeld (Cologne/DE)

Biotechnology

eP054 Towards a self-healing hydrogen fuel cell_1 – suitable enzymes
T. Grünert, M. Bilger, J. Rudat (Karlsruhe/DE)

eP058 High- throughput screening and real-time CO2 production monitoring devices for isolation ethanol production microorganisms
N. Gord Noshahri, A. Sharifi, M. Seyedabadi (Mashhad/IR)
J. Rudat (Karlsruhe/DE), M. Zare Mehrjerdi (Shirvan/IR)

eP062 Immobilization protects enzymes from inactivation in plasma-driven biocatalysis
T. Dirks (Bochum/DE), A. Yayci (Bochum, Aachen/DE), M. Krewing
S. Klopsch (Bochum/DE), F. Hollmann (Delft/NL), J. E. Bandow (Bochum/DE)

eP064 Identification of L-histidine-producing *Corynebacterium glutamicum* strains via biosensor-based high-throughput screenings and comparative genome analysis
P. Baumann, M. Dal Molin, J. Marienhagen (Jülich/DE)

eP066 The Role of Microbial Mats in the Removal of Hexavalent Chromium and Associated Shifts in Their Bacterial Community Composition
R. Abed, M. Shanti, T. Muthukrishnan, Z. Al-Riyami, B. Pracejus
D. Moraetis (Muscat/OM)

eP068 Low-biomass concept for industrial biotechnology with engineered *Vibrio natriegens*
M. Hädrich, C. Schulze, B. Blombach (Straubing/DE)

eP070 Modular specialized enzyme for biomass degradation from *Thermoclostridium stercorarium* – combination of modules creates thermostable enzyme that synergistically acts on arabinoxylan
M. Baudrexl, A. Seidler, V. Zverlov, W. Liebl (Freising/DE)

eP072 Identification of novel glycosyltransferases for biotechnology
T. Peuker, I. Alio, W. R. Streit (Hamburg/DE)

eP074 Characterization of dihydropyrimidinases for the biocatalytic synthesis of chiral beta amino acid
P. Marcaux, U. Engel (Karlsruhe/DE)

eP076 Investigating the effect of linker mutagenesis in a fusion protein comprised of an azoreductase and a formate dehydrogenase
S. Hadewig, A. C. Ngo, F. P. J. Schultes, D. Tischler (Bochum/DE)

eP078 Recombinant nisin production with *Corynebacterium glutamicum* using a two-step process
D. Weixler, M. Berghoff, S. J. Reich (Ulm/DE), K. V. Ovchinnikov
D. B. Diep (Ås/DE), O. Goldbeck, B. J. Eikmanns, C. U. Riedel (Ulm/DE)

eP080 Catalyzed Disulfide Bond Formation in *Bacillus subtilis*
T. Schilling, J. M. van Dijl (Groningen/NL)

eP082 Genomic modification of non-competent *Bacillus* sp. by using a novel vector
S. Miercke, T. Vološen, K. Stetter (Dresden/DE), M. Felle (Ludwigshafen/DE)
D. Wolf (Dresden/DE)

eP084 Examination of substrate specificity of a novel CYP 153A from *Gordonia rubripertincta* CWB2
M. Schmidtke, F. P. J. Schultes, C. Mügge (Bochum/DE)

eP086 Energy on demand – characterization of a novel Electron Transport System for P450 Monooxygenases
F. P. J. Schultes, L. Sönmez, D. Hufnagel, D. Tischler, C. Mügge (Bochum/DE)

eP088 Strain optimization of solventogenic Clostridia for simultaneous sugar uptake from hemicellulosic substrates like milling by-products
H. Edelmann, J. Müller (Freising/DE), C. Pires, N. Saunders (Uxbridge/GB)
V. Wolfarth, L. Kraller, W. Liebl, A. Ehrenreich (Freising/DE)

eP090 From unexplored strains to robust *chassis* platforms – evolving novel stress tolerant *Pseudomonas* species
L. Kruse, N. L. Bitzenhofer (Jülich/DE), T. Schmidgall, C. Eberlein (Leipzig/DE)
A. Loeschcke (Jülich/DE), H. J. Heipieper (Leipzig/DE), K.-E. Jaeger
S. Thies (Jülich/DE)

eP092 Semi-synthetic multistep enzyme cascade for *N*-hydroxytriazene synthesis
A. Maier, C. Mügge (Bochum/DE)

eP094 Fluorescence *in situ* hybridization for the monitoring of syngas fermenting clostridium co-cultures
M. Schneider (Freising/DE), M. Bäumler (Garching/DE), N. Lee (Umeå/SE)
D. Weuster-Botz (Garching/DE), W. Liebl, A. Ehrenreich (Freising/DE)

eP096 Marine fungi as a source for mycoremediation of manure and sewage sludge
A. Stiebeling, A. Labes (Flensburg/DE)

eP098 A manually curated compendium of expression profiles for *Corynebacterium glutamicum*
A. Kranz, T. Polen, C. Kotulla, M. Bott (Jülich/DE)

eP100 Online profiling of population dynamics in a model filamentous co-culture:
A valuable approach for optimizing the biotechnological production of bioactive compounds
A. Palacio-Barrera, I. Schlembach (Jena/DE), M. Finger, J. Büchs (Aachen/DE)
M. A. Rosenbaum (Jena/DE)

eP102 Enzymatic Hydroxylation to Produce Medium-Chain Glycols
F. P. J. Schultes, M. Schmidtke, C. Mügge (Bochum/DE)

eP104 Microbiome-based anaerobic fermentation of glycerol and carbon dioxide into succinic acid
P. Schweizer, L. T. Angenent (Tübingen/DE)

eP106 Protein dynamics and structure guided engineering of an active site loop of an ene/yne-reductase from *Cyclocybe aegerita*
D. Karrer, E. Wedler, M. Gand (Giessen/DE), M. Vogt, L. Korf, W. Steinchen
L.-O. Essen (Marburg/DE), M. Rühl (Giessen/DE)

eP108 Metabolic Engineering of *Pseudomonas taiwanensis* for the production of 4-coumarate and derived aromatics
B. Wynands, F. Kofler, A. Sieberichs, N. Wierckx (Jülich/DE)

eP110 An activity-based protein profiling (ABPP) approach for biocatalyst screening in the white rot fungus *Phanerochaete chrysosporium*
C. Schmerling, L. Sewald, C. Bräsen, M. Kaiser, B. Siebers (Essen/DE)

eP112 Exploring the biochemical potential of new subtilisins from halotolerant *Bacillacea*
F. Falkenberg, J. Bongaerts, P. Siegert (Jülich/DE)

eP114 Screening for algae cell wall degrading enzymes with biotechnological traits
J. F. H. Macdonald, I. Krohn, W. R. Streit (Hamburg/DE)

eP116 Current status of the BIOFILMS ISS experiment – testing functionalized antimicrobial surfaces in space
K. Siems (Cologne/DE), D. W. Müller, A. Ahmed (Saarbrücken/DE),
R. Van Houdt (Mol/BE), R. Mancinelli (Moffett Field, CA/US), K. Brix
R. Kautenburger (Saarbrücken/DE), M. Laue (Berlin/DE)
F. Mücklich (Saarbrücken/DE), R. Möller (Cologne/DE)

eP118 Bioelectrochemical System for flexible Biogas Production
M. T. Knoll, J. Weiler, N. Jürgensen, J. Gescher (Hamburg/DE)

eP120 Investigating the processing potential of novel Ethiopian agricultural residue Enset/Ensete ventricosum for biobutanol production
N. A. Seid, A. Neumann (Karlsruhe/DE)

eP122 Employing a terephthalic acid biosensor for screening of potential polyethylene terephthalate (PET) degrading enzymes
R. Dierkes, D. Danso, J. Chow (Hamburg/DE), P. Pérez-García (Kiel/DE)
W. R. Streit (Hamburg/DE)

eP124 Rejoining two separated wastes – co-fermentation of syngas and pyrolysis aqueous condensate
A. Robazza, C. Welter, A. Neumann (Karlsruhe/DE)

eP126 Valorization of an aqueous pyrolytic condensate for L-malic acid production with *Aspergillus oryzae* DSM 1863
C. Kubisch, K. Ochsenreither (Karlsruhe/DE)

eP128 Overexpression of the Calvin-Benson-Bassham cycle regulator CP12 increases hydrogen production in the cyanobacterium *Synechocystis* sp. PCC 6803
F. Brandenburg, A. Itzenhäuser, L. Schwarz, P. W. Wallace, J. O. Krömer
A. Schmid, S. Klähn (Leipzig/DE)

Environmental Microbiology and Ecology

eP130 Root-Soil contact areas are critical for rhizosphere characteristics
A. S. Wendel, S. Bauke, C. Knief (Bonn/DE)

eP132 The membrane cardiolipin (CL) phospholipid in *Pseudomonas fluorescens* UM270 plays an important role in promoting plant growth under salt stress
G. Santoyo, D. Rojas-Solis (Morelia/MX), M. Vences-Guzman
C. Sohlenkamp (Cuernavaca/MX)

eP134 Microbial mineralization of tire-wear particles and its leachates
S. Suresh, R. U. Meckenstock (Essen/DE)

eP136 From water into sediment – tracing freshwater cyanobacteria via DNA analyses
E. C. Nwosu, A. Bartholomäus (Potsdam/DE)
M.-E. Monchamp (Montreal/CA), S. Yang (Potsdam/DE)
P. Roeser (Warnemünde/DE), A. Brauer, D. Wagner, S. Liebner (Potsdam/DE)

eP140 Iron amendment to hydrothermal plumes induces shifts in microbial communities and provide first insights into the microbial organic iron-ligand production
S. Böhnke-Brandt (Kiel/DE), C. Hansen (Oldenburg, Bremen/DE), C. Kleint
L. Klose (Bremen/DE), N. Adam-Beyer (Hamburg, Kiel/DE)
K. Sass (Hamburg/DE), T. Dittmar (Oldenburg, Bremen/DE)
A. Koschinsky (Bremen/DE), M. Perner (Hamburg, Kiel/DE)

eP142 Functional characterization of the Radical SAM enzyme NirJ involved in heme d_1 biosynthesis
H. Meyer (Freiburg i. Br./DE), Y. Molter, J. Oltmanns
V. Schünemann (Kaiserslautern/DE), G. Layer (Freiburg i. Br./DE)

eP144 Changing the atmosphere every 35-minutes – viral and microbial interactions in a cold-water CO2-geyser with periodic eruptions
C. Moore, J. Starke, T. L. V. Bornemann, P. A. Figueroa-Gonzalez, S. P. Esser
J. Plewka, T. L. Stach, A. J. Probst (Essen/DE)

eP146 Microaerobic degradation of xylene – an enrichment approach coupled with genome-resolved metagenomics
A. Tancsics, S. Banerjee (Gödöllő/HU), A. Soares, A. J. Probst (Essen/DE)
B. Kriszt (Gödöllő/HU)

eP150 How did anoxic conditions affect nitrogen fixing Cyanobacteria on early Earth?
A. Gallo, K. Ebel (Kaiserslautern/DE), T. Bauersachs (Kiel/DE), A. Herrmann
M. M. Gehringer (Kaiserslautern/DE)

eP154 Isolation of Diazotrophic Bacteria which are significant for Sustainable Agriculture
J. Kaziūnienė (Kėdainiai/LT), R. Mažylytė (Vilnius, Panevėžys/LT)
S. Supronienė, M. Toleikienė (Kėdainiai/LT)
A. Gegeckas (Vilnius, Panevėžys/LT)

eP158 The rhizosphere microbiome´s role in carbon sequestration of oilseed rape (*Brassica napus* L.) – the CropRhizoSOM project
J. Ruggaber, A. Pehlivan, S. Wirth, R. Remus, J. Augustin
S. Kolb (Müncheberg/DE)

eP162 Finding novel biocatalysts in environmental samples using functional meta-proteomics
F. Dicks, D. Sander, P. Sukul, S. Schäkermann, J. E. Bandow
L. I. Leichert (Bochum/DE)

eP164 Spatiotemporal dynamics of AOA-driven nitrification and CO_2 fixation in a perialpine lake
J. Bosviel (Braunschweig/DE), F. Klotz (Konstanz/DE), K. Kitzinger, S. Littmann
M. Kuypers (Bremen/DE), D. Schleheck (Konstanz/DE)
M. Pester (Braunschweig/DE)

eP166 Impact of aspect and climate on soil bacterial community composition along the Chilean Coastal Cordillera
V. Rodriguez, L.-M. Moskwa (Potsdam/DE), R. Oses (Copiapó/CL), P. Kühn
T. Scholten (Tübingen/DE), D. Wagner (Potsdam/DE)

eP168 Landslide chronosequences as emerging model systems for soil microbial community succession and greenhouse gas flux research
O. Rasigraf (Göttingen, Potsdam/DE), S. Yang (Potsdam/DE)
T. Friedl (Göttingen/DE), D. Wagner (Potsdam/DE)

eP170 Functional diversification of *Staphylococcus aureus* on the skin of atopic dermatitis patients and healthy individuals
B. Foesel (Munich/DE), C. Hülpüsch, M. Reiger (Augsburg/DE), M. Schloter (Freising, Munich/DE), V. Schwierzeck, C. Treidl-Hoffmann (Augsburg/DE)
Z. Wang (Munich/DE)

eP172 Picolitre droplet cultivation of the unculturable subsurface microbes Candidate Phyla Radiation from groundwater
D. K. W. Man, S. Hermans, K. Küsel, M. Agler-Rosenbaum (Jena/DE)

eP174 An optimized culture based approach for the detection of antibiotic-resistant bacteria in the aquatic environment
E. Ravaro, N. Zacharias, C. Schreiber (Bonn/DE)

eP176 Influence of operating parameters on the nitrifying community and their activity in biofilters of marine aquaculture plants (RAS)
M. Malinowski (Hamburg/DE), J. Müller (Kiel, Büsum/DE)
M. Schlachter (Büsum/DE), E. Spieck (Hamburg/DE)

eP178 Hydrogen recovery from brewery industrial wastewater via adapted and bio-augmented cultures in bioelectrochemical system
A. Elreedy, J. Gescher (Hamburg/DE)

eP180 Occurrence of antibiotic-resistant bacteria in the aquatic environment: association to the occurrence of antibiotic-active substances
N. Zacharias, A. Voigt (Bonn/DE)

eP182 Exploration into the terrestrial plastisphere – taxonomy and polymer-colonizing potential of plastic-associated microbial communities in soil
J. MacLean (Potsdam/DE), S. Mayanna (Oberkochen/DE), L. G. Benning
F. Horn, A. Bartholomäus (Potsdam/DE), Y. Wiesner (Berlin/DE)
J. Mitzscherling, D. Wagner, S. Liebner (Potsdam/DE)

eP186 Abundance, activity and community composition of methane-cycling microorganisms in the rhizosphere of *Fagus sylvatica* and *Pinus silvestris*
K. Frindte, M. Maier, C. Knief (Bonn/DE)

eP188 Subsurface planctomycetes as sources for novel biotechnological applications
M. Mutter, M. Kündgen, K.-L. Carlstedt, N. Kallscheuer, K. Küsel
K. U. Totsche, C. Jogler (Jena/DE)

eP190 Water and salt dependent, living microbial communities in Late Pleistocene subsurface sediments of the hyperarid Atacama Desert, Chile
L. Horstmann (Göttingen/DE), L. Ganzert (Potsdam/DE, Tromsø/NO)
F. Arens (Berlin/DE), D. Schulze-Makuch (Potsdam, Stechlin, Berlin/DE)
D. Wagner (Potsdam/DE), T. Friedl (Göttingen/DE)

eP192 Microplastic biofilms in marine environments around the world – a niche for phototrophic microorganisms
B. Scales (Rostock/DE), R. Cable, M. Duhaime (Ann Arbor, MI/US), S. Markert D. Bartosik, T. Schweder (Greifswald/DE)
M. Labrenz, S. Oberbeckmann (Rostock/DE)

eP-ST067 Analysis of microbial populations in plastic–soil systems after exposure to high poly(butylene succinate-co-adipate) load using high-resolution molecular technique
B. Tanunchai (Halle (Saale)/DE), K. Juncheed (Leipzig/DE), S. F. M. Wahdan V. Guliyev, M. Udovenko (Halle (Saale)/DE), A. Lehnert, E. G. Alves (Jena/DE) B. Glaser (Halle (Saale)/DE), M. Noll (Coburg/DE), F. Buscot, E. Blagodatskaya W. Purahong (Halle (Saale)/DE)

eP-ST068 Soil properties influence the emission of the microbial volatile sodorifen of *Serratia plymuthica*
P. K. Ruciaka, M. C. Lemfack, B. Piechulla (Rostock/DE)

eP-ST069 A closer look into cellular organization, physiological limits, and genomic features of cold-tolerant *Nitrotoga* strains
S. Keuter, K. Sass, S. Wegen, N. Lee, H. Koch, S. Lücker
E. Spieck (Hamburg/DE)

eP-ST071 Endophytic actinobacteria as a biological tool to improve phytoremediation of heavy metals contaminated soils in the United Arab Emirates
K. El-Tarabily, S. AbuQamar, F. Omer, A. Altaee (Al-Ain/AE)

Infection Biology

eP194 Phage MS2 resistance to physical stressors of space travel
B. Pavletic, R. Moeller (Cologne/DE)

eP196 The effect of allicin on the proteome of SARS-CoV-2 infected Calu-3 cells
K. Mösbauer, V. N. Fritsch (Berlin/DE), L. Adrian (Leipzig, Berlin/DE)
J. Bernhardt (Greifswald/DE), M. C. H. Gruhlke, A. J. Slusarenko (Aachen/DE) D. Niemeyer, H. Antelmann (Berlin/DE)

eP198 Deep RNA seq analyses in multispecies microbial communities involved in wound and lung infections
I. Alio, R. Moll, T. Hoffmann, H. Rohde, U. Mamat, U. Schaible, K. Papenfort, W. R. Streit (Hamburg/DE)

eP200 Differential prophage activity within *Clostridioides difficile* isolates
M. A. Schüler, R. Daniel, A. Poehlein (Göttingen/DE)

eP202 *Bordetella bronchiseptica* infection of porcine respiratory epithelial cells is not affected by its dermonecrotic toxin
D. Vötsch, W. Baumgärtner (Hannover/DE), S. L. Brockmeier (Ames, IA/US)
P. Valentin-Weigand (Hannover/DE)

eP204 CsrA coordinates compatible solute synthesis in *Acinetobacter baumannii* and facilitates growth in human urine
J. Hubloher, K. Schabacker, V. Müller, B. Averhoff (Frankfurt a. M./DE)

eP206 Revisiting *Klebsiella in* critically ill patients – new insights on DNA Methylation and Phylogenetic Analysis
A. Busch, S. Bühler, J. Otto, N. Ueberschaar, B. Loeffler, J. Rödel
H. Brangsch (Jena/DE), T. Homeier-Bachmann (Riems/DE), M. Bauer (Jena/DE)

eP208 Multiplication of the intracellular pathogen *Rhodococcus equi* depends on host ESCRT complexes
T. Haubenthal, M. Scraba (Bonn/DE), F. Schmidt (Doha/QA)
O. Utermöhlen (Cologne/DE), A. Haas (Bonn/DE)

eP210 Unravelling the microbial fitness and the acquired co-resistances towards environmental extremes of vancomycin resistant enterococci
F. Arndt, K. Siems, A. Boschert, S. V. Walker, R. Möller, A. Lipski (Bonn/DE)

eP214 Identification and characterization of the choline oxidation pathway of *Acinetobacter baumannii*
J. Breisch, B. Averhoff (Frankfurt a. M./DE)

eP218 Development of antivirulence agents targeting the central regulator of *Salmonella* invasion-related pathogenicity
A. Boudrioua, I. Grin, J. Joiner (Tübingen/DE)
T. Kronenberger (Tübingen/DE, Kuopio/FI)
M. Nowak, S. Schminke (Tübingen/DE)
S. Kalverkamp, V. Korotkov, M. Brönstrup (Braunschweig/DE)
M. Hartmann (Tübingen/DE), A. Poso (Tübingen/DE, Kuopio/FI)
S. Wagner (Tübingen/DE)

eP220 Unraveling the molecular mechanisms determining type III secretion of transmembrane substrates
S. Pais, J. Joiner, M. Hartmann, S. Wagner (Tübingen/DE)

eP222 Effects of the novel epilancin A37 on bacterial and artificial membranes
J.-S. Puls, D. Braijtenbach, A. Krüger, B. Winnerling, S. De Benedetti
T. Schneider, U. Kubitscheck, F. Grein (Bonn/DE)

eP224 High-throughput screening of *Pseudomonas aeruginosa* genes of unknown function revealed novel drug targets
N. Babic, K.-E. Jaeger, F. Kovacic (Jülich/DE)

eP226 Novel oxidoreductases from *Pseudomonas aeruginosa*
S. Mirshahvalad, K.-E. Jaeger, F. Kovacic (Jülich/DE)

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eP228 Mathematical modelling and metabolic engineering of the cyanobacterium *Synechocystis sp.* PCC 6803 for improved production of the sesquiterpenoid squalene
A. Nakielski, I. M. Axmann (Düsseldorf/DE)

eP230 Novel anti-phage resistance mechanisms channelled through transcriptional regulation
C. Soon, C. Steglich (Freiburg i. Br./DE)

eP234 Novel phycobiliprotein assembly in cryptophytes – The light-harvesting protein PE545 in *Guillardia theta*
S. Heck, N. Frankenberg-Dinkel (Kaiserslautern/DE)

eP236 Analysis and modification of the cellulose synthesis in the cyanobacterium *Synechococcus elongatus* PCC 7942 for biotechnological application
N. Thumm, M. Karbach, S. Zweng, T. Perrot, N. Schmelling
I. M. Axmann (Düsseldorf/DE)

eP238 Understanding cellular rhythms under constant environmental conditions
L. Berwanger, N. Thumm, R. Gholamipoor (Düsseldorf/DE), N. M. Scheurer, A. Wilde (Freiburg i. Br./DE), M. Kollmann, I. M. Axmann (Düsseldorf/DE)

eP240 Elucidating the role of sodium bioenergetics during resuscitation from nitrogen chlorosis in the Cyanobacterium *Synechocystis* sp. PCC 6803
I. Pfeiffer, M. Burkhardt, S. Doello, K. Forchhammer (Tübingen/DE)

eP242 Identification of a novel PII interactor that regulates Carbon flux under nitrogen deprivation in *Synechocystis* sp. PCC 6803
T. Orthwein, J. Scholl, P. Spät (Tübingen/DE), S. Lucius (Rostock/DE)
M. Koch, B. Macek (Tübingen/DE), M. Hagemann (Rostock/DE)
K. Forchhammer (Tübingen/DE)

eP244 Self-sustaining cyanobacterial biofilms for technical applications
M. Bozan, A. Schmid, K. Bühler (Leipzig/DE)

eP246 Tackling *Syn-Re*SH limitations – expression system, physiological condition and H_2ase maturation system
S. Lupacchini, R. Stauder, B. Bühler, A. Schmid, J. Toepel (Leipzig/DE)

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F. Heinrichs, S. Czolkoss, F. Narberhaus, M. Aktas (Bochum/DE)

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A. Flegler, A. Lipski (Bonn/DE)

eP252 A promiscuous phospholipid biosynthesis enzyme in the plant pathogen *Pseudomonas syringae*
G. Vasilopoulos, R. Moser, F. Narberhaus, M. Aktas (Bochum/DE)

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A.-M. Möller, L. Weber, S. Brückner, B. Kutscher, F. Narberhaus (Bochum/DE)

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J. Gottstein, J. Schumacher, N. Porta, H. Gohlke, S. Smits (Düsseldorf/DE)

eP260 Morphological characterisation of shape-shifting environmental isolates
C. E. Wurzbacher (Jena/DE), R. Rachel (Regensburg/DE)
M. C. F. van Teeseling (Jena/DE)

eP262 Towards characterising the putative ABC transporter EslABC in the human pathogen *Listeria monocytogenes*
L. Schulz (Göttingen/DE), P. Rothe, S. Halbedel (Wernigerode/DE)
A. Gründling (London/GB), J. Rismondo (Göttingen/DE)

eP264 RmdB-mediated global and local c-di-GMP-signalling in *Streptomyces* developmental control
B. Cinar (Hannover/DE), J. Haist (Berlin/DE), N. Tschowri (Hannover/DE)

eP266 MurA escape mutations uncouple peptidoglycan biosynthesis from PrkA signaling in *Listeria monocytogenes*
S. Wamp, P. Rothe, S. Halbedel (Wernigerode/DE), G. Holland (Berlin/DE)

eP268 Single molecule dynamics at a bacterial replication fork after nutritional downshift or chemically induced block in replication
R. Hernandez Tamayo, H. Schmitz, P. L. Graumann (Marburg/DE)

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F. Dempwolff (Marburg/DE, Bloomington, IN/US)
D. B. Kearns (Bloomington, IN/US)

eP272 The pilotin protein controls assembly, but also substrate specificity of the Type III Secretion System
S. Wimmi, M. Fleck, C. Helbig, C. Brianceau, G. Angelidou, T. Glatter
A. Diepold (Marburg/DE)

eP274 Coordination of capsule assembly and cell wall biosynthesis in *Staphylococcus aureus*
M. Rausch, J. P. Deisinger, A. Müller, T. Schneider (Bonn/DE)

eP276 Characterisation of LCP proteins of *Streptococcus pneumoniae* – Influence on teichoic acid biosynthesis, cell morphology and physiology
M. Brendel, N. Heß (Greifswald/DE), M. Müsken (Braunschweig/DE)
J. Neufend, K. Folz, T. Kohler, S. Hammerschmidt (Greifswald/DE)

eP278 Hypeptin – a newly discovered lipid II binding antibiotic
M. Arts (Bonn, Bonn/Tübingen/DE), I. Helmle (Tübingen/DE)
I. Kotsogianni (Leiden/NL), A. Müller (Bonn/DE), N. Martin (Leiden/NL)
H. Brötz-Oesterhelt, H. Groß (Tübingen/DE), T. Schneider (Bonn/DE)

eP282 Rethinking bacterial sugar uptake – Planctomycetes employ a molecular fishing rod-like mechanism for polysaccharide uptake
T. Haufschild, N. Kallscheuer, M. C. F. van Teeseling, C. Jogler (Jena/DE)

eP286 Linking endosomal mRNA transport and mitochondria
L. Mainzer, P. Künzel, S. Wegmann (Düsseldorf/DE)

eP288 Activity of acyldepsipeptides on human mitochondrial ClpP
Y. Thoma, H. Brötz-Oesterhelt (Tübingen/DE)

eP290 Unsaturated fatty acids augment protein transport via the bacterial SecA:SecYEG translocon
M. Kamel, M. Löwe (Düsseldorf/DE), S. N. Schott-Verdugo
H. Gohlke (Düsseldorf, Jülich/DE), A. Kedrov (Düsseldorf/DE)

eP292 Direct-geneFISH to link antibiotic resistance gene presence and phylogeny in microbial populations
G. Wang (Leipzig/DE), C. Moraru (Oldenburg/DE), S. Haenelt
F. B. Corrêa, U. Nunes da Rocha, F. Musat, H. Harms (Leipzig/DE)
J. A. Müller (Eggenstein-Leopoldshafen/DE), H.-H. Richnow
N. Musat (Leipzig/DE)

eP294 Visualization of cell heterogeneity in *Staphylococcus aureus* – at the single cell level *cap* transcription does not correlate with polysaccharide synthesis.
N. Vetter, S. E. George, C. Wolz (Tübingen/DE)

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I. Schober, B. Bunk, J. Sikorski, J. Overmann (Braunschweig/DE)

eP300 Genome Sequencing of *S. aureus* SG511 Berlin reveals an accumulation of mutations in the fine-tuned regulatory system
A. Dietrich, U. Steffens (Bonn/DE), P. Sass (Tübingen/DE)
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eP302 Analysis of lupine seed-based moromi microbiota reveals a novel salt tolerant Chromohalobacter species
R. Lülf, M. Ehrmann (Freising/DE)

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A. Spiers, J. McGregor, A. Nicoll, K. Steel, R. Jerdan (Dundee/GB)

eP306 Camaraderie among cyanobacteria from marine habitats – mat-forming *Coleofasciculus* strains and their heterotrophic housemates
P. Marter, S. Huang, H. M. Freese, J. Petersen (Braunschweig/DE)

eP308 Comparative Genomics of Chromosomally-Encoded Pesticidal Genes Reveals a Novel Prophage-Associated *cry* Cassette
A. Lev Hacohen, S. Diaz Valerio, R. Schöppe, J. Hollensteiner
H. Liesegang (Göttingen/DE)

eP310 Key iron cycle-associated organisms in rice paddy soil impacting phosphorous availbility
P. Bork (Hannover/DE), B. Bunk, J. Overmann (Braunschweig/DE)
M. A. Horn (Hannover/DE)

eP312 Emergence of multidrug-resistant *Vibrio parahaemolyticus* in imported seafood in Germany – Genetic basis and transmissibility of resistance plasmids
C. Jäckel, K. Behrmann, C. Goellner, J. Nekat (Bremen/DE)
S. Schmoger (Berlin/DE), E. Strauch, J. A. Hammerl (Bremen/DE)

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eP314 Random genetic mutations in Local *A. thaliana* ecotype leads to altered phyllosphere microbiota recruitment
J. Jose, M. Agler, E. Teutloff, T. Mayer (Jena/DE)

eP316 Establishment of a synthetic microbiome to improve heat tolerance of the sea anemone *Nematostella vectensis*
G. M. Fuentes Reyes, L. Baldassarre, H. Domin, S. Fraune (Düsseldorf/DE)

eP318 Influence of host-microbiome interactions on physiology of the Pacific oyster in extreme habitats
M. Gaikwad, T. Bruhns, I. Sokolova (Rostock/DE), M. Wegner (List/Sylt/DE)
M. Labrenz (Rostock/DE, Klaipeda/LT)

eP320 Keep an eye on me! – compositional analysis of the slit lamp bacteriota
B. Fritz, M. Baureithel, E. Paschko (Villingen-Schwenningen/DE)
W. Young (Palmerston North/NZ), D. Böhringer (Freiburg i. Br./DE)
S. Wahl, F. Ziemssen (Tübingen/DE), M. Egert (Villingen-Schwenningen/DE)

eP322 qPCR based detection of three beneficial bacterial strains colonizing *F. excelsior* leaves
V. Burghard, A. Ulrich, S. Wende, R. Becker (Müncheberg/DE)
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eP324 Standardized microbial mock community against pandemic threats
Y.-T. Ly, S. Koch (Cologne/DE), J. Holtel (Rheinbach/DE)
R. Moeller (Cologne/DE)

eP326 Hydrogeological controls and genomics of biogeochemically-relevant bacterial consortia in subsurface mine waters
A. Soares (Essen/DE), S. Rassner, A. Edwards (Aberystwyth/GB)
G. Farr (Cardiff/GB), N. Blackwell (Tübingen/DE), H. Sass (Cardiff/GB)
D. Schofield (Edinburgh/GB), A. Mitchell (Aberystwyth/GB)

eP328 Understanding the functional roles of within-host-evolution of gut microbiota
M. Salvado, C. Eberl, S. Wölfel, A. C. Durai Raj, D. Garzetti,
B. Stecher-Letsch (Munich/DE)

eP330 Resolving low-abundance microbiomes from swabs in DNA protectant
W. Behrens, R. Schreeb, R. Hiß, H. Radmanesh, S. Wielgosz, M. Stiesch
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eP332 Targeted use of microbial consortia to support plants in sustainable cultivation
K. Burow, J. Brandes (Erfurt/DE), S. Pietschmann (Jena/DE)
J. Dawydow (Erfurt/DE), P. Franken (Erfurt, Jena/DE)

eP334 *Hydra* and *Curvibacter* – inter-kingdom communication at the base of animal evolution
T. Minten, J. Bathia, S. Fraune (Düsseldorf/DE)

eP336 Deep RNA sequencing identifies novel clues of microalgae and bacteria interactions
Y. Astafyeva, D. Hanelt, W. R. Streit, I. Krohn (Hamburg/DE)

eP338 *Breznakiellaceae* fam. nov. and the evolutionary radiation of "termite gut treponemes" (*Spirochaetales*)
J. M. Kästle Silva, Y. Song, A. Brune (Marburg/DE), V. Hervé (Tours/FR)

eP340 Three endosymbiont-targeted proteins are likely involved in coordinating the cell cycle of the trypanosomatid *Angomonas deanei* and its b-proteobacterial endosymbiont
G. Ehret, J. Morales, T. Reinicke, G. Poschmann, K. Stühler
E. Nowack (Düsseldorf/DE)

eP342 Potential roles for lipids and lipases in nutrition and immunity during symbiotic plant-microbe interactions
M. Brands, P. Saake, A. Zuccaro (Cologne/DE)

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eP344 Transcriptional analysis of *disA,* the gene coding for diadenylate cyclase in *C. glutamicum*
T. Lkhaasuren, S. J. Reich (Ulm/DE), G. M. Seibold (Lyngby/DK)

eP346 Regulation of small regulatory RNAs by a LysR-type transcription factor in *Agrobacterium tumefaciens*
J. Schmidt, J. Eisfeld, A. Kraus, V. Brandenburg, F. Narberhaus (Bochum/DE)

eP348 The oxidative stress response of *Yersinia pseudotuberculosis* is under thermoregulation
D. Scheller, F. Becker, D. Meggers, F. Narberhaus (Bochum/DE)

eP350 Identification and verification of interaction partners of the Dshi_1135 LOV protein involved in the regulation of the photosynthetic gene cluster of *Dinoroseobacter shibae*
S. Pucelik (Braunschweig/DE), L. Wöhlbrand, R. Rabus (Oldenburg/DE)
D. Jahn, E. Härtig (Braunschweig/DE)

eP352 Exploring the iron-starvation stimulon of *Staphylococcus aureus* using a combination of bioinformatics and experimental approaches
L. Busch, A. Ganske, C. Hentschker, K. Methling, M. Gesell Salazar
S. Michalik, M. Lalk, K. Surmann, U. Völker, U. Mäder (Greifswald/DE)

eP354 A novel signal transduction cascade tuning OdhI function in *Corynebacterium glutamicum*
L. Sundermeyer, M. Baumgart, M. Bott (Jülich/DE)

eP356 Similar but different – *Photorhabdus asymbiotica* interkingdom signaling via the LuxR solo SdiA
N. Dominelli, L. Wiens, A. Regaiolo, R. Heermann (Mainz/DE)

eP358 Genome-wide high resolution identification of bacterial regulatory small RNAs based on hybrid transcriptome sequencing data
M. Elhossary (Cologne/DE), L. Walling (Bethesda, MD/US), M. Siemers
K. Papenfort (Jena/DE), G. Storz (Bethesda, MD/US)
K. Förstner (Cologne/DE)

eP360 Classification of uncharacterized RNAs with unknown function in *Bacillus subtilis* and identification of interaction partners of small novel proteins
M. Schedlowski, P. Hildebrandt, S. Michalik, M. G. Salazar, C. Hentschker
U. Völker, A. Reder (Greifswald/DE)

eP362 Activation of cryptic genes by counter-acting xenogeneic silencing
J. Wiechert, M. Hünnefeld, J. Frunzke (Jülich/DE)

eP364 RNA thermometers control the assembly and functionality of type lll secretion system in *Yersinia pseudotuberculosis*
S. Javadi, S. Pienkoß (Bochum/DE), P. Chaoprasid, P. Dersch (Münster/DE)
F. Narberhaus (Bochum/DE)

eP366 Thermo-responsive regulation of the small RNA OmrA in *Yersinia pseudotuberculosis*
D. Guanzon, S. Wilmink, F. Narberhaus (Bochum/DE)

eP368 Genome-wide profiling of regulatory RNAs in the human pathogen *Klebsiella pneumoniae*
E. Ruhland, K. Fröhlich (Jena/DE)

eP370 The RNA-binding protein RibR and its role in the regulation of FMN riboswitch activity in *Bacillus* species
A. Hübenthal, M. Mack (Mannheim/DE), M. Mayer (Heidelberg/DE)

eP372 Analysis of translation-independent RNA localization in Cyanobacteria
E. Lichtenberg, U. A. Hoffmann (Freiburg i. Br./DE)
C. Mullineaux (London/GB), A. Wilde (Freiburg i. Br./DE)

eP374 Analysis of the substrate affinity of endoribonuclease RNase E in the cyanobacterium *Synechocystis* sp. PCC 6803
U. A. Hoffmann, F. Heyl, S. N. Rogh, T. Wallner, R. Backofen, W. R. Hess
C. Steglich, A. Wilde (Freiburg i. Br./DE)

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eP376 Central carbon metabolism, sodium-motive electron transfer and ammonium formation by the vaginal pathogen *Prevotella bivia*
L. Schleicher, S. Herdan, G. Fritz, A. Trautmann, J. Seifert
J. Steuber (Stuttgart/DE)

eP378 Methanogenic archaea use a bacteria-like methyltransferase system to convert methoxylated aromatic compounds
J. Kurth (Nijmegen/NL), O. Lemaire (Bremen/DE), M. Jetten (Nijmegen/NL)
T. Wagner (Bremen/DE), C. Welte (Nijmegen/NL)

eP380 Ruling-out of a cytoplasmic bypass for the energy-converting methyltransferase Mtr in *Methanosarcina acetivorans*
C. Schöne, M. Rother (Dresden/DE)

eP382 The plant-derived naphthoquinone lapachol induces an oxidative stress response in *Staphylococcus aureus*
N. Linzner, V. N. Fritsch (Berlin/DE), T. Busche (Bielefeld/DE), Q. N. Tung
V. V. Loi (Berlin/DE), J. Bernhardt (Greifswald/DE), J. Kalinowski (Bielefeld/DE), H. Antelmann (Berlin/DE)

eP390 Cobalamin (Vitamin B_{12})-dependent methyl transfer – Filling a gap in the betaine catabolism of *Phaeobacter inhibens*
J. Hammer, C.-E. Wegner, T. Schubert (Jena/DE)

eP392 Exploring the responses of *B. subtilis* to fosfomycin – an "omics" approach
S. Friz, A. Walter, M. Franz-Wachtel, T. Harbig, K. Nieselt, B. Maček
C. Mayer (Tübingen/DE)

eP394 Selection for sugar uptake bypass routes in *Corynebacterium glutamicum*
A. Lehnert, M. Baumgart, M. Bott (Jülich/DE)

eP396 LiaF and its Role within the Cell Envelope Stress Response of *Bacillus subtilis*
L. Friebel, D. Wolf (Dresden/DE)

eP398 A mass spectrometry-based screening method for PDF inhibitors in *Bacillus subtilis*
N. Bachmann, S. Schäkermann, P. Dietze, J. E. Bandow (Bochum/DE)

eP400 Gut Bacteria for Biotechnology – Developing a cultivation method for *Bacteroidetes* towards propionate production from polysaccharides
C. Döring, S. E. Kurrer, M. Basen (Rostock/DE)

eP402 Isolation and characterization of laughing gas reducing bacteria from various environments
T. Laader, F. Herrmann, J. Simon (Darmstadt/DE)

eP404 Substrate pre-selection by CofC and CofD enzymes govern the biosynthetic pathway of coenzyme F_{420} and derivatives
M. Hasan, G. Lackner (Jena/DE)

eP406 Purification and characterization of heterologously-produced aldehyde:ferredoxin oxidoreductase (AOR) from *Thermoanaerobacter* sp. X514
L. Nissen (Rostock/DE), J. Moon (Frankfurt a. M./DE)
M. Basen (Rostock, Frankfurt a. M./DE)

eP408 Regulation and Structural Characterization of the Pyruvate:Quinone Oxidoreductase (PQO) from *Corynebacterium glutamicum*
C. Da Silva Lameira (Ulm/DE), M. Bellinzoni, Y. Lu, E. M. Bruch (Paris/FR)
D. Haberbosch, B. J. Eikmanns (Ulm/DE)

eP410 A novel protein lipoylation pathway in sulfur oxidizers involves radical SAM proteins with unusual iron-sulfur cluster-binding regions
M. Grosser, T. Rünz, C. Kümpel, C. Dahl (Bonn/DE)

eP412 Fermentation of itaconate in *Pelosinus* sp
W. Schulz, I. Plugge, I. A. Berg (Münster/DE)

eP416 ThermoSynCon – Isolating thermophilic acetogens and developing genetic tools for Syngas conversion to biobased chemicals
L. Engelhardt, B. Zeldes (Rostock/DE), A. Poehlein (Göttingen/DE)
M. Basen (Rostock/DE)

eP418 Addressing the resilience of *Bacillus subtilis* biofilms to hydrogen peroxide
E. Muratov (Cologne, Bochum/DE), F. Fuchs, A. Gibson (Bochum/DE)
R. Moeller (Cologne/DE)

eP424 Biosynthesis of various methylmenaquinone derivatives
D. Wilkens (Darmstadt/DE), S. Hein (Langen/DE), J. Simon (Darmstadt/DE)

eP426 Pyruvate uptake in Gamma-proteobacteria and its biological relevance
S. Göing, A. Gasperotti (Munich/DE), Q. Yang (Ghent/BE)
A. Weiß (Munich/DE), A. Moldoveanu (Boston, MA/US)
F. Fabiani (Munich/DE), S. Helaine (Boston, MA/US)
B. Stecher-Letsch (Munich/DE), T. Defoirdt (Ghent/BE), K. Jung (Munich/DE)

eP428 The community metabolic network of the OMM^{12} model community – An in *vitro* exploration
A. Burrichter, A. Weiß (Munich/DE), C. Meng, C. Ludwig (Freising/DE)
A. Chakravarthy Durai Raj (Munich/DE), J. Zimmermann, C. Kaleta (Kiel/DE)
B. Stecher-Letsch (Munich/DE)

eP430 Weaving together a model for microtubular sheath synthesis in the metal oxidizing bacterium *Leptothrix cholodnii* SP-6
K. Montgomery, S. V. Martell, B. Tamietti, G. V. Wolfe, J. Bell (Chico, CA/US)
J. Schmid (Münster/DE), E. J. Fleming (Münster/DE, Chico, CA/US)

eP432 Acclimatization of *Methylocystis* sp. strain SC2 to high NH_4^+ load by multiple proteomic and metabolic response mechanisms
K. Guo, T. Glatter, N. Paczia, W. Liesack (Marburg/DE)

eP434 Biochemical and molecular characterization of CutA – an universally distributed protein
B. Wagner, K. Forchhammer, K. Selim (Tübingen/DE)

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eP436 Distinct bacterial communities associated with *Aurelia aurita* shift due to species-specific viral communities
M. Stante, N. Weiland-Bräuer, C. M. Chibani, U. Repnik
R. A. Schmitz-Streit (Kiel/DE)

eP438 *Streptomyces venezuelae* development during phage infection
T. Luthe, V. Sharma, L. Helm, J. Frunzke (Jülich/DE)

eP440 Molecular cross-talk between Sa3int phages and their *Staphylococcus aureus* host
R. Dobritz, C. Rohmer, C. Wolz (Tübingen/DE)

eP442 Reconstitution of phage T4 lysis and lysis inhibition in *Escherichia coli*
J. M. F. Schwarzkopf, D. Mehner-Breitfeld, T. Brüser (Hannover/DE)

eP444 Volatile Fungal Compounds as Possible Triggers for Prophage Induction
X. You, K. Hild, L. Remus, R. Kallies, A. Chatzinotas, H. Harms
L. Y. Wick (Leipzig/DE)

eP446 Targeted design and manipulation of defined microbial consortia by bacteriophages
A. von Strempel (Munich/DE), J. Wittmann (Braunschweig/DE)
M. Salvado (Munich/DE), E. Wortmann, T. Clavel (Aachen/DE)
K. Kleigrewe (Freising/DE), B. Stecher-Letsch (Munich/DE)

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eP448 Angicin, a bacteriocin of *Streptococcus anginosus*
V. Vogel, R. Bauer, S. Mauerer (Ulm/DE), G. M. Seibold (Lyngby/DK)
B. Spellerberg (Ulm/DE)

eP450 Evaluation of The Effect of Some Medicinal Plants against Quorum Sensing Regulated Virulence Factors in *Staphylococcus aureus*
K. Nwanekwu (Owerri/NG)

eP452 Genome Sequence-based Screening for novel phosphonate producers
A. Zimmermann, Y. Mast (Tübingen, Braunschweig/DE)
J.-P. Gomez-Escribano, J. Villain, U. Nübel, S. Linnemann (Braunschweig/DE)
J. Moschny, C. C. Hughes (Tübingen/DE)

eP454 Garvicin Q – Characterization of biosynthesis and mode of action
C. K. Desiderato, K. M. Hasenauer, S. J. Reich, B. J. Eikmanns
C. U. Riedel (Ulm/DE)

eP456 A Novel Widespread Strategy for Chloramphenicol Inactivation in Bacteria
L. Zhang, R. Teufel (Freiburg i. Br./DE)

eP458 Isolation and Characterization of the antibiotic-producing *Actinomadura* sp. from meerkat feces
D. Iliasov, T. A. M. Gulder, T. Mascher (Dresden/DE)

eP460 The role of secondary metabolites in bacterial communities
F. Höhn, V. Mokeev, E. Kemen, N. Ziemert, H. Brötz-Oesterhelt (Tübingen/DE)

eP462 The small molecule chaperone AzeG is involved in secondary metabolite biosynthesis in *Pseudomonas aeruginosa*
S. Ernst, S. L. Drees, S. Fetzner (Münster/DE)

eP464 Biosynthetic Studies on potent G protein inhibitor natural products
M. Crüsemann (Bonn/DE)

eP466 Spatial and temporal cellular assembly of the glycopeptide biosynthetic complex
D. Beqaj, S. Wagner, W. Wohlleben, E. Stegmann (Tübingen/DE)

eP468 Identification and characterization of ClpP targeting molecules
E. Liebhart, E. Mingyar, M. D. Mungan, N. Ziemert, E. Stegmann
H. Brötz-Oesterhelt (Tübingen/DE)

eP472 Inter-kingdom co-cultivation as targeted approach to induce silent fungal gene clusters and algal multicellularity
M. C. Stroe, M. K. C. Krespach, L. Zehner, M. Rosin, A. Komor, C. Hertweck
A. A. Brakhage (Jena/DE)

eP474 Biosynthetic pathways of volatile organic compounds in the medicinal mushroom *Wolfiporia cocos*
N. Sella, J. Büttner, S. Sommer, M. Fraatz, H. Zorn, M. Rühl (Giessen/DE)

eP476 Microbial carbon dynamics in cryogenic environments of western Greenland Ice Sheet
P. E. Rossel, R. Antony, E. K. Peter, R. Mourot, H. Feord
C. B. Trivedi (Potsdam/DE), A. M. Anesio, M. Tranter (Roskilde/DK)
L. G. Benning (Potsdam/DE)
F. t. DeepPurple 2020 & 2021 (Potsdam/DE, Roskilde/DK)

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eP478 A timed off-switch for dynamic control of gene expression in *Corynebacterium glutamicum*
D. Siebert (Straubing/DE), J. Altenbuchner (Stuttgart/DE), B. Blombach (Straubing/DE)

eP480 Conversion of the solvent producer *Clostridium saccharoperbutylacetonicum* into a butyrate producer
S. T. Baur (Ulm/DE), S. Markussen, F. Di Bartolomeo (Trondheim/NO)
A. Poehlein (Göttingen/DE), A. Baker (Abingdon/GB)
F. R. Bengelsdorf (Ulm/DE), E. R. Jenkinson (Abingdon/GB)
R. Daniel (Göttingen/DE), A. Wentzel (Trondheim/NO), P. Dürre (Ulm/DE)

eP482 Metabolic engineering of *Lactiplantibacillus plantarum* as an aroma-adding microorganism in beverage fermentation
X. Li, P. Schönberg, T. Wucherpfennig, K. Fleischer, T. Henl
T. Mascher (Dresden/DE)

eP484 Identification and conditional deletion of key genes involved in LPS biosynthesis in *Magnetospirillum gryphiswaldense*
M. Kögler, F. Mickoleit, D. Schüler (Bayreuth/DE)

eP486 New insights into the substrate determinants of benzylsuccinate synthase (BSS) by analysing mutated variants
A. Alhaj Zein, K. Krämer, J. Heider (Marburg/DE)

eP488 Reactor design for gas-driven production of fine chemicals in *Cupriavidus necator*
P. Schoenmakers, I. Gonzalez (Aachen/DE), U.-P. Apfel (Bochum/DE)
B. Nestl (Graz/AT), B. Hauer (Stuttgart/DE), L. Lauterbach (Aachen/DE)

eP490 Bacterial cell size decrease by genetic knockouts
A. Schrodt (Marburg/DE)

eP492 Efficient formatotrophic growth for bulk chemical production in *Cupriavidus necator* via the reductive glycine pathway
B. Dronsella, E. Orsi (Berlin/DE)

eP494 Metabolic burden in *P. putida* – trade-off between transcription and translation during heterologous protein production
A. S. Ortega Arbulu, H. Löwe, K. Pflüger-Grau, A. Kremling (Garching/DE)

eP496 Building DNA up to chromosome size with a modular, scarless cloning system
S. T. de Vries, T. S. Koebel, D. Schindler (Marburg/DE)

eP498 The future of bacterial databases
C. Elfmann, T. Pedreira, J. Stülke (Göttingen/DE)

eP500 On the flexibility of the cellular amination network
H. Schulz-Mirbach, S. Lindner (Berlin/DE)

eP502 The Pulse-Width Modulation Model of Periodic Gene Transcription
R. Machne (Düsseldorf/DE)

eP504 A robot-assisted phenotypic screening for high-throughput studies on pH-homeostasis in *Escherichia coli* using the pH sensitive biosensor mCherryEA
F. S. F. Hartmann, T. Weiss, J. Shen, D. Smahajcsik, G. M. Seibold (Lyngby/DK)

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Technical requirements

To ensure the best possible transmission quality and stability, the use of a direct LAN connection (as opposed to WiFi) is recommended. Before the meeting, make sure that sound and video quality of your computer/notebook is good. Make sure that you are using the latest version of your browser. Using Internet Explorer as your browser is not recommended. Also make sure that you do not have too many tabs open in your browser.

GENERAL INFORMATION

To participate in the scientific programme

Please check if your browser and operating system support the playback of Vimeo: https://vimeo.zendesk.com/hc/en-us/articles/360001624108-System-Requirements-for-viewing-browsing-and-apps.
More information about technical requirements and participation/active participation can be found in the FAQ for the digital VAAM 2022 at www.vaam-kongress.de via the tab "*the digital VAAM 2022!*".

Conference Language

The official conference language is English.

Publication of Abstracts

All abstracts will be published in the digital abstract book and are available online on our conference website.

Poster Awards

From all poster presentations, the best 5% will be awarded. The awarding of the best posters will be on Wednesday, 23 February from 11:30–11:45

Awards for best oral presentations (short Talk lectures)

In Short Talk Lectures and certain mini-symposia of the VAAM special groups, prizes will be awarded for the best presentation. The voting takes place directly in the meeting, all participants can vote for their favorite lecture.
The prize money for the best rated presentations of the sessions is 100 EUR.

TIPS FOR AUTHORS

Time Allocation

Please prepare your presentation for the allotted amount of time. Chairs and moderators may interrupt, should you overrun your time limit.

Poster session

The poster presentations are taking place during the poster sessions on Monday from 15:30–17:00 and on Tuesday from 16:15–17:45.
The posters have been distributed on both days, so that all poster topics are represented on both days. Poster authors present only on one of the two days.
For each topic, there will be a Zoom-meeting in which the poster authors will present their work to interested congress participants in individual break-out rooms.

Plenary Session
An expert presents his/her point of view on a certain topic within a plenary lecture.

Short Lecture
Similar to the plenary sessions, empirical works, theoretical and methodological findings and innovations, including the experts' point of view on a certain topic, will be presented. The selected presentations have been chosen from submitted abstracts and provide therefore a good platform for (young) scientists and researchers to provide their research.

Minisymposia (VAAM Special Groups)
The minisymposia are organised by the special groups of the VAAM. Speakers have been invited and abstracts have been selected for presentation.

Poster Presentations
During our poster sessions, abstract authors gain the possibility to present their digital poster in a short presentation via Zoom-Break-Out Rooms. Please note that there will be no guided poster presentations.

Events for Young Scientists
Various sessions for young scientists point out career opportunities and offer support.

Meet-the-Speaker
Speakers will be available for questions after the sessions. The format of this Q&A session is Zoom (Breakt out spaces for each speaker).

Meet-the-chair/local microbiologist
Certain chairs of the scientific sessions and local microbiologists will be available for questions. The format of this Q&A session is Zoom. For the dates and times of the meetings please check the online programm on www.vaam-kongress.de

Subdivision of Abstracts and Presentations
Plenary Lecture ..... PS
Short-Talk ..... ST
Invited lecture of special groups ..... IL-SG
ePoster presentations ..... eP

Tuesday, 22 February I Gather-Town

To ensure that the social side of things doesn't get short shrift alongside the scientific exchange, we are offering you a very special virtual social evening on February 22 from 8 p.m. onwards:

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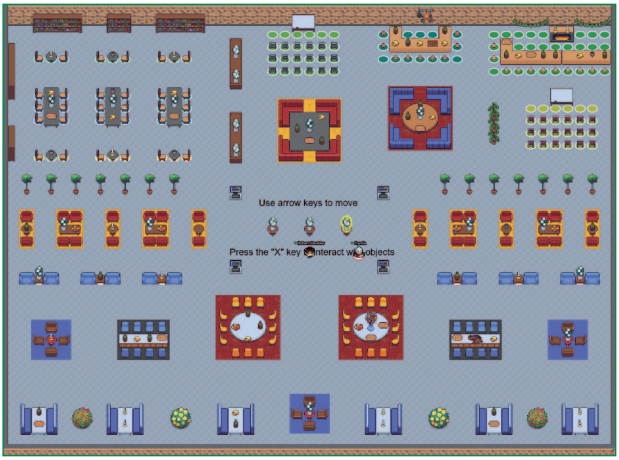

Gather.town is a virtual landscape created especially for our congress, where you can spend pleasant moments with esteemed colleagues in a nostalgically pixelated atmosphere, and let the long congress days come to an end with stimulating conversations on the couch and nice get-togethers at the bar. You can also take benefit of a highlight: the 25 best ePosters will be exhibited in a specially constructed room at the social evening. The ePoster authors will have the opportunity to present their ePosters once again and will be available to answer any questions you may have.
Go social, Get together, Go to gather.town!

Time	20:00–22:00
Place	Gathertown (access via the digital congress page via www.vaam-digital.de)

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INVITED SPEAKERS

Brakhage, Axel
Leibniz-Institut für Naturstoff-Forschung, Infektionsbiologie e. V. Hans-Knöll-Institut (HKI), Jena/DE

Engel, Joanne
University of California, San Francisco, CA/US

Jones Prather, Kristala
Massachusetts Institute of Technology, Boston, MA/US

Jung, Kirsten
Ludwig-Maximilians-Universität München, Munich/DE

Lindell, Debbie
Israel Institute of Technology, Haifa/IL

Marienhagen, Jan
Forschungszentrum Jülich GmbH, Jülich/DE

Nowack, Eva
Heinrich-Heine-Universität, Düsseldorf/DE

Raunser, Stefan
Max-Planck-Institut für molekulare Physiologie, Dortmund/ DE

Reck-Peterson, Samara
University of California, San Diego, MA/US

Stecher-Letsch, Barbara
Ludwig-Maximilians-Universität München, Munich/DE

Streit, Wolfgang R.
Universität Hamburg, Hamburg/DE

Thanbichler, Martin
Philipps-Universität Marburg, Marburg/DE

Vorholt, Julia
ETH Zürich, Zurich/CH

Wendisch, Volker
Universität Bielefeld, Bielefeld/DE

Westra, Edze
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