Hybrid



Healthy Microbiome Symposium: ERANET HDHL INTIMIC final project meeting

23 - 25 May 2022 Van Swieten Saal







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3

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JPI HDHL:

Kristina Foterek Coordinating Officer HDHL-INTIMIC ERA-Net

Wilke van Ansem JPI HDHL call secretariat "cofunded call projects" and Knowledge Platform Intestinal Microbiomics



Larissa van der Bent JPI HDHL call secretariat "cofunded call projects" and Knowledge Platform Intestinal Microbiomics

Dear JPI HDHL partners and colleagues,

We are pleased to present the final project symposium of the ERA-NET "HDHL INTIMIC". HDHL INTIMIC aims to coordinate national and regional programmes in the area of diet, intestinal microbiomics and health. Fourteen funding organisations from nine JPI HDHL partner countries combined their efforts to fund excellent research projects within the cofunded call "Interrelation of the INtesTInal MICrobiome, Diet and Health". Complementary to this research call, the transnational and transdisciplinary Knowledge Platform was implemented as an additional networking action.

During the upcoming days the final results of the Knowledge Platform and cofunded call projects will be presented and discussed. We are looking forward to learn about their results and achievements and we hope you do too!

Yours sincerely, Kristina Foterek, Wilke van Ansem and Larissa van der Bent

Welcome message



JPI KP Coordinators:

Jildau Bouwman TNO Microbiology and Systems Biology

Matthias Laudes Christian-Albrechts University Kiel Department of Internal Medicine

Tobias Pischon Max Delbrück Center for Molecular Medicine (MDC), Berlin

Organization committee:

Eva Untersmayr-Elsenhuber, Enikö Kallay Medical University of Vienna

Peter M. Abuja Medical University of Graz

Rudolf Bauer Karl-Franzens University, Graz

Evelyne Selberherr University of Veterinary Medicine, Vienna

Barbara Strasser Sigmund-Freud University, Vienna









Dear JPI KP partners and colleagues,

as the coordinators of the JPI KP project, it is our pleasure to welcome you to the Healthy Microbiome Symposium which is the joint final meeting of the JPI Knowledge platform and the ERANET INTIMIC projects.

It is a great joy to be able to hold the final meeting face-to-face, to be finally able to meet our partners and colleagues from all over Europe here in Vienna, and to present and discuss our results and achievements in this beautiful venue.

Great thanks to Eva Untersmayr and the organization committee for organizing this event as well as to the sponsors for supporting this symposium.

We also want to acknowledge the funding agencies who funded the JPI INTIMIC project.

Your Sincerely, Jildau Bouwman, Matthias Laudes and Tobias Pischon JPI Knowledge Platform coordinators

Dear colleagues,

after more than two years of the COVID-19 pandemic, this is the first time we, the members of the JPI HDHL project INTIMIC Microbiome Knowledge Platform, can meet in person. Therefore, the Austrian Consortium partners and the organizers of this meeting would like to extend to you a very warm welcome in the beautiful venue of the Van-Swieten Saal at the Medical University of Vienna for the final project symposium.

With this symposium, we will give an overview on the achievements of the last 2.5 years and an outlook on the future of the knowledge platform: while the project itself will finish by the end of this month, the outcome will be sustained for several years, until a microbiome ESFRI Research Infrastructure can be established. While it cannot, by its nature, go the whole way towards this goal, the knowledge platform can be one crystal nucleus for such initiative in the future.

This symposium will be held in hybrid format making participation possible also virtually, which allows many more project members to join than would be possible otherwise. The entire meeting has been made possible through the generous support from our sponsors, for which we are particularly grateful. We wish you a productive and interesting meeting and a pleasant stay in Vienna!

Let's celebrate our scientific achievements together!

Agenda

7

6

	23 May 2022 - Monday
10:00-11:00	Registration
11:00-11:30	Welcome address by host institution and JPI KP consortium leaders <i>Eva Untersmayr, Jildau Bouwman</i>
	Report and discussion of achievements from each WP
11:30-11:50	WP 1: Data capture & sharing in research on intestinal microbiomics Jildau Bouwman, Tobias Pischon
11:50-12:10	WP 2: Standardization & guidelines for microbiome analysis André Gessner
12:10-12:30	WP 3: Defining a reference microbiome Itai Sharon
12:30-13:30	Lunch break, networking and poster session, visit of in- dustry exhibition
	Report and discussion of achievements from each WP
13:30-13:50	WP 4: Standardization of other data and development of ontologies Maria De Angelis
13:50-14:10	WP 5: Networking and training in the field of intestinal microbiomics Eva Untersmayr, Peter M. Abuja
14:10-14:30	WP 6: Intestinal microbiomics and human association studies Tobias Pischon, Katharina Nimptsch, Martin Larsen, Kristina Schlicht
14:30-14:50	WP 7: Functional studies on intestinal microbiota in model organisms Marijana Basic
14:50-15:30	Coffee break, networking and poster session, visit of industry exhibition
15:30-16:00	The big picture: Major achievements of the KP Intestinal microbiomics Jildau Bouwman
16:00-17:00	Inspiring keynote lecture 1: Microbiome signatures - functional relevance in inflammatory and metabolic diseases Dirk Haller
	Coffee break networking and poster session visit of
17:00-17:30	industry exhibition
17:00-17:30 17:30-18:30	industry exhibition Future of microbiome and nutrition research: The next relevant project to be funded Podium discussion

	24 May 2022 - Tuesday
08:00-08:30	Registration
	Report and discussion of achievements from each WG
08:30-08:50	WG 1: Intestinal Microbiome in Early Life Rémy Villette
08:50-09:10	WG 2: Intestinal Microbiome in Healthy ageing Tobias Pischon, Katharina Nimptsch
09:10-09:30	WG 3: Intestinal Microbiome in Health and disease <i>Matthias Laudes</i>
09:30-10:00	Coffee break, networking and poster session, visit of industry exhibition
10:00-11:00	Inspiring keynote lecture 2: Gut microbiome: a marker of ageing trajectories and a target for anti-ageing interventions? Andrea Ticinesi
	Lunch symposium (Industry) and networking
11:00-11:40	Identifying antimicrobial resistance from sample to insight Dominic O'Neil
11:40-13:00	Lunch, networking and poster session, visit of industry exhibition
13:00-13:15	Conclusions and wrap-up JPI KP meeting <i>Eva Untersmayr, Jildau Bouwman</i>
13:15-13:30	Opening of the ERA-Net Cofund "Interrelation of the INtesTInal MICrobiome, Diet and Health" (HDHL-INTIMIC) meeting
13:30-15:30	Presentations of 4 HDHL INTIMIC projects see page 14
15:30-16:00	Coffee break, networking and joint KP and HDHL INTIMIC poster session, visit of industry exhibition
	2 Parallel session
16:00-17:00	Session 1: Presentation of 2 HDHL INTIMIC see page 15 & map on page 8 Location: Dentistry Clinic
16:00-18:00	Session 2: Public lay lectures (Science café) - in German Location: Van Swieten Saal

Agenda

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	25 May 2022 - Wednesday
08:30-09:00	Registration, coffee & welcome
09:00-10:30	Presentations of 3 HDHL INTIMIC projects see page 16
10:30-11:15	Coffee break, networking and joint KP and HDHL INTIMIC poster session
11.15-12:15	Presentations of 2 HDHL INTIMIC projects see page 17
12.15-12.30	Wrap up & farewell
12:30-13:30	Lunch

Main event location: Van Swieten Saal

Address: Van-Swieten-Gasse 1a, 1090 Vienna

Social Event: 23.5.2022 Heurigen

Who: Only participants who pre-registered to the social event When: 23.5.2022 | 19:30 Where: Heuriger Hans Maly, Sandgasse 8, A-1190 Vienna

Public transport: Take tram line 38 from the *Schwarzspanierstrasse* Station (on Währinger Strasse). Exit at the final station *Grinzing*.





Identifying antimicrobial resistance from sample to insight

Tolk topic: Antimicrobial resistance detection and surveillance is a high priority in healthcare and environmental settings. However, working with samples used for this type of monitoring can be challenging, from the sample preparation to the sequencing to the bioinformatics. We'll demonstrate the workflows and characteristics of different sample types, together with the answers and insights you can expect.

Dominic O'Neil Director, Microbiome Product Development QIAGEN
Tuesday, May 24 at 11 a.m. (30 min)
Van Swieten Hall, Medical University of Vienna
Available for all JPI Microbiome conference attendees
Verena.Tiran@qiagen.com; Kerstin.Rufinatscha@qiagen.com

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Sample to Insight

Speaker

Dirk Haller

Nutrition and Immunology (Chair) ZIEL – Institute for Food & Health (Director) TUM School of Life Sciences Weihenstephan

Microbiome signatures - functional relevance in inflammatory and metabolic diseases

Professor Haller conducts research in the field of nutrition science. The main focus of his research is on bacteria (microbiota) in the intestine and their role both in chronic inflammatory diseases like Crohn's disease and in carcinogenesis. Epithelial tissue, which acts as a boundary with both metabolic and immunological functions in the intestine, occupies a central position in Professor Haller's research work. He has acquired fundamental insights into the molecular interaction of complex microbial ecosystems, the microbiome, with barrier and immune cells in the gut. His work with newly developed gnotobiotic mouse models (selective colonization of germ-free animals) and patients has made significant contributions to our understanding of the mechanisms of inflammatory and tumor diseases. His research focuses on changes in the microbial milieu in the pathogenesis of complex diseases.

Professor Haller now holds the Chair of Nutrition and Immunology and directs the ZIEL Institute for Food and Health at the TUM Weihenstephan Campus. He directs and coordinates a number of international and national research programs and has received numerous awards for his research.

Andrea Ticinesi

Department of Medicine and Surgery Microbiome Research Hub University of Parma, Italy

Gut microbiome: a marker of ageing trajectories and a target for anti-ageing interventions?



Andrea Ticinesi graduated in Medicine and Surgery at the University of Parma in 2009 with full marks and honors. He was board certified in Internal Medicine at the University of Parma in 2015, with full marks and honors. He obtained his Ph.D. in Medical Sciences at the University of Parma, Italy, in 2017. The graduation thesis concerned the relationship between intestinal microbiota and pathophysiology of kidney stone disease. Its results were published in the journal Gut (Impact Factor 23.059) in 2018.

From 2015 to 2018, he worked as fixed-term Researcher (type A, Law 240/2010) in Internal Medicine at the Department of Medicine and Surgery of the University of Parma, with care activities at the Geriatric-Rehabilitation Department of Parma University-Hospital.

From 2018 to 2021, he worked as consultant in Geriatrics at the Geriatric-Rehabilitation Department of Parma University-Hospital. He got the habilitation as Associate Professor of Internal Medicine from the Italian Ministry of University and Research in 2019 (valid until 2028).

Since 2021, he has been working as Tenure-Track Researcher (type B, Law 240/2010) in Internal Medicine at the Department of Medicine and Surgery of the University of Parma.

His main research themes include the pathophysiological aspects of gut microbiota composition and function in aging and chronic diseases, multimorbidity and clinical complexity of geriatric patients, COVID-19, point-of-care clinical ultrasound, pathophysiological and metabolic aspects of kidney stone disease.

He has been author of more than 100 papers published on peer-reviewed journals and indexed in Scopus (overall impact factor >350), with more than 2500 citations received and H-index of 30 (source Scopus).

11

Poster session

Speaker



Dominic O'Neil

Director for Microbiome Product Development at QIAGEN

Identifying antimicrobial resistance from sample to insight

Dominic O'Neil has over 20 years of experience in the biotechnology industry. Before joining QIAGEN, he gained molecular biology expertise at several companies, including three years at the Whitehead/MIT Center for Genome Research in Cambridge, MA, where he participated in the completion of the initial draft of the human genome. Dominic joined Digene (which later became part of QIAGEN) in 2004 to work on new technology research and development, focusing on sample preparation and diagnostic applications. In 2011, he joined QIAGEN R&D in Hilden to work on solutions for next-generation sequencing. Starting in 2015, he focused on microbiome extraction and associated workflows, and now leads a R&D group as Director for Microbiome Product Development.

Abstract

Antimicrobial resistance (AMR) detection and surveillance is a high priority in healthcare and environmental settings. However, working with samples used for this type of monitoring, such as stool or wastewater, can be challenging, from the sample preparation to the sequencing to the bioinformatics. We will take you through a series of biological samples, including stool, wastewater and others. We'll demonstrate the workflows and characteristics of each, together with the answers and insights you can expect. *Davide RET* | Analysis of N-glycans with structurally conserved sialic acid residues in biological fluids "via direttissima"

Salvatore Alessio GENTILE | Comparison of the N-glycosylation profile of different milks consumed in the human diet "Via Direttissima"

Maya STEMMER | What are IBD patients talking about on twitter?

Katja CSARMANN | Oral antibiotic treatment protects mice from the development of diet-induced non-alcoholic fatty liver disease: role of intestinal barrier function

Rudolf BAUER | A systematic review of medicinal plants used in mental health and their impact on the gut microbiome

Franz-Ferdinand ROCH | Plant-based meat alternatives and its associated microbial communities

Stefan STÖBERL | *Scopulariopsis*-derived secondary metabolites impact ripening dynamics of cheese by modulating the growth of abundant cheese rind bacteria

Andreas DÖTSCH | Sources of variation among 16S rRNA gene sequencing studies in microbiome research

Nathalie ROHMANN | A dietary carbohydrate - gut *Parasutterella* - human fatty acid biosynthesis metabolic axis in obesity and type 2 diabetes

Karina PIATEK | Anticancer effect of vitamin D analogs in Ovarian Cancer

Mirko MARINO | Identification of candidate markers to assess intestinal permeability and their application within the MaPLE case study

Rémy VILLETTE | Secretory IgA-bound microbiota in early life is regulated by nutritional factors, such as breastfeeding and probiotics

Valentina VINELLI | Can prebiotic fibers affect short-chain fatty acids level and gut microbiota composition in healthy human adults? A systematic review

Francesca COZZI | Sialic acid content in fermented food

ERA-Net HDHL INTIMIC cofunded projects

14

Tuesday 24 May 2022, 13:30-15:30 | Van Swieten Hall

Dr. Carlotta De Filippo | MeaTlc | 13:30-14:00

Faecal microbiome as determinant of the effect of diet on colorectal-cancer risk: comparison of meat based versus pesco-vegetarian diets

Coordinator: Carlotta De Filippo, National Research Council (Italy) *Partners*: Giovanna Caderni, University of Florence (Italy) | Fabrice Pierre and Philippe Gérard, both INRA (France) | Jildau Bouwman, TNO (The Netherlands)

Prof. Rémy Burcelin | FATMAL | 14:00-14:30 Identification of the molecular interplay between dietary fatty acids and gut microbiota in Non Alcoholic Fatty Liver Disease

Coordinator: Rémy Burcelin, INSERM (France)

Partners: Sandrine Ellero-Simatos, INRA (France) | Robert Caesar, Gothenburg University (Sweden) | Antonio Moschetta, University of Bari (Italy)

Prof. Pascal Falter-Braun | DIME | 14:30-15:00

The role of diet-dependent human microbiome encoded T3SS-dependent effectors in modulating health

Coordinator: Prof. Pascal Falter-Braun, Helmholtz Zentrum München (Germany).

Partners: Thomas Rattei, University of Vienna (Austria) | Christine Brun, INSERM (France)

Dr. Patricia lozzo | GUTMOM | 15:00-15:30

Maternal obesity and cognitive dysfunction in the offspring: causeeffect role of the GUT MicrobiOMe and early dietary prevention

Coordinator: Patricia lozzo, Consiglio Nazionale delle Ricerche (Italy). *Partners*: Sascha van Hijum, Radboud University Medical Center (The Netherlands) | Mathias Schmidt, Max Planck Gesellschaft (Germany) | Consuelo Borrás, University of Valencia (Spain)

Collaborators: The Istituto Superiore di Sanità (Italy), Mead Johnson Nutrition (The Netherlands) | University of Helsinki (Finland)

Tuesday 24 May 2022, 16:00-17:00 | Dentistry Clinic

Prof. Ina Bergheim | DiMi-Liv | 16:00-16:30 Dietary modulation of intestinal microbiota as trigger of liver health: role of bile acids

ERA-Net HDHL INTIMIC cofunded projects

Coordinator: Ina Bergheim, University of Vienna (Austria). *Partners*: Christian Trautwein (PI) and Kai Markus Schneider (Co-PI), RWTH Aachen (Germany) | Michael Trauner, Medical University of Vienna (Austria) | Hanns-Ulrich Marschall, University of Gothenburg (Sweden) | Amélia Camarinha Silva, University of Hohenheim (Germany) *Collaborators*: German Institute of Human Nutrition Potsdam-Rehbruecke (DIFE) and University Clinic RWTH Aachen, Center for Translational & Clinical Research Aachen

Prof. Fredrik Bäckhed | MICRODIET | 16:30-17:00

Understand and prevent production of microbially-produced prodiabetic metabolites in different ethnic groups: impact of protein dietary changes

Coordinator: Fredrik Bäckhed, University of Gothenburg (Sweden). *Partners*: Karine Clement, Université Pierre et Marie Curie (France) | Max Nieuwdorp, UvA-AMC (The Netherlands)

Dentistry clinic: 24.5.2022 | 16:00-17:00

What: Presentation of 2 ERA-Net HDHL INTIMIC cofunded projectsWhere: Sensengasse 2a, 1090 ViennaSee map on page 8 (pin 2)

Titel

16

Wednesday 25 May 2022, 09:00-10:30 | Van Swieten Hall

Prof. Ana Fernández | MEDMIACS | 09:00-09:30

Impact of MEditerranean Diet, Inflammation and Microbiome on plaque vulnerability and microvascular dysfunction after an Acute Coronary Syndrome. A randomized, controlled, mechanistic clinical trial

Coordinator: Francisco Fernández-Avilés, CIBER (Spain). *Partners*: Dominique Charron and Reem Al-Daccak, Université Paris-Diderot and INSERM (France) | Uri Gophna, Tel Aviv University (Israel) | Edward Moore, University of Gothenburg (Sweden)

Dr. Marco Busnelli | OCTOPUS | 09:30-10:00

A sound microbiota in a sound body through apolipoprotein A-I and HDL: from mouse models to humans

Coordinator: Giulia Chiesa, Università degli Studi di Milano (Italy). *Partners*: Marcus Kleber, University of Heidelberg (Germany) | Olivia Gräbner, Metabolomic Discoveries GmbH (Germany) | Philippe Gérard, INRA (France)

Dr. Quirijn de Mast | TransMic | 10:00-10:30

The transition from a traditional to a Western lifestyle and its effect on the interrelation between diet, gut microbiome and health

Coordinator: Mihai Netea and Quirijn de Mast, Radboud University Medical Center (The Netherlands)

Partners: Joachim Schultze, University of Bonn (Germany) | Paolo Lionetti, University of Florence (Italy)

Collaborator: The Kilimanjaro Clinical Research Center (Tanzania)

Wednesday 25 May 2022, 11:15-12:15 | Van Swieten Hall

Prof. Rikard Landberg | DiGuMet | 11:15-11:45

Diet x gut microbiome-based metabotypes to determine cardio-metabolic risk and tailor intervention strategies for improved health

Coordinator: Rikard Landberg, Chalmers University of Technology (Sweden).

Partners: Cristina Andres-Lacueva, University of Barcelona (Spain) | Gabriele Riccardi, Federico II University (Italy)

Collaborators: The Danish Cancer Society (Denmark) and Barilla G. e R. Filli (Italy).

Dr. Martin Larsen | EarlyFOOD | 11:45-12:15

Long-term impact of gestational and early-life dietary habits on infant gut immunity and disease risk

Coordinator: Martin Larsen, Centre d'immunologie et des maladies infectieuses (France)

Partners: Annesi-Maesano, UPMC (France) | Bart Keijser, TNO (The Netherlands) | Marta Schuhmacher, Universitat Rovira i Virgili (Spain) | Sandra Baldacci, CNR Institute of Clinical Physiology (Italy)

JPI KP partners

18

Austria | Peter M. Abuja, Medical University of Graz | Ina Bergheim, University of Vienna | Rudolf Bauer, University of Graz | Evelyne Mann-Selberherr, University of Veterinary Medicine Vienna, Institute for Milk Hygiene, Milk Technology and Food Science | Barbara Strasser, Sigmund Freud University Vienna | Eva Untersmayr-Elsenhuber, Enikö Kallay, Medical University of Vienna

Belgium | *Geertrui Vlaemynck*, Flanders Research Institute for Agriculture, Fisheries and Food, Melle

France | Annick Bernalier-Donadille, INRA / University of Clermont Auvergne, Clermont-Ferrand | Dominique Dardevet, INRA, Unité de Nutrition Humaine, Clermont-Ferrand | Pierre Déchelotte, INSERM - University of Rouen | Martin Larsen, Centre d'Immunologie et des Maladies Infectieuses, Paris | Julie-Anne Nazare, Human Nutrition Research Center, Lyon Germany | André Bleich, Marijana Basic, Hannover Medical School, Institute for Laboratory Animal Science | Pascal Falter Braun, Institute of Network Biology, Helmholtz Zentrum Muenchen | André Gessner, Andreas Hiergeist, University Hospital Regensburg, Institute of Clinical Microbiology and Hygiene | Antje Hebestreit, Maike Wolters, Leibniz Institute for Prevention Research and Epidemiology - BIPS, Bremen | Matthias Laudes, University of Kiel, Department of Endocrinology, Diabetology and Clinical Nutrition | Martin Meixner, Amedes genetics GmbH, Berlin | Ute Nöthlings, Bonn University | Tobias Pischon, Max Delbrueck Center for Molecular Medicine, Berlin | Amélia Camarinha Silva, University of Hohenheim, Institute of Animal Science, Stuttgart | Michael Schloter, Helmholtz Zentrum Muenchen | Christian Trautwein, University Clinic RWTH Aachen, Medical Clinic III | Bernhard Watzl, Max Rubner-Institut, Karlsruhe

Israel | Yisrael Parmet, Ben-Gurion University of the Negev, Beer - Sheva | Itai Sharon, Migal - Galilee Research Institute, Qiryat Shemona | Noam Shental, The Open University of Israel, Raanana

Italy | *Maria De Angelis*, University of Bari Aldo Moro | *Patrizia Brigidi*, University of Bologna | *Giovanna Caderni*, University of Florence, NEUROFARBA Department | *Duccio Cavalieri*, University of Florence, Department of Biology | *Giulia Chiesa*, University of Milan, Department of Pharmacological and Biomolecular Sciences | *Massimo Collino*, University of Turin | *Chiara Devirgiliis*, Research Centre for Food and Nutrition, CREA (Council for Agricultural Research and Economics), Rome | *Danilo Ercolini*, Federico II University, Naples | *Marco Gobbetti*, Free University of Bolzano, Faculty of Science and Technology | *Patricia Iozzo*, National Research Council (CNR), Institute of Clinical Physiology, Pisa | *Luisa Minghetti*, Istituto Superiore di Sanità, Rome | *Gabriele Riccardi*, Federico II University, Department of Clinical Medicine and Surgery, Naples | *Patrizia Riso*, University of Milan, Department of Food, Environmental and Nutritional Sciences, Milan, Italy

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Spain | *Cristina Andres-Lacueva*, University of Barcelona, Nutrition & Food Science Department | Miguel Gueimonde, Instituto de Productos Lácteos de Asturias, Villaviciosa | *MªJosé Torres Jaén*, Hospital Regional Universitario de Málaga - Instituto de Investigación Biomédica de Málaga

Sweden | *Fredrik Bäckhed*, University of Gothenburg | *Robert Caesar*, University of Gothenburg | *Rikard Landberg*, Chalmers University, Division Food and Nutrition Science, Department of Biology and Biological Engineering, Gothenburg | *Hanns-Ulrich Marschall*, University of Gothenburg



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