

## FIRST CALL: SCIENTIST EXCHANGE FUNDS 2024 - DEADLINE MARCH 28<sup>TH</sup>

We provide travel and housing funding up to 5000 € for incoming and outgoing scientists for short research stays of up to 3 months, longer stays may be considered if need is demonstrated. We will also provide logistical support for incoming visitors as needed. The desired start date for the exchange should be April 15<sup>th</sup> – August 1<sup>st</sup>, 2024.

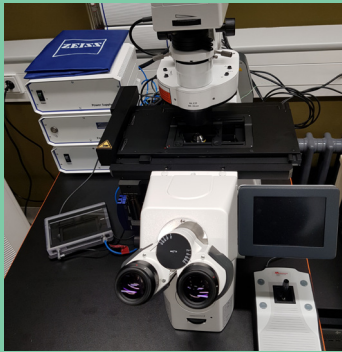
Please send the completed proposal (information and application documents attached) to [Dania Rose-Sperling](mailto:Dania.Rose-Sperling@microverse-cluster.de) by 28<sup>th</sup> March 2024.

## ‘KÜNSTLERISCHE TATSACHEN’ ART & SCIENCE: BE A PART OF IT!

The Arts & Science Residency ‚Künstlerische Tatsachen‘ is gearing up for a new round in 2024, and this time, it’s in collaboration with the Master’s program in Art & Science at the University of Applied Arts Vienna. We extend a warm invitation to you to join this unique project at the intersection of arts and science. The primary research phase for artists is scheduled for July in Jena, with artistic production in August and the exhibition in October. The selection process for participating artists is currently in its final stages.

If you are interested in participating, or are just curious to learn more about the project, please contact [Alena Gold](mailto:Alena.Gold@microverse-cluster.de) or [Antje Nieber](mailto:Antje.Nieber@microverse-cluster.de) by February 15<sup>th</sup>, 2024. We will be happy to bring you in touch with the project team!

## NEW ZEISS AXIO OBSERVER AT THE MICROVERSE IMAGING CENTER



The Microverse Imaging Center is hosting a new widefield fluorescence microscope, the AxioObserver from Zeiss! Equipped with a LED light source and a camera, as well as all modern options for automatic measurements, it is an extremely fast and user-friendly device. The special features include an automatic water immersion and the AI sample finder. The new AI sample finder is helping to quickly and comfortably identify relevant areas in your sample and set-up your experiments. Using our stage-top incubator, the AxioObserver is therefore your perfect companion for performing long-time imaging of living samples. For more information or for getting access, contact us at [microscopy@microverse-cluster.de](mailto:microscopy@microverse-cluster.de)!

## CHANGES TO THE MICROVERSE AND JSMC SEMINAR SERIES

We have shifted our Microverse seminar schedule to largely in person model, and we invite you to join us once a month on Monday afternoons to hear from esteemed guests.

In addition, our joint Microverse-JSMC seminar series for early career researchers will be held once a month on Friday afternoons. All members of the Microverse Cluster and the JSMC are invited to attend these informal meetings. You will receive a schedule of talks approximately one week before the event.

## JOIN THE MICROVERSE EDUCATION TEAM!

In 2024, we’re eager to launch educational initiatives, especially revolving around our planetarium film. We aim to develop educational materials, focusing on bringing the topic of microbes into classrooms and raising awareness about their significance.

Scheduled for March 18<sup>th</sup> and 21<sup>st</sup>, we plan 1-hour science events at the Planetarium Jena. These events aim to promote Microverse, targeting both schools and the general public. Therefore, we need your support! Are you a Microverse postdoc or PhD student interested in outreach activities? Join the Microverse Education Team and contact [Antje Nieber](mailto:Antje.Nieber@microverse-cluster.de).

## NEW PUBLICATIONS

### Gut microbiome in atypical depression

Anne Busch, Michael Bauer, Alexander Refisch and colleagues | *Journal of Affective Disorders* | Jan 13, 2024

Recent studies showed that immunometabolic dysregulation is related to major depressive disorder. An initial study, here, did not reveal any clear differences in the microbiome of those patients with depression, although the authors note that, due to the heterogeneity of patients suffering from depression, larger and longer term studies would be needed to make conclusions. [Read more](#)

### The effects of photoactivated ciprofloxacin and bile acids on biofilms on bile duct catheters

Nino Eberhardt, Ignacio Rubio, Bettina Löffler, Hans-Dieter Arndt, Michael Bauer, Anne Busch and colleagues | *International Journal of Antimicrobial Agents* | Jan 11, 2024

This study examines the potential of a novel photoactivatable ciprofloxacin to act against bacterial infections and microbiomes related to biliary diseases. Additionally, the treatment was evaluated combining the impact of bile acids and antibiotics on biofilms. [Read more](#)

### The pathophysiology of sepsis and precision-medicine-based immunotherapy (Review)

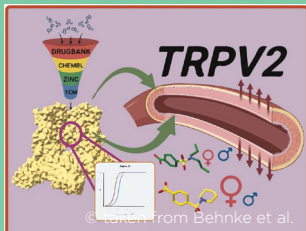
Evangelos Giamarellos-Bourboulis, Michael Bauer, Sebastian Weis and colleagues | *Nature Immunology* | Jan 02, 2024

Sepsis remains a major cause of morbidity and mortality in both low- and high-income countries. This review provides evidence that new omics approaches to stratifying patients is leading to precision medicine solutions that establishes immunotherapy as a breakthrough pillar in the treatment of sepsis for future generations. [Read more](#)

### Experimental and computational biophysics to identify vasodilator drugs targeted at TRPV2 using agonists based on the probenecid scaffold

Eric Catalina-Hernández, Ute Hellmich, Alex Perálvarez-Marín and colleagues | *Computational and Structural Biotechnology Journal* | Dec 29, 2023

The membrane channel TRPV2 plays distinct roles in cardiac and neuromuscular function, immunity, and metabolism; however remains an orphan drug target. The authors found that 4-(piperidine-1-sulfonyl)-benzoic acid is an effective TRPV2 antagonist and thereby expanded pharmacological toolbox for related pathologies. [Read more](#)



### PEtOxylated polyesteramide nanoparticles for the delivery of anti-inflammatory drugs

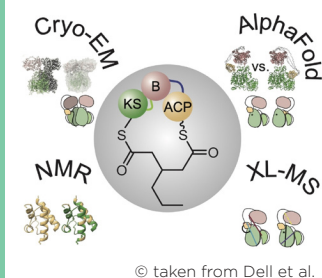
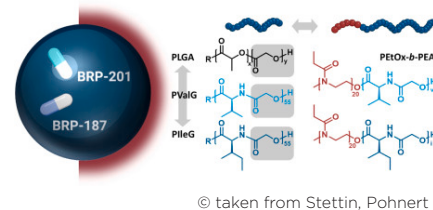
Mira Behnke, Stephanie Hoepfner, Christian Eggeling, Oliver Werz, Ulrich Schubert and colleagues | *Materials Today Chemistry* | Dec 27, 2023

Selected poly(ester amide)s nanoparticles were shown to be non-toxic and effective delivery systems for anti-inflammatory drugs. [Read more](#)

### MSdeClpher: A tool to link data from complementary ionization techniques in high-resolution GC-MS to identify molecular ions

Daniel Stettin and Georg Pohnert | *Metabolites* | Dec 22, 2023

With an input of high-resolution GC-MS data, MSdeClpher identifies and assigns molecular ions based on retention time matching, user-defined adduct/neutral loss criteria, and sum formula matching. This is the first freely or vendor available tool capable of combining fragment-rich and soft ionization datasets in this manner. [Read more](#)



### Trapping of a polyketide synthase module after C-C bond formation reveals transient acyl carrier domain interactions

Maria Dell, Mai Anh Tran, Jonas Fiedler, Ute A. Hellmich, Christian Hertweck and colleagues | *Angewandte Chemie International Edition* | Dec 22, 2023

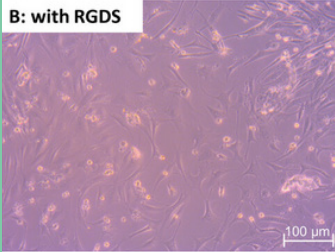
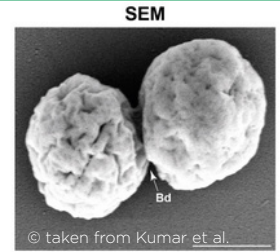
Modular polyketide synthases are giant assembly lines producing an impressive range of biologically active compounds. Here, the authors used cryo-electron microscopy and reaction intermediate trapping techniques to better understand the precise steps required to form new chemical bonds in this assembly process. [Read more](#)

## NEW PUBLICATIONS

### ***Gemmata algarum*, a novel Planctomycete isolated from an algal mat, displays antimicrobial activity**

Gaurav Kumar, Christian Jogler, Chintalapati Venkata Ramana and colleagues | *Marine Drugs* | Dec 21, 2023

Two as of yet undescribed bacterial strains from the phylum Planctomycetota were isolated from distinct geographical locations in India. Solvent-based culture extracts of the isolates showed antimicrobial activity against three bacterial test strains. [Read more](#)



### **Self-degrading multifunctional PEG-based hydrogels - Tailormade substrates for cell culture**

Kathrin Kowalczyk, Christian Eggeling, Alexander S Mosig, Felix H Schacher and colleagues | *Macromolecular Bioscience* | Dec 16, 2023

A new PEG-based hydrogel that could be used as a cell culture matrix to mimic the natural extracellular matrix was produced. Depending on the amount of ionic crosslinker used in gel formation, the hydrogels show tunable gelation time, stiffness and stability window.

[Read more](#)

### **In the footsteps of Heinz Schlesner and Peter Hirsch: Exploring the untapped diversity of the phylum *Planctomycetota* in isolates from the 1980s to the early 2000s**

Nicolai Kallscheuer, Christian Jogler and colleagues | *Systematic and Applied Microbiology* | Dec 16, 2023

A summary and selected updated phylogenetic analysis of the uncharacterized members of the *Planctomycetota* bacterial phylum, collected by pioneering microbiologist Heinz Schlesner, and which are now in the culture collection in Jena. [Read more](#)

### **Polyampholyte hydrogels with pH-dependent swelling for controlled catch & release of model dyes**

Tolga Ceper, Felix Schacher and colleagues | *Organic Materials* | Dec 13, 2023

The membrane channel TRPV2 plays distinct roles in cardiac and neuromuscular function, immunity, and metabolism; however remains an orphan drug target. The authors found that 4-(piperidine-1-sulfonyl)-benzoic acid is an effective TRPV2 antagonist and thereby expanded pharmacological toolbox for related pathologies. [Read more](#)

## SAVE THE DATE: OCTOBER 1<sup>ST</sup> AND 2<sup>ND</sup>, 2024 JOINT SYMPOSIUM OF THE CLUSTERS OF EXCELLENCE

On October 1<sup>st</sup> and 2<sup>nd</sup>, 2024 the Clusters of Excellence "Balance of the Microverse" (Friedrich Schiller University Jena), "Resolving Infection Susceptibility - RESIST" (Hannover Medical School) and "Controlling Microbes to Fight Infections" (University of Tübingen) will jointly host a symposium at the Futurium (Berlin) with a focus on understanding microbial balance and infection susceptibility to fight infections.

Alongside invited expert presentations, a fishbowl discussion titled "Infection Research in the Service of Health: A Dialogue between Research and Politics" offers the opportunity to talk to the experts, journalists and politicians. Stay tuned for more, registration coming soon.

## CALL FOR ABSTRACTS

### MiCom 2024 - 10<sup>th</sup> International Conference on Microbial Communication for Young Scientists Submission deadline: May 15, 2024

The Jena School for Microbial Communication invites you to [the MiCom 2024](#) conference - a great platform to encourage discussions between young scientists and experts from all fields of research related to microbial communication. The event features outstanding keynote lectures and selected PhD talks and posters. Workshops on diverse topics and social activities are included. All this will take place in Jena.  
[Submit abstract](#)

## UPCOMING EVENTS AND SYMPOSIA

### Research data management - Online Coffee Lecture Series

The Thuringian Competence Network Research Data Management continues its Online Coffee Lecture Series in April 2024. Every month on Wednesday, an event will take place online via Zoom.  
[Dates & registration](#)

### zedif Courses Summer Semester 2024

The zedif, the Digital Research Competence Center at the Friedrich Schiller University Jena, offers various courses on digital topics and tools. You can find the [current offers here](#).

### Webinar "Next Level Productivity using AI Assistants"

May 8, 2024, 9 to 11 a.m. | Location: Online via Zoom  
Speaker: Dr. habil. Daniel Mertens  
For the Zoom link [contact us!](#)

### MICROVERSE SEMINAR SERIES: Michael Feldbrügge (Microbiology Department, Heinrich Heine University Düsseldorf)

May 27, 2024, 1 p.m. | Leibniz-HKI, Seminar Room Pasteur - Coffee at 12:45

### International Symposium of CRC 1076 AquaDiva

June 6 – 7, 2024 | Volkshaus Jena (Carl-Zeiß-Platz 15, 07743 Jena)  
[Programm & registration](#)

### 7<sup>th</sup> International Symposium on Image-based Systems Biology (IbSB 2024)

September 26 – 27, 2024 | Leibniz-HKI  
[More information, abstract submission and registration](#)

## MICROVERSE CLUSTER GOES EDUCATION

In our ongoing efforts to engage diverse audiences, particularly students and teachers, the Microverse Education Team recently hosted a captivating science event at the Jena Planetarium (**Thanks again for your support!**).

Featuring interactive experiments and an intro-presentation followed by the screening of the film **'Into the Microverse,'** our goal is to foster curiosity and passion for science, especially among schoolchildren. Alongside the general public, students from Angergymnasium Jena joined us. We are planning future collaborations with the Jena Planetarium to further this aim.

If you are interested in participating in these events or exploring other educational opportunities, please contact [antje.nieber@uni-jena.de](mailto:antje.nieber@uni-jena.de).

[Read more](#)



Foto: Alena Gold

## NEW SCIENCE COMMUNICATIONS MANAGER: JULIANE SEEBER

Hello everybody, I am Juliane Seeber and since April 1<sup>st</sup>, I have been the new Science Communications Manager at the Cluster of Excellence "Balance of the Microverse" - taking over from Alena Gold, who previously held this role.

My academic and professional background is deeply rooted in the university environment, especially through my previous activities at the Bauhaus University Weimar. There, I was involved in various scientific projects and institutions and supported them in terms of communication.

My move to the Cluster of Excellence marks the start of a new, exciting chapter for me, in which I would like to contribute my experience to science communication. I am looking forward to interesting topics and the collaboration that lies ahead. For inquiries, ideas, or further discussions, please contact me at [juliane.seeber@uni-jena.de](mailto:juliane.seeber@uni-jena.de).



Foto: Matthias Eckert

## 5<sup>TH</sup> FAIREST DATASET AWARD - EXTENDED DEADLINE

**Submission deadline: April 30, 2024**

From February 15 to April 30, 2024, all scientists at Thuringian universities have the opportunity to submit their published datasets, provided that they did not already receive the award in any previous FAIRest Dataset competitions. The submitted datasets are evaluated by the members of the Thuringian Competence Network for Research Data Management on the basis of the FAIR principles.

More information about conditions of participation [can be found here](#).

## SELECTED NEW PUBLICATIONS

### **A global survey of host, aquatic, and soil microbiomes reveals shared abundance and genomic features between bacterial and fungal generalists**

**Ailton Pereira da Costa Filho, Bas E. Dutilh, Amelia E. Barber, Gianni Panagiotou and colleagues | Cells Report | Apr 8, 2024**

The authors analyzed 1,580 microbiome samples from aquatic, host, and soil biomes to identify characteristics of bacteria and fungi that are resilient to change and identify those that may be vulnerable to biodiversity loss. [Read more](#)

### **Organ-on-chip models for infectious disease research**

**Raquel Alonso-Roman, Alexander S. Mosig, Marc Thilo Figge, Kai Papenfort, Christian Eggeling, Felix H. Schacher, Bernhard Hube, Mark S. Gresnigt | Nature Microbiology | March 25, 2024**

The review shows various organ-on-chip models and how they have been applied for infectious disease research, outlining their properties and limitations. Prospects for these models and their potential role in future infectious disease research is discussed. [Read more](#)

### **Exchange or eliminate: The secrets of algal-bacterial relationships**

**Bertille Burgunter-Delamare, Prateek Shetty, Trang Vuong and Maria Mittag | Plants | March 13, 2024**

This review focuses on algal-bacterial interactions with micro- and macroalgal models from marine, freshwater, and terrestrial environments and summarizes the advances in the field. It also highlights the effects of temperature on these interactions as it is presently known. [Read more](#)

### **Tailoring the degradation time of polycationic PEG-based hydrogels toward dynamic cell culture matrices**

**Kathrin Kowalczyk, Alexander Mosig, Felix Schacher and colleagues | ACS Applied Bio Materials | March 12, 2024**

The study demonstrates two approaches for the synthesis of polycationic PEG-based hydrogels which were modified to enhance cell-matrix interactions, to improve two-dimensional (2D) cell culture, and catalyze hydrolytic degradation. These dynamic hydrogels enhance *in vitro* cell culture by providing a well-defined, artificial, and degradable matrix that stimulates cells to produce their own natural scaffold within a defined time frame. [Read more](#)

### **A mutualistic bacterium rescues a green alga from an antagonist**

**Trang Vuong, Anna J. Komor, Hans-Dieter Arndt, Christian Hertweck, Maria Mittag and colleagues | PNAS | March 11, 2024**

The study reveals that *Mycetocola lacteus* rescues the microalga *Chlamydomonas reinhardtii* from the antagonistic bacterium *Pseudomonas protegens* by cleaving the ester bond of the harmful cyclic lipopeptide, showcasing a complex interspecies interaction that influences survival and ecosystem dynamics. [Read more](#)

### **Secretion of the fungal toxin candidalysin is dependent on conserved precursor peptide sequences**

**Rita Müller, et al., Matthew Blango, Axel A Brakhage, et al., Bernhard Hube | Nature Microbiology | March 9, 2024**

The study shows that Ece1 polyprotein does not resemble the usual precursor structure of peptide toxins. The data indicate that the Ece1 precursor is not required to block premature pore-forming toxicity, but rather to prevent intracellular auto-aggregation of candidalysin sequences. [Read more](#)

### **Modeling of intravenous caspofungin administration using an intestine-on-chip reveals altered *Candida albicans* microcolonies and pathogenicity**

**Tim Kaden, Raquel Alonso-Roman, Parastoo Akbarimoghaddam, Alexander Mosig, et al. Marc Thilo Figge, Bernhard Hube, Mark Gresnigt | Biomaterials | March 9, 2024**

A 3D intestine-on-chip model was used to investigate fungal-host interactions during the onset of invasive candidiasis and evaluate antifungal treatment under clinically relevant conditions. The results demonstrate that *C. albicans* microcolonies induce injury to the epithelial tissue by disrupting apical cell-cell contacts and causing inflammation. [Read more](#)

## SELECTED NEW PUBLICATIONS

### **Immune aging in annual killifish**

**Dario R. Valenzano and colleagues | Immunity & Ageing | March 8, 2024**

The spontaneous aging observed in the killifish immune system offers an excellent opportunity for discovering fundamental and conserved aspects associated with immune system aging across vertebrates. [Read more](#)

### **An organ-on-chip platform for simulating drug metabolism along the gut-liver axis**

**Alexander Mosig and colleagues | Advanced Healthcare Materials | March 7, 2024**

A multiorgan-on-a-chip platform that combines the human microbial-crosstalk gut-on-chip and the Dynamic42 liver-on-chip, mimicking the bidirectional interconnection between the gut and liver known as the gut–liver axis, is introduced. This platform serves as a robust tool for investigating the intricate interplay between gut microbes and pharmaceuticals. [Read more](#)

### **The hyphal-specific toxin candidalysin promotes fungal gut commensalism**

**Shen-Huan Liang, et int., Bernhard Hube and colleagues | Nature | March 6, 2024**

The increased fitness of wild-type *C. albicans* cells involves the production of hyphal-specific factors including the toxin candidalysin, which promotes the establishment of colonization. At later time points, adaptive immunity is engaged, and intestinal immunoglobulin A preferentially selects against hyphal cells. [Read more](#)

### **Microbial electrosynthesis: opportunities for microbial pure cultures**

**Miriam A. Rosenbaum and colleagues | Trends in Biotechnology | March 1, 2024**

This review shows current limitations of mixed culture microbial electrosynthesis and microbial electromethanogenesis, the potential of engineered microbial pure cultures for high-value products and the need for a standardized electrobioreactor infrastructure. [Read more](#)

### **Resistant starch intake facilitates weight loss in humans by reshaping the gut microbiota**

**Huating Li, Yueqiong Ni, Gianni Panagiotou and colleagues | Nature Metabolism | Feb 26, 2024**

This study demonstrates that resistant starch can facilitate weight loss at least partially through *Bifidobacterium adolescentis* and that the gut microbiota is essential for the action of resistant starch. [Read more](#)

### **Review on computer-assisted biosynthetic capacities elucidation to assess metabolic interactions and communication within microbial communities**

**Mahnoor Zulfiqar, Christoph Steinbeck and colleagues | Critical Reviews in Microbiology | Jan 25, 2024**

Computer-assisted biosynthetic capacities elucidation accelerates our ability to interpret microbial interactions, allowing us to understand better and establish a balance within ecosystems. [Read more](#)

### **Impact of bare fallow management on soil carbon storage and aggregates across a rock fragment gradient**

**Kai Uwe Totsche and colleagues | Journal of Plant Nutrition and Soil Science | Jan 14, 2024**

The study demonstrates that bare fallow management exacerbates organic matter depletion in soils with high coarse rock fragment content, leading to decreased carbon storage in both particulate and mineral-associated organic matter fractions and impacting soil aggregate size distribution. [Read more](#)

## MISSION MICROVERSE: NEW IMAGE FILM & REFRESHED LOGO

Our new Image Film has just been launched. In addition to exciting insights into the various research areas of the Cluster of Excellence, the film is primarily dedicated to the Cluster's mission: the in-depth understanding of microbial communities and their significance for humans and the environment.

The film is available as a short and long version in English with German subtitles on the [YouTube channel of Friedrich Schiller University Jena](#). Further clips from the Microverse can be viewed on the [YouTube playlist "Cluster of Excellence Balance of the Microverse"](#).

You will also find our **new single-colour logo** in the image film. We offer files for various applications and in different corporate colours (white, blue, uni blue, green) on the [Microverse intranet](#).



Screenshot Image Film



## MICOM 2024 - EXTENDED DEADLINE

**September 2<sup>nd</sup> – 4, 2024 | Friedrich Schiller University, Main Building, Fürstengraben 1, 07737 Jena**

The MiCom is a great platform to encourage discussions between young scientists and experts from all fields of research related to microbial communication. The conference traditionally consists of five chaired sessions, each containing outstanding keynote lectures and a number of selected student talks.

**THE SUBMISSION DEADLINE FOR YOUR TALK AND POSTER ABSTRACTS WILL BE JUNE 17, 2024.**

Registration is open until July, 2024

[Further Information](#)

## UPCOMING EVENTS AND SYMPOSIA

### MICROVERSE SEMINAR SERIES

**Gianni Panagiotou (Microverse Professorship "Microbiome Dynamics, Friedrich Schiller University Jena)**

**"From Gut to Glory: Unveiling the Human-Relevant Metabolites Produced by Gut Bacteria"**

May 27, 2024, 1 p.m. | Leibniz-HKI, Seminar Room Pasteur - Coffee at 12:45

### MICROVERSE SEMINAR SERIES

**Michael Feldbrügge (Microbiology Department, Heinrich Heine University Düsseldorf and Spokesperson of CRC 1535**

**MibiNet "Microbial networking – from organelles to cross-kingdom communities")**

June 24, 2024, 1 p.m. | Leibniz-HKI, Seminar Room Pasteur - Coffee at 12:45

### Aging and Microbiome Meeting (AMC) 2024

October 22 – 23, 2024 | Volksbad, 07745 Jena

This conference will represent a new forum of discussion for current research findings and recent developments in basic research and clinical applications at the intersection between aging and microbiome research.

Further information can be found on the website: <https://amc24.leibniz-fli.de>



## MICROVERSE PHOTO CONTEST: CALL FOR SUBMISSIONS!



### We are excited to announce our Microverse Photo Contest!

Do you have captivating, high-resolution images of microorganisms under the microscope, especially fungi, microalgae, or bacteria? We want to see them!

Submit your best microscopy images for a chance to win one of the top three prizes. **The deadline for submissions is June 28, 2024.**

Don't miss this opportunity to showcase your work while also supporting our outreach efforts - [Submit your picture here!](#)

### Special requirements:

- max. 5 MB
- min. 72 dpi, better 300 dpi
- png, tiff or jpg format
- cmyk colour mode

### We aim to showcase your images for the following communication purposes:

- Social Media Posts
- Website Gallery
- (Scientific) Presentations
- Outreach Events
- Press Releases

**Let's visualize the Microverse!**

## APPLY NOW FOR THE ZIA VISIBLE WOMEN IN SCIENCE PROGRAM

Female researchers are invited to apply for the Zia Visible Women in Science program, which provides networking and leadership training over the course of one year starting in October 2024.

Applications open **July 1<sup>st</sup> and close on August 31, 2024**, and researchers from the master's phase up to and including junior group leaders are eligible. Please note that the program is in German.

Further information can be found on the [program website](#).

## UPCOMING CHANCES TO WATCH "INTO THE MICROVERSE" IN THE JENA PLANETARIUM

Following our successful "Science Events" in March, where we combined the film screening of "**Into the Microverse**" with Live- experiments and interactive quizzes for students and the interested public, there will be several opportunities to watch our film at the Jena Planetarium in the coming months:

- May 24, 2024 | 5 p.m. – 6.30 p.m.: [Fulldome Film Festival Jena](#) (EN)
- May 31, 2024 | 10 p.m. – 10.20 p.m. and 10.30 p.m. – 10.50 p.m.: [Long Night of Museums](#) (DE)
- November 22, 2024 | Microverse Science Event: as part of the Long Night of Science (DE)

Please find more and current information on [our website](#).



Photo: Alena Gold

## REVIEW: FUTURE DAY 2024

The Zukunftstag (Future Day) 2024 - also known as Girls' Day and Boys' Day - at Leibniz HKI in partnership with the Microverse Cluster invites girls and boys to gain exciting insights into career fields that diverge from traditional gender roles and offer diverse future prospects. This Forsche Schüler Tag, as this event is called here on Beutenberg Campus in Jena, has been a fixed part of the program for several years. This year, various research groups from Leibniz HKI and the Microverse Cluster were once again opening their doors in April 2024.

Students from grades 5 to 10 had the opportunity to, for instance, gain practical experience and establish contacts in workshops, offices, and laboratories. At the Leibniz HKI, the participating students gained insights into the everyday research life and could actively participate in various laboratory experiments while being taken on a fascinating journey into the world of microbes.

[Read more](#)



Photo: Friederike Gawlik

## SELECTED NEW PUBLICATIONS

### Hormesis as an adaptive response to infection

**Michael Bauer, Miguel Soares and colleagues | Trends in Molecular Medicine | May 13, 2024**

This paper proposes exploring the therapeutic potential of hormetic responses in host-pathogen interactions, particularly through the regulation of host mitochondrial function, to mitigate the severity of infectious diseases

[Read more](#)

### Deazaflavin metabolite produced by endosymbiotic bacteria controls fungal host reproduction

**Ingrid Richter, Christian Hertweck and colleagues | The ISME Journal | May 1, 2024**

The paper reveals that the bacterium *Mycetohabitans rhizoxinica* produces the metabolite ferrioxamine (FO), which is crucial for establishing a stable symbiotic relationship with the fungus *Rhizopus microsporus* by inducing fungal sporulation. [Read more](#)

### Genetic regulation of L-tryptophan metabolism in *Psilocybe mexicana* supports psilocybin biosynthesis

**Paula Seibold, Dirk Hoffmeister and colleagues | Fungal Biology and Biotechnology | Apr 25, 2024**

The paper investigates the genetic regulation of tryptophan metabolism in the fungus *Psilocybe mexicana*, providing insights into the biosynthesis pathway of the psychoactive compound psilocybin. [Read more](#)

## JOHANNES ZIMMERMANN STARTED HIS NEW JUNIOR RESEARCH GROUP

As of June 1, 2024, the Cluster of Excellence "Balance of the Microverse" welcomes Johannes Zimmermann as the new Junior Research Group Leader of "Mechanisms of Metabolic Microbial Interactions."

Johannes studied systems science and bioinformatics in Osnabrück and Jena, earned a PhD in medical systems biology from the University Hospital Schleswig-Holstein, and completed postdoctoral training at the Max Planck Institute for Evolutionary Biology in Plön. His expertise includes metabolic modeling, omics data analysis, and microbial ecology.

*"I'm looking forward to be part of the Microverse Cluster that fosters collaboration and innovation among researchers from diverse backgrounds and disciplines. I'm excited about the potential to achieve a deeper understanding of microbial interactions and their impact on a global scale."* **says Johannes.**

[Read more in our interview!](#)



Foto: Privat

### Contact:

Friedrich Schiller University Jena  
Microverse Cluster  
Rosalind-Franklin-Str. 1, 07745 Jena  
[johannes.zimmermann@uni-jena.de](mailto:johannes.zimmermann@uni-jena.de)

## MORE STAFF NEWS: SILVIA KOLOSSA JOINS THE MICROVERSE CLUSTER AS SCIENTIFIC COORDINATOR



Foto: Privat

**Hello Microverse family and friends,**

I am Silvia Kolossa, and since June 1<sup>st</sup>, I have been the new Scientific Coordinator in the Cluster Management team.

My scientific background is in the field of nutrition, and my previous position was in third-party funding consulting at the Technical University of Munich. In my new role, I will take over Anna Komor's responsibilities, focusing on Diversity and our "Science meets Society" Book Club, the JEMS Seminar Series, and of course, support with the upcoming proposal for our second funding period.

I am enthusiastic about contributing to the Cluster and look forward to collaborating with you. Please feel free to reach out if you have any questions or ideas.

You can contact me at [silvia.kolossa@uni-jena.de](mailto:silvia.kolossa@uni-jena.de).

## UPDATE ON THE JOINT SYMPOSIUM OF THE CLUSTERS OF EXCELLENCE

Our joint symposium on exploring microbial balance to fight infections will take place on October 1-2, 2024 at the Futurium, Berlin. It is organized by the Clusters of Excellence "Balance of the Microverse", "Resolving Infection Susceptibility - RESIST" (Hannover) and "Controlling Microbes to Fight Infections" (Tübingen).

The symposium will include sessions on antimicrobial resistance and new solutions, microbial community resilience, infection susceptibility and microbiome & health. We are looking forward to excellent guest speakers like Maria Vehreschild (Frankfurt University Hospital), Laurent Philippot (INRAE Dijon), Manu Shankar-Hari (University of Edinburgh) and Miguel Soares (Instituto Gulbenkian de Ciência, Portugal), amongst others. Highlights also include a public Fish Bowl discussion with Veronika von Messling and Lothar H. Wieler.

Stay tuned, we will inform you once registration is opening for this symposium.

[Contact us if you have any questions on the symposium.](#)

## UPCOMING EVENTS AND SYMPOSIA

### MiCom 2024 - 10<sup>th</sup> International Conference on Microbial Communication for Young Scientists

September 2 – 4, 2024 | Friedrich Schiller University, Main Building, Fürstengraben 1, 07737 Jena

The MiCom is a great platform to encourage discussions between early career scientists and experts from all fields of research related to microbial communication. The conference traditionally consists of five chaired sessions, each containing outstanding keynote lectures and a number of selected student talks.

[Further information](#)

### 7<sup>th</sup> International Symposium on Image-based Systems Biology (IBSB 2024)

September 26 – 27, 2024 | Leibniz-HKI

[More information, abstract submission and registration](#)

### Leibniz Institute on Aging (FLI): Aging and Microbiome Conference 2024 (AMC)

October 22 – 23, 2024 | Volksbad Jena

The AMC 2024 will provide an exchange platform for researchers from diverse backgrounds and career stages who are interested in microbiome and aging research.

Early Registration Deadline: July 31, 2024

Abstract Submission Deadline: August 31, 2024

[Further information](#)

### Microverse Christmas Party

December 11, 2024

## CALL FOR NOMINATIONS: MICROVERSE SCIENCE COMMUNICATION AWARD



**Deadline: November 29, 2024**

**Prize: 1.000 Euro**

We are excited to announce the "**Microverse Science Communication Award 2024**", which will recognise members of the Microverse Cluster for their outstanding outreach projects and activities

Join us in celebrating those who have skilfully bridged the gap between complex research and public understanding, making science captivating and accessible. Nominations are open to individual and group applications of Microverse scientists who have shown special engagement in science communication or outreach within the last four years.

Such examples include development of unique projects for engagement of the public, communication of scientific topics across various platforms such as traditional media to innovative digital or analogue formats, or commitment to community outreach activities. We look forward to your submissions. **The award ceremony will take place during the Microverse Christmas Party (December 11, 2024).**

[More Information](#)

## REMINDER: MICROVERSE PHOTO CONTEST

All Microverse members have the opportunity to submit their entry for the Microverse photo competition until 28 June 2024!

Do you have captivating, high-resolution images of microorganisms under the microscope? – We want to see them! Submit your best microscopy images for a chance to win one of the top three prizes.

Don't miss this opportunity to showcase your work while also supporting our outreach efforts!

[Read more!](#)



## INVITATION TO THE 3<sup>RD</sup> LIFE SYMPOSIUM 2024



The 3<sup>rd</sup> LIFE Symposium of the University of Jena will take place on **November 6, 2024**. The event is aimed at researchers, students and interested parties from the Jena LIFE area. Fellows of the LIFE CONNECT and TALENT projects will present their research projects in short field reports. In addition, local companies and foundations will be represented to promote the exchange between science and business.

**Keynote Lecture:** We are pleased to welcome Dr. Dana Kralisch as keynote speaker.

More information on LIFE can be found on [the website: LIFE - University of Jena](#)

## SELECTED NEW PUBLICATIONS

**Late stages of the Zika virus life cycle are impaired by a selective TRPML2 agonist**

Kerstin K. Schwickert, Ute A. Hellmich and colleagues | Antiviral Research | June 17, 2024

This paper shows that treatment with ML2-SA1, an agonist for the human endolysosomal cation channel TRPML2, impairs Zika virus (ZIKV) replication and potentially other viruses like Hepatitis E by disrupting intracellular cholesterol distribution.

[Read more](#)

**Raman spectral analysis in the CHx-stretching region as a guiding beacon for non-targeted, disruption-free monitoring of germination and biofilm formation in the green seaweed *Ulva***

Constanze Schultz, David Zopf, Juergen Popp and colleagues | ChemPhysChem | June 7, 2024

This paper shows that Raman spectroscopy, a non-invasive, label-free tool, was used to study the complex interactions and morphogenesis of the green seaweed *Ulva* (*Chlorophyta*) and its associated bacteria, providing chemical information and distinguishing spatial regions in *Ulva* germination and cellular malformations.

[Read more](#)

## SELECTED NEW PUBLICATIONS

### **Dual-oscillator infrared electro-optic sampling with attosecond precision**

**Alexander Weigel, Theresa Buberl, Philip Jacob, Ioachim Pupeza and colleagues | Optica | May 20, 2024**

This paper presents a dual-laser-oscillator approach for electro-optic sampling that captures 2800 mid-infrared waveforms per second, significantly improving sensitivity, precision, and throughput in broadband molecular vibrational spectroscopy and offering immediate applications in precision electric-field metrology and high-speed biosensing. [Read more](#)