

› Cells in Motion Newsletter 2023

Dear Colleagues,

Lively interaction and close cooperation within our interdisciplinary community are the driving forces that keep cell dynamics and imaging research vibrant and moving. That's why we engage in connecting people and are excited to work together to develop and integrate collaborative activities in our scientific field.



Outdoor poster session in the courtyard of our Multiscale Imaging Centre at this year's Inflammation & Imaging Symposium. Picture: Erk Wibberg

Among other things, in 2023, we restarted our popular "Brown-Bag Lunch" that connects junior scientists from natural science disciplines and medicine. We organised the annual Inflammation & Imaging Symposium, which brings together nine research and career networks at our university, and numerous international guests. We funded several interdisciplinary junior projects and supported many scientists in different working groups in using imaging technologies. Our new research building has become a central meeting point for our interfaculty scientific community.

Additionally, we supported several third-party funded initiatives within our scientific field. The CiM team manages the Collaborative Research Centre 1450 "inSight – Multiscale imaging of organ-specific inflammation" and supports the CareerS and InFlame programmes for clinician and medical scientists by contributing expertise ranging from finance management to programme development and science communication. In 2023, we also supported preparation of the reapplication of the Clinical Research Unit 342 "Organ Dysfunction during Systemic Inflammation" which was granted funding from the German Research Foundation (DFG), and assisted the Translational Centre for Inflammation (TRACI) that received funding from the Faculty of Medicine by developing their website.

We are glad to highlight many more of our 2023 activities in this newsletter and look forward to lots of interactions in the New Year.

The [Cells in Motion \(CiM\) Executive Board](#) and [Science Management & Communication Team](#)

Wishing you a Merry Christmas! As is already a tradition, our Christmas ball sheds light onto an example of recent research. [Click here to learn more!](#) Image provided by CiM junior research group leader Felix Gunawan and colleagues.



Research infrastructure: our Multiscale Imaging Centre & Imaging Network



Our research building at sunset glow. Picture: Michael Kuhlmann

Since the beginning of the year, different research groups have progressively moved into the [Multiscale Imaging Centre \(MIC\)](#), quickly filling the labs and offices with life. New state-of-the-art imaging equipment was installed, and the animal facilities for flies, fish and mice were put into operation. We have been through the usual ups and downs of setting up a high-tech building with complex facilities, and have now settled in. Only our cyclotron and radiochemistry area is still under construction, slowly but surely making progress towards completion. We are optimistic that towards summer 2024 all facilities will be up and running.

These are the research groups that moved into our Multiscale Imaging Centre in 2023:

- [Noelia Alonso Gonzalez](#), Institute of Immunology
- [Volker Gerke](#), Institute of Medical Biochemistry
- [Anne Helfen](#), Translational Research Imaging Center (TRIC)
- [Friedemann Kiefer](#), European Institute for Molecular Imaging (EIMI)
- [Christian Klämbt](#), Institute for Neuro- and Behavioural Biology
- [Stefan Luschnig](#), Institute of Integrative Cell Biology and Physiology
- [Sebastian Rumpf](#), Institute for Neuro- and Behavioural Biology
- [Michael Schäfers](#), European Institute for Molecular Imaging (EIMI)
- [Stefan Schulte-Merker](#), Institute for Cardiovascular Organogenesis and Regeneration
- [Ralf Stanewsky](#), Institute for Neuro- and Behavioural Biology
- [Anna Ziegler](#), Institute for Neuro- and Behavioural Biology

We look forward to another group joining us in 2024, as soon as a newly funded preclinical MRI device is installed:

- [Cornelius Faber](#), Translational Research Imaging Center (TRIC)

Additionally, the following groups are part of the MIC team and working in our interdisciplinary spaces while having additional bases within their disciplinary communities or other institutes:

- [Verena Hörner](#), Translational Research Imaging Center (TRIC)
- [Xiaoyi Jiang](#), Institute of Computer Science
- [Benjamin Risse](#), Institute for Geoinformatics & Faculty of Mathematics and Computer Science
- [Benedikt Wirth](#), Institute for Applied Mathematics: Analysis and Numerics



Along with the research groups, many high-end imaging devices have moved into our new building – here a small animal computer tomograph is carefully transported to the new lab (left). In MIC's fish facility more than 1,260 water tanks provide room for 60,000 zebrafish (right). Pictures: GEUER International / Michael C. Möller

Supported by our [Imaging Network](#) the wide-ranging imaging infrastructure in the MIC and at our university as a whole can be used by all research groups and is continuously being developed further. In 2023, the network's preclinical imaging team – which is in charge of several high-end, small animal molecular imaging devices, like PET, SPECT, optoacoustic and optical imaging, and a new small animal CT – has started to establish combined protocols for a novel 7 Tesla PET-MRI that allows parallel acquisition of molecular PET signals and cutting-edge MRI sequences. A new colleague, Katrin Schwegmann, has joined the team, and in 2024, the installation of a new 9.4 Tesla preclinical MRI with cryogenic detection hardware will further strengthen the technological portfolio. A focus of the Imaging Network's microscopy team this year was on the development and implementation of new image analysis methods that were devised based on neural networks. [An overview of these deep learning tools for microscopy can be found in our Wiki.](#) The tools are available on a high-performance analysis server, and can also be applied in the new user-friendly 3D analysis software Aravis, the acquisition of which was supported by the Collaborative Research Centre 1348 "Dynamic Cellular Interfaces". We wish you lots of fun in testing them and are always happy to help!

Science communication: creating ideas, words and pictures

[„Münsters Wissen frisch gezapft“](#) is back! At this public science event, initiated and organised by junior researchers from our CiM-IMPRS Graduate Programme, researchers from various scientific fields talk about their work in pubs in Münster. Speakers from our community this year included chemist, Uwe Karst, who provided insight into the question of “To tattoo or not to tattoo?”, and biochemist, Timo Strünker, who spoke about the chemistry of fertilisation. The event was packed and the range of different topics addressed stimulated lively discussions. We are proud of our early stage researchers who engage in providing a forum for the exchange between researchers and the city community in Münster! Organising the project is also an opportunity for early stage researchers to learn skills in science communication and project management, with



„Münsters Wissen frisch gezapft“ is organised by young scientists from our community, some of whom also gave insights into their own research projects in a series of “flash talks” at this year’s event.

Picture: Erk Wibberg

guidance and support from our CiM science communication team. The university's communication team is also involved as a partner, and we are delighted that we will be expanding our collaboration on this project in the coming year.

CiM researchers and our science communication team, together with the university's communication team, conducted several other public outreach projects in 2023. Starting already in 2022, upon request of the rectorate, an event programme was developed to accompany the exhibition "Fascination of Science" at the Münster City Museum. In this exhibition, photo artist, Herlinde Koelbl, portrays internationally renowned scientists showing their motivation, influences and ways of thinking. In a panel discussion with the artist at the end of the exhibition in February 2023, clinician scientist, Luise Erpenbeck, and computer scientist, Benjamin Risse, talked about the [multiple facets of the profession of a scientist](#). This year, we also organised a press tour [introducing the Multiscale Imaging Centre](#), which was subsequently reported on by the university communication team and the local media. We also initiated two episodes of the university podcast and provided ideas for their elaboration. In one of these episodes, nuclear medicine specialist, Michael Schäfers, talked about [interdisciplinary collaboration in science](#) using the Collaborative Research Centre "inSight" as an example. In the other episode, anesthesiologist and intensive care specialist, Jan Rossaint, provided information on [sepsis as systemic inflammation](#), risk factors and health consequences, as well as the right treatment and the current state of research in the field.



Panel discussion about the profession of a scientist at the Münster City Museum. Picture: Markus Bomholt

Another CiM focus this year was to support the start-up phase of the Faculty of Medicine's [Clinician Scientist Programme "CareerS"](#) and the [Medical Scientist Programme "InFlame"](#). These career programmes promote junior researchers on interdisciplinary career paths and are coordinated by scientists from the CiM community to foster synergy between research and clinical work. The CiM science communication team promoted the launch of the programmes with news articles on the web, in the university hospital's staff magazine and in the magazine of the Westphalia-Lippe Medical Association. We set up web calendars for both programmes and launched an [interdisciplinary life sciences community chat](#). Please join this chat forum to connect with interdisciplinary colleagues! We also developed various presentation slides, graphics and texts for several events and career support modules – all of which has made a significant contribution to structuring and shaping the different programmes. Our communication team is also involved in designing the 1st Medical & Clinician Scientist Forum in Münster in January 2024, a meeting of all *CareerS* and *InFlame* fellows and mentors which will provide special opportunities to get new inspiration, exchange ideas and make connections.

Careers in Motion: providing networking and funding opportunities

Together with the *CareerS* and *InFlame* programmes, CiM's Careers in Motion has restarted the [Brown-Bag Lunch](#) seminars – it is satisfying to see these meetings spark inspiring discussions every two weeks! In an informal atmosphere, while having sandwiches and fruit, junior researchers from medicine, biology, chemistry, mathematics and computer science present their projects in interdisciplinary life science contexts, exchange ideas and make new contacts. Among others, junior researchers with funded CiM pilot projects, in the *CareerS* Clinician Scientist Programme or the *InFlame* Medical Scientist Programme, and students taking part in the *Med K* medical doctorate programme are regular guests of the meetings – everybody interested is welcome to come and listen or present their own work! We look forward to meeting you there and at [many other CiM events](#) that offer opportunities for acquiring knowledge, connecting with people, and perhaps finding starting points to work together!



The “brown-bag” – a bag used for a packed lunch – stands as a symbol for our lively lunchtime meetings.

Three interdisciplinary teams of junior researchers received CiM funding this year to implement their joint [CiM Pilot Projects](#). A clinician scientist and a computer scientist teamed up to develop a machine learning-based diagnostic tool for liver disease, a biologist and a biomedical engineer analyse the role of laminin for adipocyte cell stability and mechanics, and a chemist and a biologist investigate platinum-doped nucleic acids as new luminescent oxygen sensors. Furthermore, our Research and Careers Committee granted eight [CiM Travel Awards](#) for participation in scientific conferences in Germany, Europe and overseas. In total, junior scientists from 13 CiM labs benefited from these funding opportunities in 2023.

During the year, 25 new doctoral students from eight different countries were accepted into our [CiM-IMPRS Graduate Program](#). In total, 118 students are currently pursuing their PhD in this graduate school. We complemented our comprehensive curriculum by introducing a new bioinformatics course. Our PhD students organised the traditional annual Graduate School Meeting with scientific talks by international guests, as well as career talks by some of our alumni. Last but not least, at the yearly CiM-IMPRS retreat, PhD students organised a very successful training session on how to build and maintain collaborations, especially in interdisciplinary contexts.



Our doctoral students in a workshop on how to establish collaboration projects (left), and the winners of the best joint project concept with the project outline on the poster in the background (right). Pictures: CiM-IMPRS