

Wednesday, 22nd August 2018

Marine microbial metabolic networks

Chair: Thomas Schweder

8.30 am – 8.55 am

Dynamics of bacteria-phytoplankton interactions and their ecological consequences

Hans-Peter Grossart (Stechlin)

8.55 am – 9.20 am

Modelling the long-term fate of marine dissolved organic matter through a network of compounds and bacteria

Thorsten Dittmar (Oldenburg)

9.20 am – 9.45 am

Bacterial adaptations to the degradation of algal polysaccharide mixtures on cellular and community level

Matthias Wietz (Oldenburg)

9.45 am – 10.10 am

Loss or horizontal transfer? The evolution of photosynthesis in Rhodobacteraceae

Irene Wagner-Döbler (Braunschweig)

10.10 am – 10.40 am

Coffee Break

Plant-bacteria interactions

Chair: Rudolf Amann

10.40 am – 11.05 am

Algal-bacterial relationships in the microbial jungle: Inferring microbial interactions via community dynamics in biofilms and open water

Mia Bengtsson (Greifswald)

11.05 am – 11.30 am

Bacterial virulence against an oceanic bloom-forming phytoplankton is mediated by algal DMSP

Noa Barak-Gavish (Rehovot)

11.30 am – 11.55 am

Do small bioactive molecules play a role in *Phaeobacter inhibens* pathogenesis – A role for T4SS and its candidate effectors

Rebecca J. Case (Alberta)

11.55 am – 12.20 pm

The chemical signatures of microbial interactions: Comparative metabolomics and application potential

Deniz Tasdemir (Kiel)

12.20 pm – 13.30 pm

Farewell coffee

Scientific Chairs:

Professor Dr. Rudolf Amann (Bremen)

Professor Dr. Uwe Bornscheuer (Greifswald)

Dr. Jan-Hendrik Hehemann (Bremen)

Professor Dr. Katharina Riedel (Greifswald)

Professor Dr. Thomas Schweder (Greifswald)

Information and Registration:

Rebecca Herda M. A.

Alfried Krupp Wissenschaftskolleg Greifswald

17487 Greifswald

Phone: +49 3834 420 5021

Fax: +49 3834 420 5005

Email: rebecca.herda@wiko-greifswald.de



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Marine microorganisms constantly interact with their biotic and abiotic environment. Many even live in intimate associations with other organisms. These interactions are crucial for the propagation and survival of microbes in marine ecosystems and they impact global nutrient cycles. Despite their importance, microbial interactions in marine systems only recently became fully tractable. We are now for the first time able to assess the full microbial diversity of the ocean. Functional analyses are benefitting from the (meta)-omics revolution and novel single cell technologies, to just name two of many new tools.

Polyphasic studies integrating state of the art taxonomic and functional assessments are advancing our understanding of microbial-dominated biogeochemical element cycling. Moreover, the analysis of in situ activities of marine microbial assemblages allows for a cultivation-independent elucidation of cellular processes essential for ecosystem functioning. However, progress in our understanding of interactions continues to be facilitated by the cultivation of marine microorganisms. By detailed functional analyses of cultivable model bacteria, new environmentally relevant metabolic pathways and adaptation strategies can be elucidated. In-depth biochemical characterizations of identified key proteins are required to unravel specific molecular mechanisms and metabolic pathways of distinct key bacterial populations in their natural marine habitats. Comprehensive analyses of both the genomic diversity and activity of marine microorganisms are key to a better understanding of microbial interactions in marine systems.

The MIMAS2-Symposium is the second conference on this topic in Greifswald and aims at bringing together researchers from such different fields as microbial ecology and structure biology. There will be a focus on trophic interactions (e.g. the utilization of algal polysaccharides by marine bacteria) and marine symbioses.

Alfried Krupp Wissenschaftskolleg Greifswald
Martin-Luther-Straße 14
17489 Greifswald
info@wiko-greifswald.de
www.wiko-greifswald.de



Alfried Krupp Wissenschaftskolleg
Greifswald

UNIVERSITÄT GREIFSWALD
Wissen lockt. Seit 1456



MIMAS2-Symposium Microbial interactions in marine systems

International Conference
20th – 22nd August 2018

Monday, 20th August 2018

12.00 pm – 13.00 pm

Registration

13.00 pm – 13.10 pm

Welcome address

Professor Dr. Johanna Eleonore Weber (Rector of the University of Greifswald)

Environmental microbiomes

Chair: Thomas Schweder

13.10 pm – 13.35 pm

The untapped microbial diversity

Jörg Overmann (Braunschweig)

13.35 pm – 14.00 pm

Exploring microbial dark matter in marine sponge symbioses

Ute Hentschel Humeida (Kiel)

14.00 pm – 14.25 pm

Cellulose, Sulfur and Shipworms

Daniel L. Distel (Nahant, MA)

14.25 pm – 14.50 pm

Chemosynthetic symbioses in marine bivalves - Getting to the bottom of microbe-host relationships

Jillian Petersen (Wien)

14.50 pm – 15.20 pm

Coffee Break

Key microorganisms

Chair: Rudolf Amann

15.20 pm – 15.45 pm

Ecological significance, biogeography and physiology of the *Roseobacter* group in pelagic systems

Meinhard Simon (Oldenburg)

15.45 pm – 16.10 pm

Planctomycetes after the paradigm shift - more exciting than ever

Christian Jogler (Nijmegen)

16.10 pm – 16.35 pm

Multi-omics and the challenge of bringing uncultured microbes to "life"

Phillip Pope (Ås)

16.35 pm – 17.00 pm

Unusual polysaccharides in coccolithophores - What are they good for?

André Scheffel (Golm)

17.00 pm – 17.30 pm

Powertalks (presenting selected posters)

Predicting causal dependencies between marine microbes

Julia C. Engemann (Texel)

Comparison of separation techniques to obtain marine particle-associated bacteria

Anneke Heins (Bremen)

Establishment of a metaproteomics pipeline to unravel the mechanisms of polysaccharide degradation of particle-associated microbial communities

Doreen Schultz (Greifswald)

Marine bacterioplankton metabolism and dynamics shaped by phytoplankton spring bloom communities

María Teresa Camarena Gómez (Helsinki)

Marine Verrucomicrobia have a mega plasmid with the polysaccharide utilization pathway to digest recalcitrant sulfated fucans

Andreas Sichert (Bremen)

Whole genome comparative analysis uncover possible gene modules involved in host-bacteria interactions

Luca Zoccarato (Stechlin)

17.30 pm – 18.00 pm

Coffee Break

18.00 pm – 19.30 pm

Public Key Note Lecture

Gut bacterial degradation of dietary fiber: terrestrial fruits and vegetables and genetic upgrades for marine algae

Eric Martens (Ann Arbor, MI)

Moderation: Thomas Schweder (Greifswald)

afterwards: Poster session / Cheese & Wine

Tuesday, 21st August 2018

Proteogenomics of marine polysaccharide utilization

Chair: Jan-Hendrik Hehemann

8.30 am – 8.50 am

Who, when and why: marine Flavobacteria as specialists for phytoplankton degradation

Bernhard Fuchs (Bremen)

8.50 am – 9.10 am

Monitoring of diversity, and prediction of function of the free-living bacterioplankton during North Sea spring blooms using metagenomics

Ben Francis (Bremen)

9.10 am – 9.30 am

Metaproteomics of diatom driven spring blooms

Dörte Becher (Greifswald)

9.30 am – 9.50 am

Laminarin utilization strategies of marine flavobacteria during microalgal blooms

Marie-Katherin Zühlke (Greifswald)

9.50 am – 10.10 am

The ulvan utilization pathway of *Formosa agariphila*

Lukas Reisky (Greifswald)

10.10 am – 10.30 am

Structure and function of a carbohydrate active P450

Craig S. Robb (Bremen)

10.30 am – 11.00 am

Coffee Break

Proteogenomics of marine polysaccharide utilization

Chair: Uwe Bornscheuer

11.00 am – 11.25 am

Slow food or fast food? Enzymatic degradation of algal polysaccharides in the ocean

Jan-Hendrik Hehemann (Bremen)

11.25 am – 11.50 pm

Selfish, sharing, and cheating bacteria: A new view of carbon cycling in the ocean

Carol Arnosti (Chapel Hill, NC)

11.50 pm – 12.15 pm

Biochemical and functional dissection of carrageenan catabolism in marine heterotrophic bacteria

Mirjam Czjzek (Roscoff)

12.15 pm – 12.40 pm

What a difference a gene makes - Degradation of brown algae by *Zobellia galactanivorans*

François Thomas (Roscoff)

12.40 pm – 14.00 pm

Lunch Break

Chemosynthesis-based ecosystems

Chair: Katharina Riedel

14.00 pm – 14.25 pm

Activities and productivity of the seafloor biosphere at deep-sea hot springs

Stefan Sievert (Woods Hole, MA)

14.25 pm – 14.50 pm

Wood falls, ephemeral deep sea benthic ecosystem transformed by microbes that are ultra-rare in seawater

Dimitri Kalenitchenko (Tromsø)

14.50 pm – 15.15 pm

Microbial communities and their role in biogeochemical processes in marine oxygen depletion zones: examples from the Baltic and Black Sea

Klaus Jürgens (Warnemünde)

15.15 pm – 15.40 pm

Marine thiotrophic symbioses – examined by physiological proteomics

Stephanie Markert (Greifswald)

15.40 pm – 16.00 pm

The big picture in small molecules: Interactions in the *Riftia* symbiosis on the protein level

Tjorven Hinzke (Greifswald)

16.00 pm – 16.30 pm

Coffee Break

Microbial interactions

Chair: Bernhard Fuchs

16.30 pm – 16.50 pm

STILBONOMICS – omics insights into the physiology of symbiotic marine nematodes

Tobias Viehböck (Wien)

16.50 pm – 17.10 pm

Watch Out for the "Living Dead": Cell-Free Enzymes and Their Fate

Federico Baltar (Wien)

17.10 pm – 17.30 pm

Uncovering fluctuations of marine polysaccharides during a phytoplankton bloom

Silvia Vidal-Melgosa (Bremen)

17.30 pm – 17.50 pm

Diversity, function and relevance of microplastic biofilms in the Baltic Sea

Sonja Oberbeckmann (Warnemünde)

17.50 pm – 18.00 pm

Small eukaryotic phytoplankton communities off Brazil are dominated by symbioses between Haptophyta and nitrogen-fixing cyanobacteria

Catherine Gériques Ribeiro (Roscoff)

18.00 pm – 18.10 pm

Phages are a mortality factor of bacterial key groups during a spring bloom

Nina Heinzmann (Bremen)

18.10 pm – 18.20 pm

Carbon partitioning in the coral-dinoflagellate symbiosis during *Pocillopora damicornis*-*Vibrio coralliilyticus* infection

Emma Gibbin (Lausanne)

18.20 pm – 18.30 pm

Links between microbial processing of organic matter and the thermohaline and productivity features of a temperate prodelta (Po river, Adriatic Sea)

Mauro Celussi (Trieste)

19.00 pm

Conference Dinner (Theatercafé)