Universität Basel

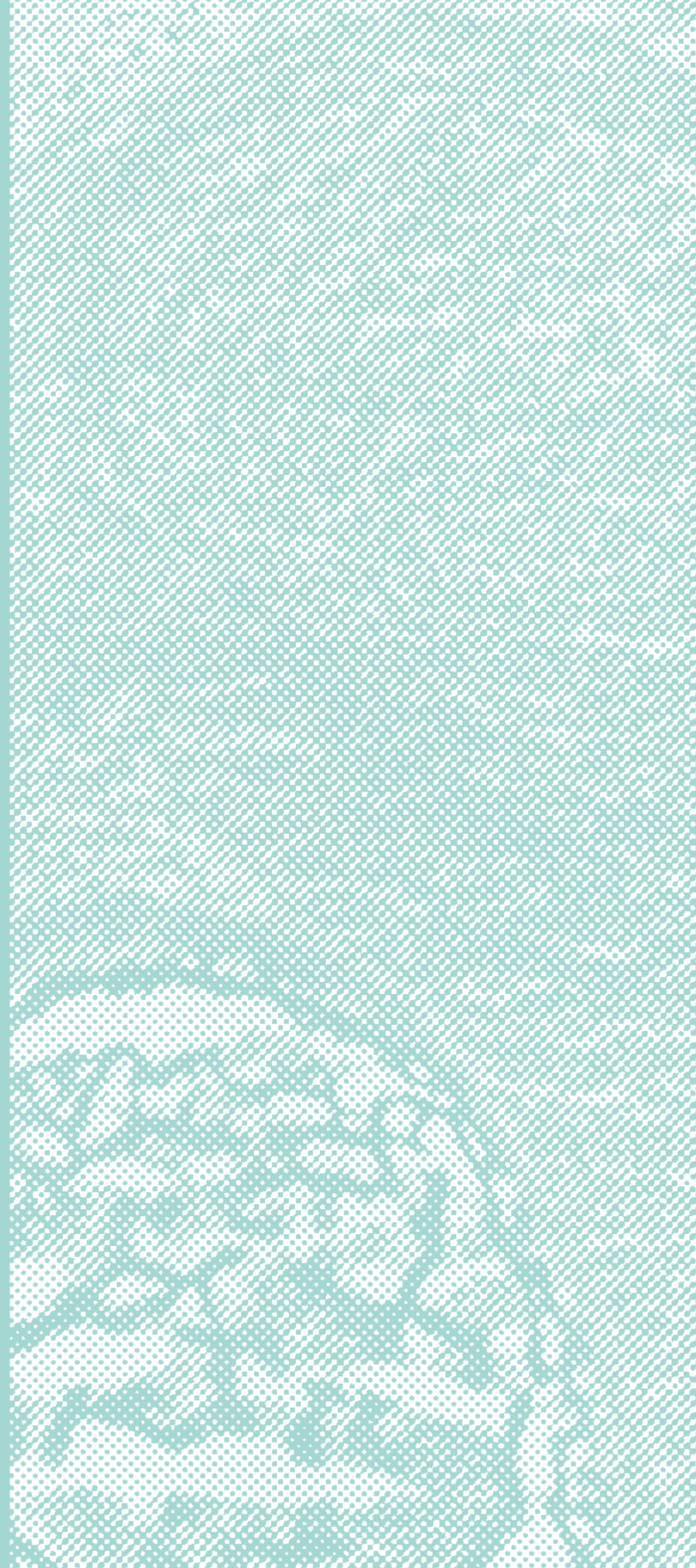
Departement Biomedizin

Departement Biomedizin Basel

Newsletter
September 2023

Departement
Biomedizin
Basel

Editorial
Interview
Success Story



Departement Biomedizin Basel

Editorial

Dear All,

While reading the preview of this Newsletter, I found a common theme between the interview with Mascha Binder and the profiles of the Gregor Hutter/Luigi Mariani and the Daniel Pinschewer groups. Mascha explains that one of her first impressions after joining the DBM was of a dynamic and vibrant environment “which makes collaborations across people easier“. The team around Gregor and Luigi emphasizes that they “place a strong emphasis on collaboration, respect and communication“. In Daniel‘s group, teamwork and a willingness to integrate are described as top priorities, “regardless of job title or career stage”. The thorough acknowledgement of contributions in the Success story section of this Newsletter is also consistent with the image of an integrative department. To me, these notes, as much as they seem to be cherry-picked, represent a sign of a culture at the DBM that recognizes the importance of trustworthy interactions towards the development of excellent science and of excellent scientists. Thanks to all those who are contributing to this!

I hope you will enjoy reading about the development of our GMP facility (or now facilities) and browsing through the pictures of the main summer events at the DBM. Quiz of the month: Why is Radek holding a bottle of milk in his hand? If you were not at the symposium honoring his scientific contributions and are curious, ask people in his team… it will turn out to be another occasion for interaction across groups!

I look forward to discussing strategic actions for the further development of the DBM with the Research Group Leaders and Core Facility Heads at the upcoming Leadership Retreat on November 22, and to meeting all of you together with our Scientific Advisory Board for a stimulating Research Day on January 24.

Happy reading!

Ivan Martin
Director of the Department of Biomedicine

Mascha Binder interviewed by Nicolas Kramer

Thank you for your precious time. How was your start at the DBM and how did you manage to move your lab?

I had a great start. I feel like I have really come into an environment that is a vibrant place of significant research. I like this multitude of groups, this diversity of outstanding research. One gets the impression that everything comes from the bottom up and that people of quality represent the DBM. It seems that doing something truly remarkable is more important than fitting into a certain scheme. I think this is something very dynamic and it makes collaborating with people easier. I can give a very nice example, as we have many projects that are currently under review, and since we are in the process of relocating the lab, it is quite challenging to respond to all the reviewer's comments on various publications. However, we had some mouse experiments that needed to be done rather quickly, and there was somebody from the DBM who simply said, «Yeah, no worries, I'll do it for you!». And we had the results within a couple of weeks and it was simply great to see that people are very collaborative. It's really wonderful and great spirit within groups.

Did you manage to establish up your own lab in the meantime, and are people adapting to the transition? Such transitions often require a considerable amount of time and resources due to the relocation.

That's actually correct. I brought along some people, and I still have a few people in Halle who are taking care of the remaining of the studies we have there. I think we are all set up now, and we are already conducting experiments here. The group arrived a few months after me. I started in April, and they came in July and are settled in now.

Moving can be stressful and challenging and you have to adapt with many things, no?

Yes, but on the other hand, it is also a valuable experience for a younger scientist to observe the process of establishing a new lab. Moreover, you can contribute to the decisions about its setup, making it a significant opportunity for positive change rather than just a limitation.

Can you provide us with a brief overview of your research, how it fits into the DBM, your vision for the next five to ten years, and the specific niche or specialization you aim to establish?

My group is fascinated by the idea of combating cancer by using the patient's own immune system. We are eagerly trying to develop new strategies and to synergize treatments involving immune-modulating drugs as well as conventional chemotherapeutic agents for the best of our patients. Our aims encompass not only the palliative context, where we aim to push back the tumor and enhance quality of life, but also to really try to eliminate cancers at the point where they can still be cured.

We are currently performing clinical trials in solid tumors while also conducting biomarker studies to understand the subgroups that benefit most from one treatment approach or the other. On the other hand, I think it is crucial to really develop ways of overcoming therapy resistance, focusing on preventive targeting to ensure that immunotherapies are designed in a way that they can grant really long-term benefit. This doesn't necessarily have to entail a cure; it could also involve chronic control. Yet we need to be able to overcome the problem of emerging resistance, because this is why the patient ultimately succumbs to the disease. Our basic philosophy is that you need an ideal molecular target, which the cancer cell needs to survive, which is kind of an insurance against resistance. We are thus trying to develop targeted cellular treatments against vital structures within cancer cells. For instance, we are currently investigating stereotypic sequence motifs on the surface of lymphomas to overcome resistance by using CART cells that have been constructed to efficiently prevent the outgrowth of resistant subclones.

Mascha Binder interviewed by Nicolas Kramer

Very interesting. You mentioned therapy resistance as probably one of the major hurdles in cancer therapy and probably the biggest challenge also for your lab. How do you plan to overcome this challenge, especially because this is always a big collaborative effort and requires a lot of research?

As mentioned before, when dealing with lymphomas, it is essential to have to correct target and a precise targeting method, such as CARs. These cells possess the specificity of a blocking antibody and the potency of a T cell. With the ideal combination of the perfect target and the most effective targeting approach, I am confident we can achieve our objectives.

In the case of solid tumors, our insights come from experience, especially that for efficient treatment, drug combinations are crucial due to the genetic instability of cancer. And the first hit needs to be hard. I believe in the power of drug combinations, acknowledging that not every patient needs the same combination of drugs. Achieving the optimal solution for each patient involves not only tailoring drug combinations but also adjusting doses. This is crucial because the doses established previously were rooted in monotherapy, centered around the concept of the maximum tolerated dose, an approach that can't apply in the context of combined therapies. The great challenge for these immunotherapies and combinations lies in the scarcity of suitable patients worldwide. The sheer number of patients available for study is limited, making it impossible to explore every conceivable aspect and combination. What we really need is a fresh perspective. We truly must integrate artificial intelligence to simulate scenarios that we cannot test in actual patients.

What role does our institute and its proximity to the hospital play in overcoming those challenges?

I believe that at the DBM, you can find a lot of different research groups, each with their unique expertise and specific models. The hurdles engaging with these labs are quite low. It is truly a very collaborative environment, and I hope that we will be able to share models among the various groups. For instance, my team lacks extensive experience with animal models, and as I mentioned before, we received great help during the revision process. This signifies that not every group has to independently devise everything, as collaboration is possible. In return, we can also provide knowledge and techniques to benefit other groups. We have a lot of experience in immuno-sequencing of the adaptive immune system, including immune repertoire sequencing. This encompasses not only the associated wet lab work, which many groups now can now handle on their own, but also comprehensive pipelines that aid in analyzing this data and identifying the most relevant clones that you find with your sequencing approach. We would be delighted to share this knowledge with other groups that are working within the context of adaptive immunity, irrespective of whether their focus is on cancer, autoimmunity, organ rejection or other related areas.

What is the vision for your lab here in general and what part of your work as a group leader do you enjoy/appreciate the most?

What I really enjoy is that I am working at the intersection of clinical practice and research and that I can see things transition from one side to the other. As the head of medical oncology, my vision is to tie these two worlds more closely together.

I aim to give the younger doctors the opportunity to dive into the world of science while also granting scientists insights into the pressing clinical questions and requirements. I think this a very rewarding part of my job to see people being inspired by each other and knowing why they love their job.

With the exceptional team at the DBM and within the clinic, it will be possible to develop ideas that come from lab experiments into clinical trials. I am very sure that with the great team at the DBM and within the clinic, it will be possible to develop ideas that come from lab experiments into clinical trials. We are fortunate to have an array of highly experienced individuals, and I eagerly anticipate the evolution of this dynamic in the future.

Is there anything you dislike?

One of the most frustrating aspects is being covered with administrative tasks, often navigating unnecessary obstacles. There are many things that make our lives complicated that need not exist, and we all possess the ability to change things. However, we exist within a society where complexity seems to proliferate, which isn't always beneficial. This complexity tends to restrict the time available for deep problem-solving or effective resolution. I hold the hope that AI techniques might eventually relieve us from the burden of highly repetitive tasks that currently consume our time. I think we also need a kind of revolution within administrative spheres themselves This shift would enable us to experience a greater sense of what we accomplished, rather than merely conforming to regulations.

Can you also tell us something about our team? Who are the people that work for you?

Since we are working in this translational environment, we have all kinds of different people from different professions and backgrounds. Within our lab, we have people engaged in experimental work, including those with a background in life sciences, as well as technicians and bioinformaticians. Additionally, there are team members working on trial protocols, medical doctors, and clinician scientists who collaborate within this translational setting. Importantly, we were very fortunate to welcome a bioinformatician here in Basel with a background in artificial intelligence who will help us to bring our data pipelines to the text level. There are even people that moved with me already twice, first from Hamburg, where I practiced for 10 years, then to Halle and finally to Basel. I am really proud of having people around me that share belief in our lab's mission and that embody our vision.

Mascha Binder interviewed by Nicolas Kramer

You mentioned the clinical trials. How do you get the specimens from these trials to your lab?

For the trials that I lead as the lead clinical investigator it is very simple. At the point where I write the protocol, I already envision how I want to structure the translational program. We always try to integrate other groups in the planning because I firmly believe in maximizing the potential of these trials. And different groups have specific techniques and also research questions that may differ. Furthermore, we are also collaborating with trial organizations and multidisciplinary trials form other lead clinical investigators that integrate us because we are offering certain techniques that are needed in the context of these trialsThis synergy is invaluable because, given the size of our team, there is a limit to the number of investigator-initiated trials we can undertake independently. In total, we are actively engaged in numerous national and international trials, providing us access to a lot of biosamples.

Last but not least? If we could grant you a scientific "wish", apart from enough resources to perform your research, what would that be? The sky is the limit...

My wish is to become so deeply integrated into the DBM community that I can also actively participate in research beyond the cancer context. What I have experienced is that our techniques have the versatility to extend into various domains. For instance, during the Covid pandemic, we seamlessly transitioned from one day to the other into viral immunology, since the underlying techniques are basically the same. This experience expanded my horizons in a way that I found incredibly stimulating.

I have to admit that during the pandemic, I had to engage in extensive reading as these fields were quite distant from my previous work. But it was really rewarding to see that we were also able to contribute to other scientific areas. This is really something I am eager to continue. I'm also involved in several research consortia in Germany, focusing on immunity in various contexts beyond cancer. For me, it would be really great if my research group at the DBM could similarly explore diverse research avenues, not limited to cancer.

Nicolas Kramer (PhD Candidate, Bentires-Alj Lab) and Mascha Binder.

Mascha Binder was born in Würzburg, Germany. She embarked on her medical journey at the Universities of Freiburg and Rome with trainings in France, Australia, Togo and the US. Following her medical education, she completed her residency in Freiburg and Hamburg, where she was appointed Professor for Immunoncology. From 2018 to 2023, she served as the Head of Hematology and Oncology at Halle University Hospital. This year, she joined the University Hospital as Head of Medical Oncology and took on the role of a research group leader in the Department of Biomedicine. Mascha Binder's research is rooted in the exploration of lymphocytes within the realms of cancer, infection, and autoimmunity. Beyond her professional pursuits, she finds joy in the art of traveling.

Departement Biomedizin Basel

DBM Success Story

Background and Research question

Over the past several years stem-like CD8 T cells (CD8SL) have moved center stage in chronic infection and cancer research. This is because CD8SL represent the cellular substrate for the proliferative burst upon PD1 checkpoint blockade therapy. CD8SL are defined by and depend on the expression of the transcription factor T cell factor-1 (Tcf-1). However, the signals preserving Tcf-1 expression and stemness of CD8SL have remained unknown.

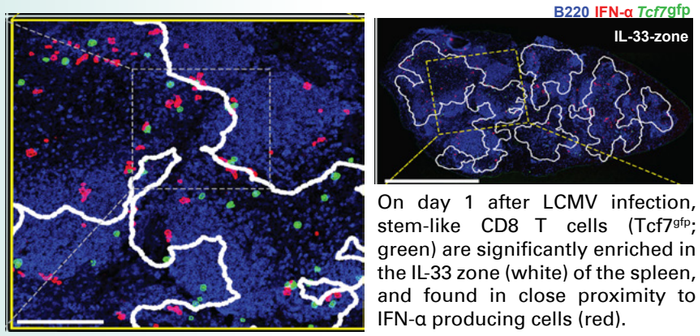
In our manuscript, we close this important knowledge gap by demonstrating that the alarmin Interleukin-33 (IL-33) promotes the expansion and preserves the stemness of CD8SL in a cell-intrinsic manner. We were able to demonstrate that IL-33 signaling broadly augments chromatin accessibility in CD8SL and that IL-33 exerts its stemness-promoting function by counter-acting the differentiation-promoting effects of type I interferon. Consequently, it appears that the stemness-promoting cytokine IL-33, a «damage-associated molecular pattern», balances the end differentiation-promoting effects of the prototypic antiviral «danger» response, i.e., of type I interferon.

Taken together, our findings establish IL-33 as a key factor to promote CD8 T cell stemness, thus providing a fundamentally new approach to improve T cell-based immunotherapies for chronic infection and cancer.

Study method

The role of IL-33 was investigated in a mouse model of chronic lymphocytic choriomeningitis (LCMV) infection. Antiviral CD8 T- cell responses were characterized either in IL-33-/- mice or mice lacking the IL-33 receptor (ST2), and compared to wild-type (WT) mice.

To further explore the intrinsic role of ST2 in CD8T-cells, we established a co-transfer using LCMV GP specific T-cell receptor transgenic CD8 T cells (P14) that were either deficient or sufficient in ST2-expression. Since stem-like CD8 T cells are defined by the expression of Tcf-1, we crossed P14 WT and P14 ST2-/- mice with Tcf-1 reporter mice. This enabled us to trace and characterize stem-like CD8 T cells after transfer in recipient mice by both multicolor flow cytometry and histology.



On day 1 after LCMV infection, stem-like CD8 T cells ($Tcf7^{gfp}$; green) are significantly enriched in the IL-33 zone (white) of the spleen, and found in close proximity to IFN-α producing cells (red).

To determine transcriptomic and epigenetic differences between WT and ST2-/- CD8 T cells, we performed RNA-seq as well as ATAC-seq analyses. Furthermore, we were able to study the direct impact of IL-33 on Tcf7 (the gene encoding Tcf-1) transcription by activating CD8 T cells in vitro and stimulating them with exogenous IL-33.

Relevance for cancer patients and importance of the study

The discovery of IL-33 as a factor that promotes T cell stemness merits further translation exploitation of this cytokine both in tumor immunotherapy the treatment of chronic infectious diseases. In the context of ex vivo T cell engineering , such as the development of chimeric antigen receptor (CAR) T cells for cancer or infectious diseases therapies, IL-33 could be of use for improving the stemness and potency of these T cells in patients.

Moreover, given the importance of ST2 signaling for stem-like CD8 T generation, the clinical application of IL-33 blockade could be of major relevance for example in the context of T-cell driven immunopathological conditions such as graft-versus-host disease.

Outlook

Our study primarily focused on the early phase of the antiviral CD8 T cell response. However, IL-33 receptor expression persisted in a subset of CD8 T cells for at least 2 weeks into chronic infection, indicating that there might be potential IL-33 effects in later phases of the response which warrants further investigation. To explore this, we generated an inducible IL-33 receptor knock-out mouse model. This model allows us to study how the selective loss of IL-33 sensing in CD8 T cells at any stage of infection influences their fate. In addition to its role in stem-like CD8 T cells, Tcf-1 is well described as an important transcription factor for CD4 T follicular helper differentiation (Tfh). Future studies will address how IL-33 impacts Tfh development.

Overall, our goal is to establish IL-33 as therapeutic target which can be modulated to either enhance or dampen the CD8 T cell response.

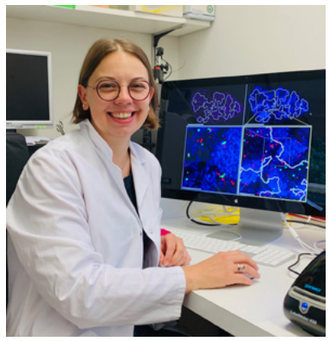
Contributors

Special acknowledgment is extended to Sandra Kallert (former lab member of the Pinschewer lab), who initiated the study, and to Tobias Brunner (Charite-Berlin; group Professor Max Löhning), who contributed key mechanistic observations from T cell cultures.
Besides the many years of work invested by many members of our lab, the groups of Max Löhning (Charité Berlin), Sanjiv Luther (University of Lausanne) and Doron Merkler (University of Geneva), but also several others, which cannot all be listed here, made essential contributions. Annual in-person meetings were held with the aforementioned groups and have been extremely stimulatory.

Moreover, we are thankful for the support of the core facilities at the DBM, the animal facilities in both Basel and Zurich, and the Pharmacenter Basel. Their exceptional support and services were instrumental in making this publication possible.

Original Publication

Pinschewer Lab



Anna-Friederike Marx

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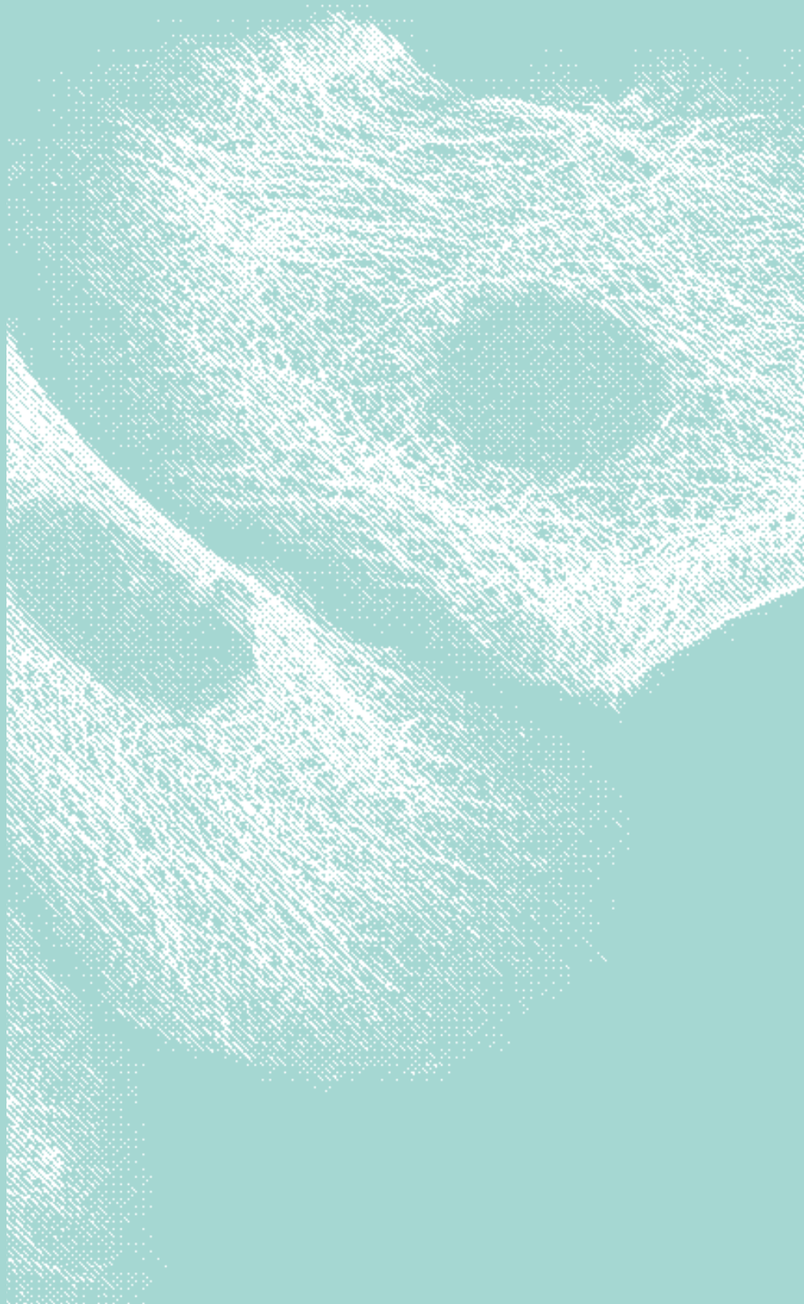


Research Group at a Glance
Publications

Research Group at a Glance
Brain Tumor Immunotherapy and Biology (Hutter/Mariani Lab)

A Quick Overview of Our Research

Glioblastoma (GBM) is amongst the most devastating cancers, exhibiting resistance to all currently available conventional therapies including surgery, radiation, and chemotherapy. This underscores the urgent need for designing new approaches and innovative therapies. GBM are classified into distinct histopathological and molecular entities. Within the tumor mass, neoplastic cells are associated with non-neoplastic cells like immune cells (primarily macrophages, microglia, and lymphocytes), which participate significantly in tumor progression.

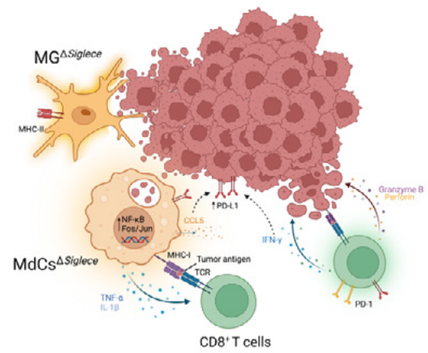
Our basic research focuses on the role of the immune tumor microenvironment (iTME), with an emphasis on myeloid cells and their role in tumorigenesis and immune evasion. We aim to identify new molecules that enhance microglial phagocytic activity and explore their potential therapeutic application. We work towards identifying biomarkers for tumor progression and recurrence in glioblastoma, as well as identifying distinct pathway activities/patterns that distinguish glioma subclasses from one another. This research is performed using our tumor tissue biobank, patient-derived models, and murine models. Relevant findings are expected to improve diagnosis and to open future preclinical studies.

GBM immunotherapy has shown promising results in recent years, although most trial-tested therapies have proven ineffective when used alone. This is mainly due to the broad heterogeneity that exists in GBM, alongside the oversight of considering the complexities of the iTME. Our current preclinical/translational studies on GBM immunotherapy use chimeric antigen receptor (CAR) T cells and CAR macrophages targeted against tumor-associated markers and the iTME. The anti-tumor efficacy of these therapies is being evaluated through in vitro, in vivo, and ex vivo studies using animal models and patient-derived materials. The results of our studies are being applied to the clinical setting for patients diagnosed with recurrent GBM. We anticipate that our early phase clinical trials will result in significant improvement in therapy outcomes for these patients.

Highlights

Targeting the Siglec-sialic acid axis promotes antitumor immune responses in preclinical models of glioblastoma.
P Schmassmann, J Roux, A Buck, N Tatari, S Hogan, J Wang, N Rodrigues Mantuano, R Wieboldt, S Lee, B Snijder, D Kaymak, TA Martins, MF Ritz, T Shekarian, M McDaid, M Weller, T Weiss, H Läubli, G Hutter.
Sci Transl Med. 2023 Jul 19;15(705):eadf5302.
doi: 10.1126/scitranslmed.adf5302. Epub 2023 Jul 19. PMID: 37467314

We found that blocking Siglec 9/E, one of the sialic acid-binding immunoglobulin-like lectins expressed by tumor cells, which triggers tolerogenic programs in immune cells and contributes to immune evasion, promotes glioma-associated microglia to phagocytize GBM cells and improves cross-presentation and subsequent T cell activation. Furthermore, we demonstrated the translational potential of Siglec-9/E blockade-induced immune activation in patient-derived explant cultures, paving the way to local therapy regimens.



Severe Neuro-COVID is associated with peripheral immune signatures, autoimmunity and neurodegeneration: a prospective cross-sectional study.
MM Etter, TA Martins, L Kulsvehagen, E Pössnecker, W Duchemin, S Hogan, G Sanabria-Diaz, J Müller, A Chiappini, J Rychen, N Eberhard, R Guzman, L Mariani, L Melie-Garcia, E Keller, I Jelcic, H Pargger, M Siegemund, J Kuhle, J Oechtering, C Eich, A Tzankov, MS Matter, S Uzun, Ö Yaldizli, JM Lieb, MN Psychogios, K Leuzinger, HH Hirsch, C Granziera, AK Pröbstel, G Hutter.
Nat Commun. 2022 Nov 9;13(1):6777. doi: 10.1038/s41467-022-34068-0.
PMID: 36351919

During the pandemic, our team performed a cross-sectional study to identify factors associated with neurological symptoms in hospitalized COVID patients. We also included a long COVID follow and found factors in the blood and the CSF that predispose for the development of long COVID.

Research Group at a Glance
Brain Tumor Immunotherapy and Biology (Hutter/Mariani Lab)

Immunotherapy of glioblastoma explants induces interferon-γ responses and spatial immune cell rearrangements in tumor center, but not periphery.

T Shekarian, CP Zinner, EM Bartoszek, W Duchemin, AT Wachnowicz, S Hogan, MM Etter, J Flammer, C Paganetti, TA Martins, P Schmassmann, S Zanganeh, F Le Goff, MG Muraro, MF Ritz, D Phillips, SS Bhate, GL Barlow, GP Nolan, CM Schürch, G Hutter.

Sci Adv. 2022 Jul;8(26):eabn9440. doi: 10.1126/sciadv.abn9440.
Epub 2022 Jul 1. PMID: 35776791

Using perfusion bioreactors containing GBM explants from both the tumor center and periphery, we were able to demonstrate that ex vivo immunotherapy of GBM explants enables an active antitumoral immune response within the tumor center. This patient-tailored, ex vivo drug response platform provides a framework for multidimensional personalized assessment of tumor response to immunotherapy that we will develop in the future.

Research Support 2018-2023:

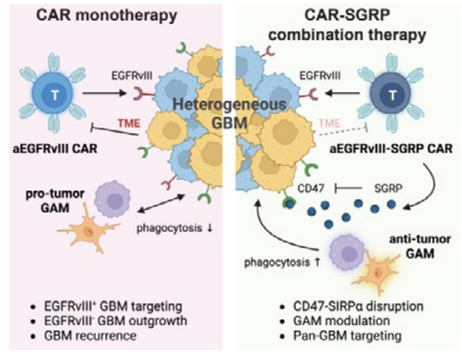
2023 Swiss Cancer League Research grant (CHF 375k).
2023 ProPatient Foundation (CHF 30k)
2023 Eurostars grant together with CLEIO consortium (CHF 146k to Hutter lab)
2022 Krebsliga beider Basel (CHF 87k)
2022 Swiss National Science Foundation Professorship Award Extension (CHF 800k)
2020 Consortium grant Botnar Foundation "COVID-19 health challenges" (Departments of Biomedicine, Pathology and Neurosurgery, CHF 1'300k)
2020 Consortium grant "ex vivo organoid cultures" (Department of Surgery, University Hospital Basel, 2019 (CHF 600k))
2019 Swiss Life grant (Swiss Life Jubilãumsstiftung), (CHF 20k)
2019 Brain Tumor Charity Research grant "Expanding Theories" (CHF 142k)
2019 Swiss Cancer League Research grant (CHF 323k)
2018 Swiss National Science Foundation Professorship Award (CHF 1'580k)

Personal funding: SNF MD PhD grants to Philip Schmassmann and Deniz Kaymak University of Basel Nachwuchsförderungsgrants to Tala Shekarian and Nazanin Tatari

Awards: Annemarie Karrasch Research Prize to Gregor Hutter (2019), Alumni Preis Medizin to Gregor Hutter (2020). EANS research prize to Manina Etter (2023)

Current Projects

Preclinical and first-in-human trials with CAR T cells that reprogram the microenvironment.
A major challenge for chimeric antigen receptor (CAR) T cell therapy against GBM is the immunosuppressive tumor microenvironment (iTME), which mainly consists of protumoral glioma-associated microglia and macrophages (GAMs). We generated tumor-targeting CAR T cells constitutively that secrete a SIRPγ-related protein (SGRP), which effectively blocks the «don't eat me» signal mediatedn by CD47 on tumor cells. Treatment of tumor-bearing mice with these CAR T cells led to complete eradication of GBM, highlighting the potential therapeutic value of our approach, which will be validated in future clinical trials. The findings are currently translated towards a first-in-human clinical trial in recurrent GBM patients (manuscript in preparation), and efforts are ongoing to generate CAR macrophages/microglia with similar capabilities.



Decipher targetable vulnerabilities of the iTME in recurrent GBM.
We studied patient-matched treatment-naïve, primary and recurrent GBM tumor tissues and characterized longitudinal tumor immune microenvironment (iTME) changes. We found transcriptomic and proteomic differences between patient-paired primary and recurrent GBM tumors. Notably, we observed elevated expression of Fcγ receptor genes on activated microglia at tumor recurrence associated with shorter time to relapse. This study highlights the plasticity of the myeloid compartment throughout disease progression, and sheds light on the unfavorable role of chronically activated microglia in tumor recurrence (manuscript under review).

Impact of myeloid cell modulation on GBM progression and adaptive immunity.
Since the response to T cell-targeting immunotherapies depends on myeloid cells and especially microglia at the tumor site, we are investigating this compartment and its individual contribution towards or against tumor progression by genetically depleting and/or activating the tissue-resident microglia or other phagocyte populations in orthotopically implemented, syngeneic GBM mouse models. We are employing multidimensional readouts such as scRNAseq and spectral flow cytometry accompanied by survival studies to decipher myeloid factors that could be later targeted for optimized GBM treatment.

Research Group at a Glance
Brain Tumor Immunotherapy and Biology (Hutter/Mariani Lab)

Our vision for the future: personalized, combinatorial, efficacious treatment for GBM patients

Given the substantial heterogeneity within GBM and the resulting variable response to standard care, our efforts are directed towards designing and generating personalized, targeted therapies. These aim to target tumors from multiple different angles, addressing both tumor cells and the iTME to curb GBM progression. To achieve this, we are using immunotherapeutic modalities (engineered CAR T cells, CAR macrophages) and personalized medicine on patient-derived materials. Ultimately, we believe that a combinatorial therapeutic approach will prove the most efficacious against GBM. The design of new therapies against GBM also requires increased knowledge on tumor anatomy and physiology, which we are addressing using well-established GBM markers. We are further exploring the iTME and tumor recurrence to design more efficacious therapies.

Team Spirit – Introduction of Us

Our lab includes members of a multidisciplinary team of different backgrounds, nationalities and ages, all working together towards our shared vision. The team consists of neurosurgeon-scientists, senior scientists, post-doctoral fellows, PhD and MD PhD students, lab technicians, master students and medical students. We collaborate closely with neurosurgeons at the neurosurgery clinic, the innovation focus cellular therapies, and other research groups at the DBM as well as a number of national and international research groups. In addition, our tight collaboration with the colleagues from neuropathology gives us access to histopathologic and genetic annotation of tumor biopsies, which are vital for our research. Our lab places a strong emphasis on collaboration, respect and communication. If we are not all working in the lab, you might find us on a team-building or scientific lab retreat, in the clinics, or having lunch together in the cafeteria or in town! Let us know whenever you have an idea to collaborate!

We are

Gregor Hutter	Research Group Leader
Luigi Mariani	Research Group Leader
Marie-Françoise Ritz	Senior Scientist
Jean-Louis Boulay	Senior Scientist
Alexandra Gerber	Lab Technician
Marta McDaid	Lab Technician
Viviane Tschan	Lab Technician
Nazanin Tatari	Post-doctoral Fellow
Sabrina Hogan	Post-doctoral Fellow
Deniz Kaymak	MD-PhD Student
Tomàs Martins	PhD Student
Timo Schenker	Neurosurgery Resident, Future MD PhD Student
Manina Etter	Neurosurgery Resident, Future MD PhD Student
Hayget Mohamed	Intern
Ines Abel	Master Student
Fiona Gerster	Master Student

Alumni at www.hutterlab.ch

From left to right:
Sabrina Hogan, Gregor Hutter, Tomas Martins, Timo Schenker, Jean-Louis Boulay, Deniz Kaymak, Philip Schmassmann (former MD-PhD student), Marta McDaid, Alexandra Gerber, Marie-Françoise Ritz.

Our lab during the team-building retreat at Fronalpstock

Meeting for a run along the Rhine during the COVID pandemic

Research Group at a Glance
Experimental Virology (Pinschewer Lab)

A Quick Overview of Our Research

Our research interests are centered around a better understanding of immunity and pathogenesis in persistent microbial infections, in conjunction with our ambitions to modulate them by vaccine research. The interplay between persisting microbes, both viruses and bacteria, and their mammalian hosts are studied in advanced mouse models. Our primary emphasis is on the host immune defense, particularly B cell and antibody responses, vaccines and alarmins. In broad terms, we investigate the following aspects:

1. B cell defense in persistent viral infection
2. B cell responses in antimycobacterial immunity
3. subversion of B cell responses in persistent microbial infection
4. the role of alarmins in T cell immunity and
5. virally and bacterially vectored vaccines.

Our research portfolio encompasses both adaptive and innate immune defense, with persistent microbial infection as a common theme. We combine cutting-edge mouse infection models, high-end cellular immunological techniques, genomics and a wide array of molecular analytics with molecular virological techniques («reverse genetics») for the engineering of infectious viruses. While our work has a fundamental focus, the questions we address have relevance to major global health challenges. In the mid- to long-term, our research holds promise for clinical translation, particularly in the context of vaccination and treatment of persistent microbial diseases, such as chronic viral hepatitis and tuberculosis.

Highlights, Breakthroughs and Current Projects

Our current and recent projects comprise, but are not limited to, the following topics:

- The alarmin interleukin-33 promotes the expansion and preserves the stemness of Tcf1-expressing antiviral CD8 T cells in chronic viral infection (awarded the DBM research Prize 2023)
- B cell and T cell tolerance in congenital viral infection
- Mechanisms subverting antiviral B cell defense in chronic microbial infection
- Differentiation stages of antiviral B cells and their respective developmental fates in chronic viral infection
- B cell affinity maturation in chronic viral infection
- Memory B cells as a novel correlate of antiviral protecti
- Transcriptional regulation of antiviral B cells in chronic microbial infection
- B cell and antibody defense in chronic mycobacterial infection and vaccination
- Modulation of immune responses by adeno-associated viral vector-based gene delivery
- Synergistic effects of B cells and CD8 T cells to the control and resolution of chronic viral infection
- Engineered arenaviruses as vaccine delivery platform for prophylactic and therapeutic vaccination
- Molecular features of viral vaccine vectors determining potent T cell immunity

Our Vision for the Future

Through our research we aim to (continue) making significant contributions to basic concepts of pathogen-host interactions in chronic microbial infection and how vaccination can modulate these interactions. In doing so, we intend to train a new generation of scientists disposing not only of the necessary skill set but also the mindset required to tackle unmet challenges in global health. These scientists will have a broad view on infectious diseases and related disciplines such as cancer immunotherapy, for which findings from infection research frequently have direct relevance, and vice versa.

Research Group at a Glance
Experimental Virology (Pinschewer Lab)

Team Spirit – Introduction of Us

The ambition of the Experimental Virology group is to assemble a team of passionate researchers driven by their scientific curiosity, to team them up with the best possible support functions, infrastructure and substantial funding to effectively push the boundaries of current knowledge. Research activities in the Experimental Virology lab are highly integrated but encompass a variety of approaches, including molecular virology, cellular immunology, virus-host interactions, bacterium-host interactions, and vaccinology. This breadth requires not only that every team member individually has a large set of specific skills but also they actively contribute by assisting and teaching others with techniques they master best, irrespective of their job title or career stage. Sophisticated mouse experimentation typically also renders it impossible for any researcher to conduct all steps of an experiment on his or her own, rendering team work a necessity. Fit with the team and a willingness to integrate into it are therefore important criteria in the recruitment process of new lab members. To ensure the smooth functioning of daily operations, enable rapid progress in our research, and minimize potential friction and frustration, general household organization tasks such as procurement, instrument servicing, mouse management, and more are discussed in regular meetings involving everyone concerned. Weekly progress reports and journal clubs support the coherence of the group as do our annual Fondue nights and our lab summer parties.

We are

Daniel Pinschewer	Research Group Leader
Tiago Abreu-Mota	Postdoc
Weldy Bonilla Pinschewer	Research Associate
Sonia Calzascia	Administrative Assistant
Matias Ciancaglini	PhD Student
Karen Tintignac	Technical Assistant
Mirela Dimitrova	Postdoc
Davide Finozzi	PhD Student
Jonas Fixemer	MD-PhD Student
Min Lu	Technical Assistant
Anna Lena Kastner	PhD Student
Nicole Kessler	Administrative Assistant
Katrin Martin	Technical Assistant
Anna-Friederike Marx	Postdoc
Cemre Seven	PhD Student
Karsten Stauffer	Animal Technician

The team enjoys the lab party

Core Facility at a Glance
GMP Facility for Advanced Therapies (GMP-FAT)

A Quick Overview of Our Core Facility

The GMP Facility for Advanced Therapies (GMP-FAT) holds a Swissmedic license for the manufacture of novel Advanced Therapy Medicinal Products (ATMPs) to be used in clinical trials for autologous and allogenic cell, tissue and gene therapy approaches. Good Manufacturing Practice (GMP) is a system designed to guarantee the consistent quality of medicinal products intended for human use, produced in accordance with the guidelines and relevant quality standards.

The GMP-FAT offers two qualified manufacturing sites to the participating user groups (DBM and USB), with one situated at the DBM and the other at Labormedizin USB. These sites are united by a GMP-compliant Pharmaceutical Quality System (PQS), which is managed by the Quality Assurance (QA)-Team. This QA Team comprises six positions of the core facility staff, including a Facility Manager, QC-support, QA, Document manager and the Qualified Person (QP), who holds the authority to approve the release of the finished products. Additional GMP-relevant functions need to be provided by the manufacturing groups, including at minimum a Quality Control manager (QC), a Manufacturing Manager and operators performing the manufacturing of the product. Training of all staff (both core staff and users) is organized by the GMP-FAT.

The GMP-FAT also supports the transition of new products into GMP compliance and clinical trials. This process is usually started already during the research phase to ensure smooth transition of the processes to regulatory compliant manufacturing and clinical use. Guidance for clinical trial dossiers and support for scientific advice meetings with authorities are also given by the facility staff.

Highlights, Breakthroughs and Current Projects

To exploit synergies, the two existing GMP facilities at the DBM and Labormedizin USB were merged in 2021 to create the GMP-FAT. The new GMP-FAT is ideally suited to support the regulatory compliance and manufacturing of a diverse array of investigational ATMPs. Currently, tissue engineered cartilage grafts are being manufactured for two international multicenter phase II trials for cartilage defects and degenerative diseases. Moreover, tumor-infiltrating lymphocytes (TILs) for cancer patients are produced in the facility for a phase I/II trial at the University Hospital Basel. Lastly, virus-specific T cells for the treatment of patients suffering from post-transplantation viral infections are manufactured at the facility for a phase I/II trial at the University Hospital Basel.

Further projects currently under validation include the development of a platform for the production of in-house CAR-T cells, specific to different tumors and expanded virus-specific T cells, more potent against EBV infections. In the more distant future, projects for tissue engineered bone will also be brought into the GMP facility. The GMP-Facility also supports the two Innovation Foci for Cell Therapy and for Regenerative Surgery.

What is very special and unique about the GMP Facility for Advanced Therapies

The GMP Facility of Advanced Therapies is one of the very few existing GMP facilities in an academic setting in Switzerland. This fact provides a unique opportunity for research groups at the DBM and USB, as the lack of regulatory knowledge and scarcity of suitable facilities is often an insurmountable hurdle in translating basic research into clinical applications. The extensive knowledge of the QA-Team in GMP rules, quality assurance, regulatory affairs and clinical trials as well as the training provided, enables translation towards the clinic also for beginners in GMP-compliant manufacturing. Moreover, the GMP-FAT offers its services free of charge, with users solely responsible for covering project-specific costs with consumables and testing, as well as providing the necessary personnel.

Equipment

We offer two fully equipped and qualified GMP manufacturing laboratories (GMP grades A to D), complete with pharmaceutical gas supply systems, computerized monitoring systems for measurements of environmental physical parameters, and an array of devices (incubators, fridges, freezers, biosafety cabinets, cell processing systems, bioreactors, etc.) which partly are also connected to the alarm unit of the USB for enhanced security.

We are

Anke Wixmerten	Head of Core Facility, Qualified Person
Thibaut Klein	Deputy Head, Deputy Qualified Person, Facility Manager
Sylvie Miot	Quality Assurance
Karin Engler	Quality Assurance, Document Manager
Hendrik Schatowitz	Quality Assurance
Werner Krenger	Quality Assurance

Publications

All publications we have received from the period between May and August 2023. The publications are listed by date.

Impact of Clonal Architecture on Clinical Course and Prognosis in Patients with Myeloproliferative Neoplasms.

D Luque Paz, M S Bader, R Nienhold, S Rai, T A Fonseca, J Stetka, H Hao-Shen, G Mild-Schneider, J R Passweg, R C Skoda.

HemaSphere 7(5):p e885, May 2023.
doi: 10.1097/HS9.0000000000000885.

Generation of endogenously tagged E-cadherin cells using gene editing via non-homologous end joining.

N Rimmer, CY Liang, R Coelho, MN Lopez, F Jacob.

STAR Protoc. 2023 May 12;4(2):102305.
doi: 10.1016/j.xpro.2023.102305. PMID: 37178110.

HLA antibody affinity determination: From HLA-specific monoclonal antibodies to donor HLA specific antibodies (DSA) in patient serum.

MN Hug, S Keller, T Marty, D Gygax, D Meinel, P Spies, J Handschin, M Kleiser, N Vazquez, J Linnik, R Buchli, F Claas, S Heidt, CSM Kramer, S Bezstarosti, JH Lee, S Schaub, G Hönger.

HLA. 2023 May 16.
doi: 10.1111/tan.15047. PMID: 37191252.

Dual TLR9 and PD-L1 targeting unleashes dendritic cells to induce durable antitumor immunity.

L Fernandez-Rodriguez, C Cianciaruso. R Bill, MP Trefny, R Klar, N Kirchhammer, M Buchi, J Festag, S Michel, R Kohler, E Jones, A Maaske, A Kashyap, F Jaschinski, K Dixon, M Pittet and A Zippelius.

J Immunother Cancer. 2023 May;11(5):e006714.
doi: 10.1136/jitc-2023-006714.

Randomized Trial to Assess the Clinical Utility of Renal Allograft Monitoring by Urine CXCL10 Chemokine.

P Hirt-Minkowski, J Handschin, S Stampf, H Hopfer, T Menter, L Senn, G Hönger, C Wehmeier, P Amico, J Steiger, M Koller, M Dickenmann, S Schaub.

J Am Soc Nephrol. 2023 Aug 1;34(8):1456-1469.
doi: 10.1681 ASN.0000000000000160. Epub 2023 May 25. PMID: 37228005.

First-line treatment of unresectable or metastatic HER2 positive esophagogastric adenocarcinoma: liquid biomarker analysis of the phase 2 INTEGA trial.

L Paschold, A Stein, BThiele, JTintelnot, S S Henkes, C Coith, C Schultheiß, K Pantel, S Riethdorf, M Binder.

Journal for ImmunoTherapy of Cancer 2023;11:e006678.
doi: 10.1136/jitc-2023-006678

A method for polyclonal antigen-specific T cell-targeted genome editing (TarGET) for adoptive cell transfer applications.

D Palianina, R B Di Roberto, R Castellanos-Rueda, F Schlatter, S T Reddy, N Khanna.

Molecular Therapy - Methods & Clinical Development, Volume 30, 2023, Pages 147-160, ISSN 2329-0501, https://doi.org/10.1016/j.omtm.2023.06.007.

Nicotinamide N-methyltransferase sustains a core epigenetic program that promotes metastatic colonization in breast cancer.

J Pinto Couto, M Vulin, C Jehanno, MM Coissieux, B Hamelin, A Schmidt, R Ivanek, A Sethi, K Brautigam, A L Frei, C Hager, M Manivannan, J Gomez-Miragaya, M MS Obradović, Z Varga, V H Koelzer, K D Mertz, M Bentires-Al.

EMBO J. 2023 Jul 3;42(13):e112559.
doi: 10.15252/embj.2022112559. Epub 2023 Jun 1.

Departement Biomedizin Basel

Publications

Diesel Exhaust Particle (DEP)-induced glucose intolerance is driven by an intestinal innate immune response and NLRP3 activation in mice.

A J T Bosch, T V Rohm, S AlAsfoor, A J Y L, Z Baumann, N Parayil, F Noreen, J Roux, D T Meier, C Cavelti-Weder.

Part Fibre Toxicol 20, 25 (2023).
https://doi.org/10.1186/s12989-023-00536-8.

Upscaled Skeletal Muscle Engineered Tissue with In Vivo Vascularization and Innervation Potential.

V Borisov, L Sole, G Reid, G Milan, G Hutter, M Grapow, F S Eckstein, G Isu, A Marsano.

Bioengineering 2023, 10(7), 800;
https://doi.org/10.3390/bioengineering10070800.

ER-mitochondria contacts and cholesterol metabolism are disrupted by disease-associated tau protein.

L Szabo, N Cummins, P Paganetti, A Odermatt, A Papassotiropoulos, C Karch, J Götz, A Eckert, A Grimm.

EMBO Rep. 2023 Aug 3;24(8):e57499.
doi: 10.15252/embr.202357499. Epub 2023 Jul 4.PMID: 37401859.

Increased TIM-3 and GAL-9 serum levels in patients with advanced systemic mastocytosis.

M Konantz, M Williams, T Merkel, A Reiss, S Dirnhofer, S C Meyer, P Valent, T I George, A Tzankov, K Hartmann.

Journal of Allergy and Clinical Immunology, 2023, ISSN 0091-6749,
https://doi.org/10.1016/j.jaci.2023.07.001.

Targeting the Siglec–sialic acid axis promotes antitumor immune responses in preclinical models of glioblastoma.

P Schmassmann, J Roux, A Buck, N Tatari, S Hogan, J Wang, N Rodrigues Mantuano, R Wieboldt, S Lee, B Snijder, D Kaymak, T A Martins, M.-F. Ritz, T Shekarian, M McDaid, M Weller, T Weiss, H Läubli, G Hutter.

Sci Transl Med. 2023 Jul 19;15(705):eadf5302.
doi: 10.1126/scitranslmed.adf5302. Epub 2023 Jul 19.

Serum neurofilament light chain reference database for individual application in paediatric care: a retrospective modelling and validation study.

A Abdelhak, F Petermeier, P Benkert, S Schädelin, J Oechtering, A M Maceski, M Kabesch, T Geis, O Laub, G Leipold, C Gobbi, C Zecca, A Green, H Tumani, E Willemse, H Wiendl, C Granziera, L Kappos, D Leppert, E Waubant, S Wellmann, J Kuhle.

Lancet Neurol. 2023 Sep;22(9):826-833.
doi: 10.1016/S1474-4422(23)00210-7. Epub 2023 Jul 28.

Immunoglobulin A Antibodies Against Myelin Oligodendrocyte Glycoprotein in a Subgroup of Patients With Central Nervous System Demyelination.

AB Ayroza Galvão Ribeiro Gomes, L Kulsvehagen, P Lipps, A Cagol, N Cerdá-Fuertes, T Neziraj, J Flammer, J Lerner, AC Lecourt, N de Oliveira S Siebenborn, R Cortese, S Schaedelin, V Andreoli Schoeps, A de Moura Brasil Matos, N Trombini Mendes, C Dos Reis Pereira, ML Ribeiro Monteiro, SL Dos Apóstolos-Pereira, P Schindler, C Chien, C Schwake, R Schneider, T Pakeerathan, O Aktas, U Fischer, M Mehling, T Derfuss, L Kappos, I Ayzenberg, M Ringelstein, F Paul, D Callegaro, J Kuhle, A Papadopoulou, C Granziera, AK Pröbstel.

JAMA Neurol. 2023 Aug 7:e232523.
doi: 10.1001/jamaneurol.2023.2523. PMID: 37548987.

An International Society for Cell and Gene Therapy Mesenchymal Stromal Cells (MSC) Committee perspectives on International Standards Organization/Technical Committee 276 Biobanking Standards for bone marrow-MSCs and umbilical cord tissue-derived MSCs for research purposes.

S Viswanathan, K Le Blanc, R Ciccocioppo, G Dagher, AJ Filiano, J Galipeau, M Krampera, L Krieger, MM Lalu, J Nolta, VM Rodriguez Pardo, Y Shi, K Tarte, DJ Weiss, I Martin.

Cytotherapy 2023 Aug; 25(8):803-807.
doi: 10.1016/j.jcyt.2023.04.005.

Review

Failure of cartilage regeneration: emerging hypotheses and related therapeutic strategies.

S Muthu, JV Korpershoek, EJ Novais, GF Tawy, AP Hollander, I Martin

Nat Rev Rheumatol. 2023 July 19;19(7):403-416 (2023).
doi: 10.1038/s41584-023-00979-5.

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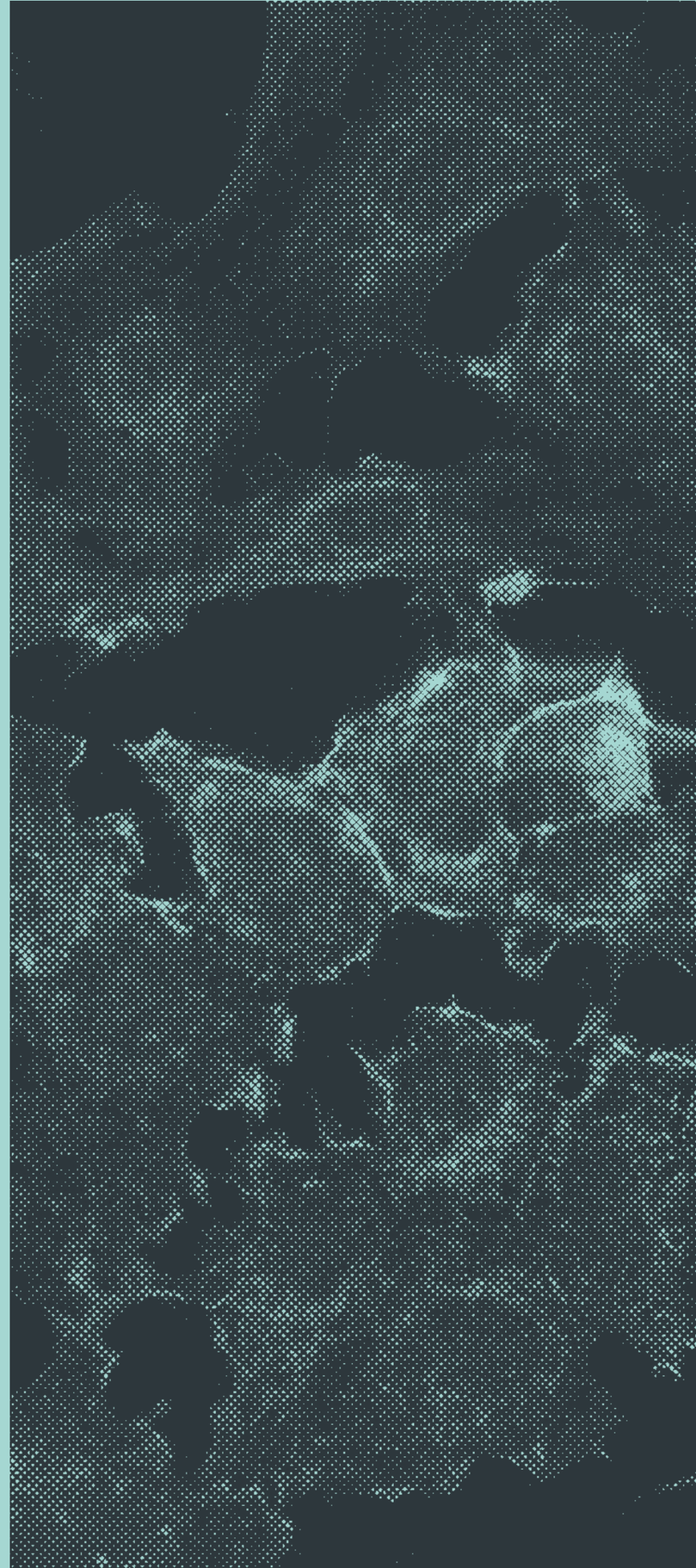


Congratulations
Events

The DBM congratulates

Awards since May 2023

We extend our heartfelt congratulations to the following DBM members for their remarkable awards and achievements since May 2023.

Simon Garaudé and co-authors for their remarkable poster award at the 26th ASGCT Annual Meeting in Los Angeles.

Lena Siewert received the Swiss Young Immunologist Society Award for the Best Poster at the European Mucosal Immunology Group Meeting 2023.

Esma B. Tankus on winning the Silver Award for her oral presentation at the 7th E.S.T.R.O.T conference in Frankfurt.

Maurizio Cortada received the 1st Poster Award at the Annual Spring Meeting of the Swiss ENT society in Zurich and the 1st Prize at the Association for Research in Otolaryngology (ARO) Photo Competition in Orlando.

Ana Beatriz on winning the Best Oral Presentation Award at the BCTRIMS 2023 Annual Meeting.

Anne Geng was the 1st Poster Prize Winner at the “Falk Symposium - Experimental Hepatology Days“ meeting in Zurich.

Anne-Katrin Pröbstel on winning the Swiss Immunology Early Career Award 2023 in Bern.

Lucas Boeck on being awarded the Cloëtta Medical Research Position.

SNF Project Funding

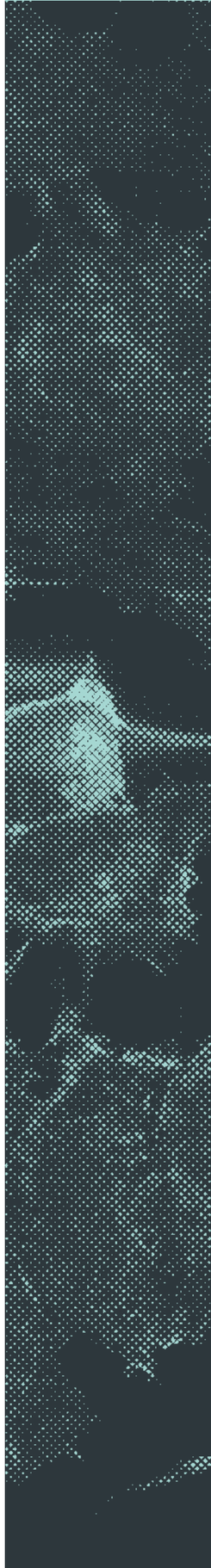
We congratulate the new SNF-grant recipients:
Gregor Hutter and **Ivan Martin**.

Other Major Funding Achievements

Felix Bosch / Goldschmidt-Jacobson Foundation Doctoral Fellowship

Tradite Neziraj / Early Investigator Research Award (US Department of Defense Multiple Sclerosis Research Program)

Anne-Katrin Pröbstel / Swiss Multiple Sclerosis Society Project Grant 2023



The DBM congratulates

PHD Defenses since May 2023

06.06.2023	Medical-Biological Research	**Rebekah Steiner** TLR9-ligation in naive B cells activates NF-κB and PKM2 tetramer shift for glycolytic reprogramming and TNF expression
16.06.2023	Medical-Biological Research	**Marc Usart** Exploring Strategies to Target JAK2-mutant Hematopoietic Stem Cells in Myeloproliferative Neoplasms
22.06.2023	Clinical Research	**Stephanie Meier** Towards development of neurofilament light chain and glial fibrillary acidic protein as precision medicine biomarkers for multiple sclerosis
28.06.2023	Medical-Biological Research	**Maurizio Cortada** mTOR signaling in the mammalian inner ear
28.06.2023	Medical-Biological Research	**Rishika Agarwal** Development and characterization of Human Epidermal Organoids and their application to model keratinocyte disorders with a focus on Darier Disease
30.06.2023	Medical-Biological Research	**Laura Dönges** Modelling and targeting osteoarthritis using human progenitor cell-derived cartilage organoids
06.07.2023	Medical-Biological Research	**Lauriane Blukacz** Organoids as preclinical cancer models of hepatocellular carcinoma to study doxorubicin response

Master Defenses since May 2023

11.08.2023	Molecular Biology	**Noemi Vazquez** Target identification of a patient-derived monoclonal IgM using cerebral organoids

Symposium in honor of Radek Skoda

Earlier this summer, we were honored to host a special scientific symposium dedicated to Radek Skoda. This event celebrated Radek's remarkable 25 years or research in myeloproliferative neoplasms with stimulating lectures from friends and collaborators. We extend our warmest wishes to Radek for his continued success and fulfillment in his future endeavors.

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DBM Summer Symposium

The Summer Symposium was again a fantastic celebration of our diverse biomedical interests and brought together our community for a day filled with knowledge sharing and scientific exchange and an inspiring keynote lecture by Antonella Santuccione.













DBM Barbecue

Traditionally, the summer symposium day was closed by the post-symposium BBQ at the Kraftwerksinsel, where colleagues from different groups had the chance to meet, share ideas, and enjoy a relaxed setting filled with delicious food, refreshing drinks, ice-cream, and even a cool photo booth.












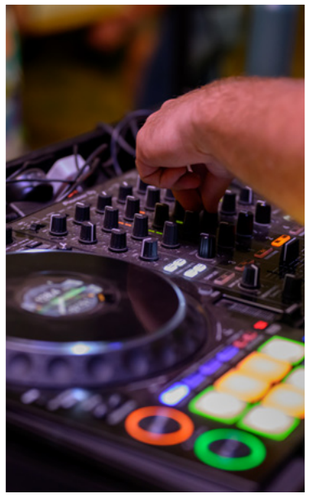


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Upcoming Events

Athena's Journey, Silvia Candido, Roche, Switzerland

12.10.23

Öffentliche Antritts-/Habilitationsvorlesung
Salvatore Piscuoglio, Patient-derived models to enhance precision oncology

25.10.2023

8th International BBC Annual Meeting,
Breakthroughs in breast cancer research and treatment
Keynote Speaker: Marc Lippman, Georgetown University, USA

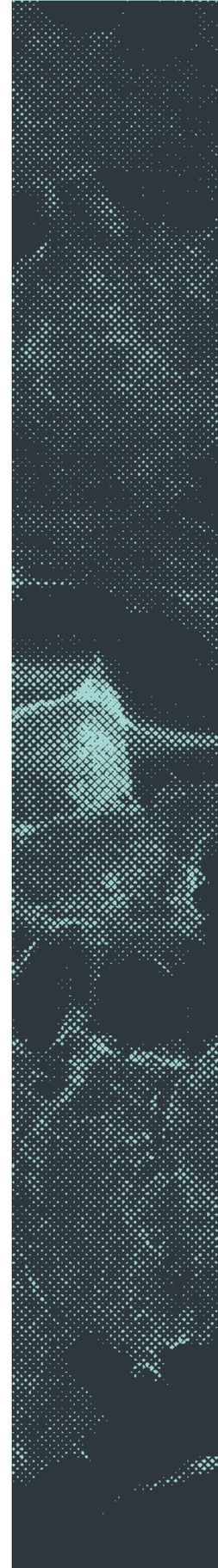
09. - 10.11.23

Athena's Journey,
Ilaria Alborelli, Molecular Pathology, University Hospital Basel

09.11.23

DBM Research Day 2024

18.01.24



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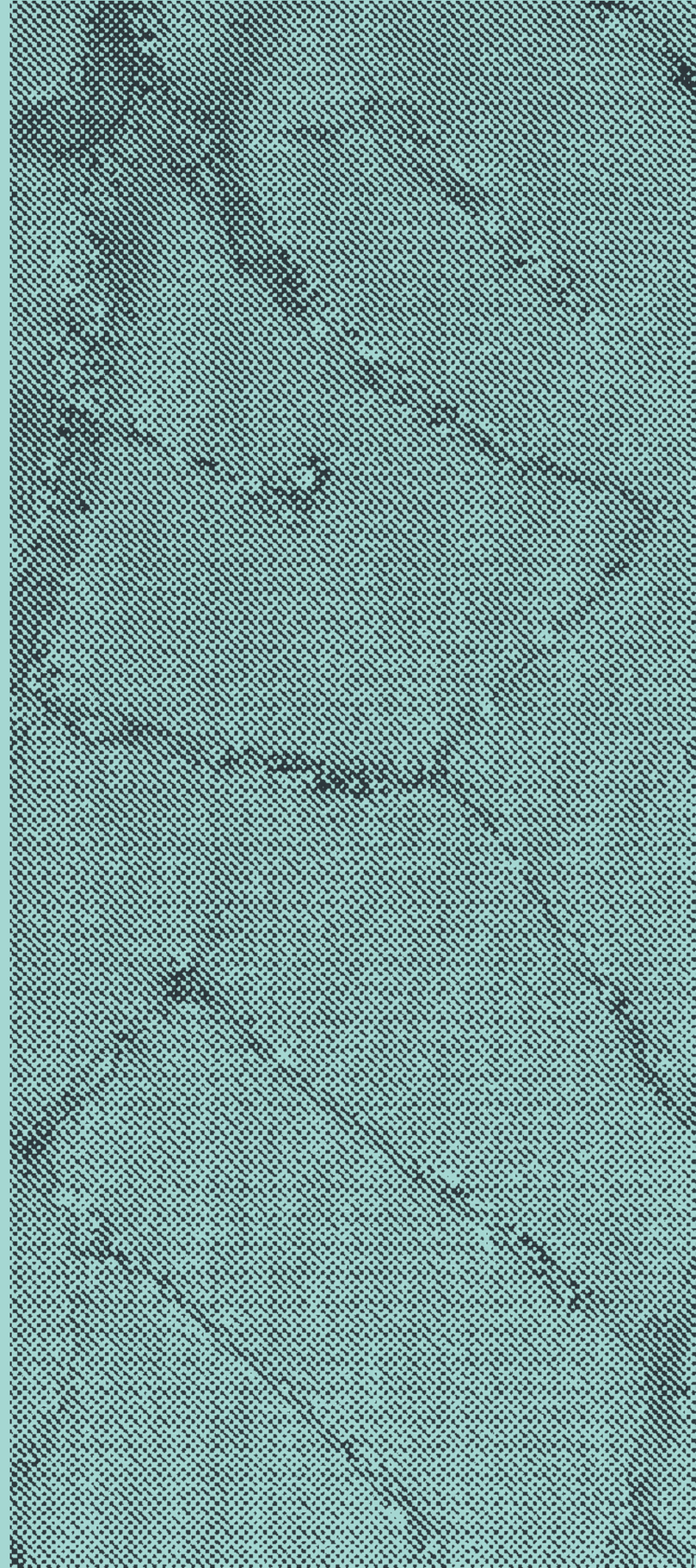

New Colleagues

Departement Biomedizin Basel

New Colleagues from May to August 2023

We are delighted to have you among us. We would like to express our warmest welcome and good wishes!

Akbari Bani Dorssa	Transplantation and Clinical Virology
Apostolova Petya	Experimental Hematology
Aterini Bianca	Cartilage Engineering
Augsburger Deborah	Translational Hepatology
Barbu Stevanovic Mihaela	DBM-Flow Cytometry
Beiter Sebastian	Systems Pharmacology
Bieri Lucia	Cellular Neurophysiology
Burgold Thomas	Molecular Immune Regulation
Camarasa Tiphaine	Infection Immunology
Capdevila Noemi	Molecular Neuroscience
Cumin Cecile	DBM-Flow Cytometry
Demirbilek Emre	Infection Biology
Depew Claire Elaine	Infection Immunology
Dumontet Amandine	Cancer- and Immunobiology
Finozzi Davide	Experimental Virology
Fischer Claudia	Translational Immuno-Oncology
Follonier Océane	Transplantation and Clinical Virology
Forero Farias Maria Ximena	Cartilage Engineering
Frick Corina	Translational Neuroimmunology
Fumagalli Romario Pietro	Cartilage Engineering
Gehrold Robin	Cancer Immunology
Gerster Fiona	Brain Tumor Immunotherapy and Biology
Gutzwiller Julia	Experimental Neuroimmunology
Häfelfinger Marco David	Experimental Neuroimmunology
Hammer Emil	Allergy and Immunity
Horber Robin	Inner Ear Research
Huber Alexandra Evelyne	Systems Pharmacology
Klinger Philipp	CardioBiology
Lackner Sophie	Molecular Immune Regulation
Lazic Milos	Tumor Heterogeneity Metastasis and Resistance
Li Xiaoyun	Cancer Immunology
Markovic Lucija	Allergy and Immunity
Mauch Nathalie	Allergy and Immunity
Meier Marek	Skin Biology
Meunier David	Cardiac Surgery and Engineering
Nonic Aleksandra	Cancer Immunotherapy
Panachel Karina	Tissue Engineering
Pfister Pablo	Bone Regeneration
Roceri Mila	Visceral Surgery and Precision Medicine
Schaubhut Nadja	Molecular Neuroscience
Scherhag Florine	Experimental Neuroimmunology
Schmid Linus	Liver Immunology
Schmidt-Barbo Paul	Translational Immuno-Oncology
Schultheiss Christoph	Translational Immuno-Oncology
Skomorokhova Elizaveta	Infection Biology
Stöckmann Oliver	Psychopharmacology Research
Telalovic Mirela	DBM-Zentrale Dienste Hebelstrasse
Toprak Sara	Pulmonary infection biology
Verspecht Lore	Skin Biology
Vizeli Patrick	Psychopharmacology Research
Vogler Sara	DBM-Zentrale Dienste Mattenstrasse
Vogt Claudia	DBM-Zentrale Dienste Hebelstrasse
von Arb Sarah	Neuromuscular Research
Wetzel Nora	Experimental Neuroimmunology
Yumlu Saniye	Molecular Immune Regulation

Thank you!

The DBM newsletter team would like to thank all the contributors for their work. We hope you enjoyed reading the newsletter.

Please feel free to submit your ideas and input for our next issue.

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Universität Basel

Department Biomedizin

Newsletter
September 2023