Universität Basel

Department of Biomedicine

DBM Basel

Newsletter

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DBM
Basel
Department of
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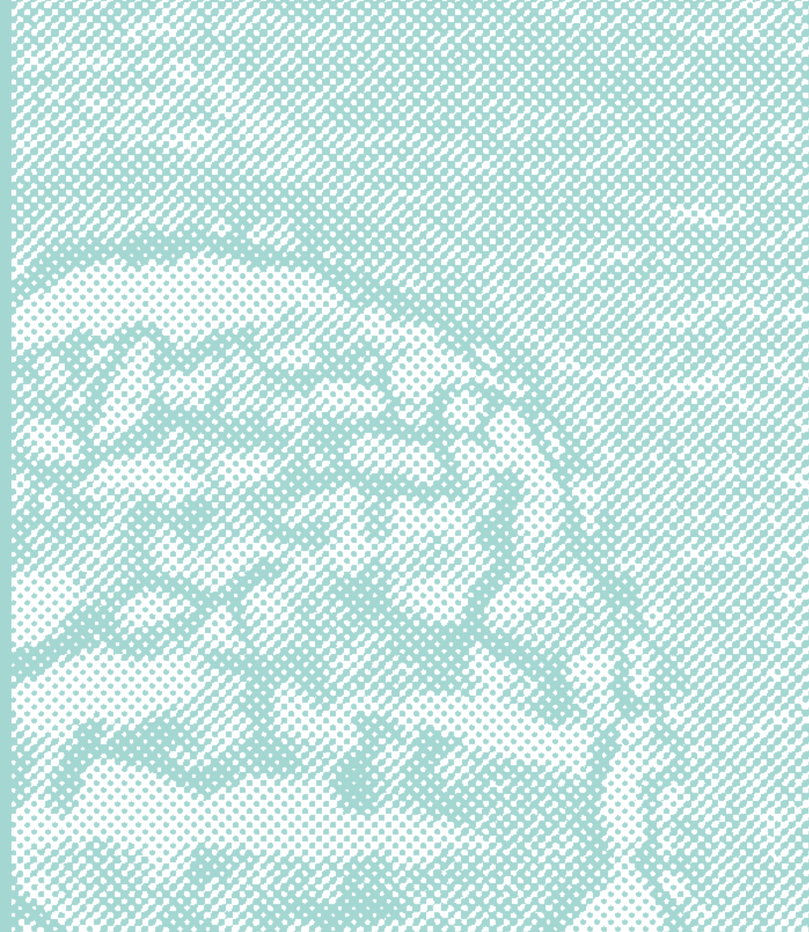
Intro
Cover Story



In this issue of the DBM newsletter, we are excited to showcase three innovative startups involving academic researchers from within the DBM who have successfully transitioned into entrepreneurship. Additionally, we delve into the important work of two distinguished research groups: the Heinzelmann lab, dedicated to advancing the fight against ovarian cancer, particularly its aggressive high-grade serous subtype, and the Recher lab, focusing on unraveling the complexities of inborn errors of immunity. Furthermore, we introduce two esteemed members of the scientific advisory board of the DBM, who generously share insights into their backgrounds, motivations for joining the board, and personal anecdotes. Lastly, we highlight and celebrate publications, awards, successful PhD defenses, and engaging events hosted at the DBM. In the last 10 days during the preparation of this newsletter, three outstanding publications were published in Nature, Science Immunology and Science. We would especially like to congratulate the Jeker, De Libero and Hess groups for their excellent work. We hope you find this issue as informative and inspiring as we do.

The DBM newsletter team

Cover Story

Portrait SAB Members

Research Groups at a Glance

Bridging Science and Enterprise: DBM Researchers Transforming Innovations into Startups

by Martina Konantz

In this issue of the DBM newsletter, we are excited to highlight three innovative startups and the inspiring journeys of academic researchers from the DBM who have successfully transitioned into entrepreneurship. These researchers have turned their ideas from the lab into products on a path to become commercially available. We spoke with Alois Hopf, who completed his PhD in the Guzman Lab in 2022 and is now the CSO of Bottneuro; Natalia Manturano from Glycocalix; and Romina Matter and Lukas Jeker, the visionary minds behind Cimeio Therapeutics.

Alois Hopf, CSO at Bottneuro AG

Bottneuro AG

Specific brain areas and activity patterns, which are essential for cognitive and executive functions, are altered by neurological and psychiatric conditions such as Alzheimer's Disease, Dementia, Depression, and Schizophrenia. Bottneuro AG develops a personalized neuromodulation and EEG device for at-home transcranial electrical stimulation (tES). By addressing each patient's unique anatomy and pathophysiology, the device delivers targeted, multifocal electrical stimulation to modify neuronal excitability and modulate the firing frequency of individual neurons. This precise modulation of endogenous brain activity allows for communication in the brain's "language."

When Bottneuro was launched, Alois was still wrapping up his PhD in the Guzman lab. During his PhD studies, Alois investigated the mechanism of action of electrical stimulation on microglia immune response *in vitro*. This research was inspired by a recent paper, in which the authors optogenetically modified neural activity in an Alzheimer's disease mouse model, observing altered microglia activity and $A\beta_{42}$ phagocytosis. As Alois and his team learned more about the technology and its promising application in Alzheimer's disease and other indications, they decided to bring this knowledge to clinical application, leading to the incorporation of Bottneuro AG in 2021.

" I transitioned from academia to entrepreneurship because my interests evolved from studying life sciences to learning about entrepreneurship through various courses. My scientific background is crucial to my work, but I enjoy challenging myself and continuously learning as the company develops."

— Alois

Since then, Bottneuro AG has registered the Miamind neurostimulator as custom-made device in Switzerland, the UK and the EU, and they are now preparing their first patient cases outside of clinical studies. Over the next five years, they expect to treat thousands of patients suffering from various indications and disorders. They plan to expand the custom-made registration to other regions such as Japan, Australia and the Middle East, establishing a strong market presence. Significant growth is expected due to the wide custom-made registration and ongoing clinical development. They aim to achieve FDA clearance, CE certification, and reimbursement, establishing their personalized neuromodulation therapy as the gold standard in Alzheimer's disease treatment.

Bottneuro also expects to expand their product portfolio and clinical development to other indications such as post-stroke neuro-rehabilitation, migraine, epilepsy, and psychiatric disorders. Their ultimate goal is to bring the full potential of personalized neuromodulation therapies to people's home, enabling patients to regain independence, support healthy aging, and address major healthcare challenges.

Bridging Science and Enterprise: DBM Researchers Transforming Innovations into Startups

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Alois emphasizes the importance of having a highly skilled team with diverse expertise for a successful startup. He advises not to be shy asking for advice and building up a strong scientific and business advisory team. The most common misconceptions in Alois' eyes about transitioning from academia to entrepreneurship is that all startups, even unicorns such as Uber and Neuralink start small and demand a lot of personal investment and commitment of the founders and early employees without any guarantee of success. Survivor bias gives a wrong conception of entrepreneurship, as most ideas, projects and startup vanish early on.

"With the right team, significant progress can happen fast. Build up your network as no one has success all by themselves. Consider what value you bring to others instead of what value they are bringing to you."

— Alois

When asked what advice he would give to other PhD students or academics considering starting their own company or joining a start-up, Alois says: *"Do it! It's a great experience. It is important to be committed and dedicated to what you're doing, it is more than a 9 to 5 job. You need to have the ability to identify problems and having the self-motivation to solve them is essential, no one pinpoints and micromanages what has to be done."*

These are the most important points he wants to highlight:

1. **Research skills:** Particularly in experimental design, data analysis, interpretation and analytical thinking. Whether conducting *in vitro* studies or clinical trials, scientific rigor is essential for generating valuable data and meaningful conclusions. Being perfectionistic in experimental design and execution, as repeating an experiment requires significant time, effort and money (and raises ethical considerations in case of *in vivo experiments* and clinical trials).

2. **Critical thinking:** Evaluate scientific literature to identify the potential and limitations of published research. Build scientific reasoning and arguments based on this evaluation, both within your field expertise and in general. Develop the ability to rapidly gain expertise in new fields and isolate the most important points. Stay updated with the latest state-of-the-science in your field and place your work within a broader context. This includes understanding primary literature outside your immediate focus and being able to draw important conclusions from it.

3. **Time/Project management:** There are always numerous important tasks to handle. Determine what needs immediate attention and what can be delegated. Find the best solutions for problems using available resources (time and expertise of yourself and your team). There was no shortage of hypotheses and experimental ideas during my PhD, hence, learning to prioritize what made sense to pursue the lab's time and capability was crucial. Similarly, now, it's vital to identify which promising ideas and trial designs are worth pursuing.

4. **Resilience, self-motivation and trust:** Trust in your capabilities when facing challenges and setbacks. Like during my PhD studies, there is plenty of advice available, but ultimately, it's your project, your expertise, and your decision. No one can chart the exact path to success for you.

5. **Know your audience:** Communicate science effectively by tailoring your presentation to your audience. Understand the differences between discussing medical applications and scientific foundations. Learn to adjust your communication style when presenting results during lab meetings (where the audience is familiar with your rationale and project) versus condensing your work into a brief summary for an audience unfamiliar with your project and from different fields. Develop the skill to condense your work into a few bullet points.

Bridging Science and Enterprise: DBM Researchers Transforming Innovations into Startups

by Martina Konantz

"Our ultimate goal is to expand our portfolio, removing glycan barriers and inducing an intra-tumoral immune architecture for effective full-circle immunotherapy."

— Natalia

Natalia Mantuano, CEO of Glycocalyx Therapeutics AG

Glycocalyx Therapeutics AG

Natalia Manturano from Glycocalyx, who works in the Läubli lab, focuses on glycans in the tumor microenvironment to develop novel immunotherapies. By targeting specific glycans, particularly sialic acid, which creates a barrier against the immune system, and employing catalytic immune effectors like glycosidases, the lab has observed significant reductions in tumor size and increased survival rates in pre-clinical models. Their recent exploration into cleaving fucose glycans has shown promising results, suggesting a potent combination treatment for combating solid tumors, potentially offering hope to numerous patients in the future.

We also asked Natalia about her first steps into entrepreneurship. Glycocalyx began by focusing on establishing a scientifically robust idea, emphasizing the understanding of its mode of action. Their primary objective was to disseminate knowledge within their field. After confirming the efficacy of their idea through pre-clinical models, their initial step was to protect the intellectual property by filing for a patent even before officially founding the start-up. They then pitched their concept to assess market interest and potential challenges. Initial funding came through grants such as the Propelling Grant from the University of Basel and support from an Innosuisse coach, which was crucial in demonstrating the viability of their idea.

"Our drug will be constantly produced as an enzyme in the tumor microenvironment," Natalia emphasizes. *"The combination of glycosidases is very innovative in the immunotherapy field. Removing or blocking the sugar coat barrier enhances the efficacy of immunotherapies. Our target is to develop new immunotherapies to treat cancer, especially for cancer types with high relapse rates. This will advance the technology of glycosidases and their application in cancer and other diseases, promoting knowledge of gene therapy and glyco-immune checkpoints worldwide. Although cancer immunotherapy has significantly improved tumor regression and patient survival, only about 20% of cancer patients respond to immune checkpoint inhibitors. We aim to close the gap between patients treated and responders."* she summarizes the potential positive impact of the company.

Their efforts paid off when they secured a private investor, enabling them to file another patent and explore potential new drugs. Currently, their focus is on securing seed investment to advance their lead candidate into clinical trials. This methodical approach underscores their commitment to rigorous scientific validation and strategic market engagement from the outset.

Regarding potential industry partners, Natalia mentions that while scaling up production might be feasible, the timing may not be optimal. They are considering academic collaborators and have engaged in discussion with academic collaborators in Switzerland and France to further validate their delivery platform and treatment. *"We plan to build a multi-functional team to develop our innovative cancer treatment further. We need scientists and experts in enzymes now, and later business development people."* Translating their findings into a drug product for patients is expensive and time-consuming, requiring money, toxicity studies, and authority

Bridging Science and Enterprise: DBM Researchers Transforming Innovations into Startups

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approval. A cross-functional team of scientists, clinicians, business, and regulatory affairs specialists is key, Natalia adds. *"While exploring funding sources, including venture capital and angel investors, we recognize the importance of timing and strategic positioning before pursuing substantial investment, aiming to enter this phase around 2025."*

Natalia points out that there are only a handful of companies in Europe specializing in glycans, whereas the U.S. has invested significantly more in start-ups working with glycans. Among these, Glycocalyx stands out as the only company focusing on engineering the tumor microenvironment to enhance the anti-tumor capacity of immune cells. Cancer cells are often shielded from the immune system by a sugar coat on their surface. Glycocalyx's innovative approach aims to „unmask" these cancer cells by cleaving the sugars, thereby activating the immune system to target and destroy the cancer cells more effectively.

The long-term goal at Glycocalyx Therapeutics is to advance their concept into clinical trials, ultimately benefiting cancer patients, particularly in Switzerland, where the market opportunity is significant. As cancer is the second leading cause of death in Switzerland, their aspiration is to secure funding to progress through clinical trials and validate their treatment's efficacy. *"Over the next 5-10 years, we aim to have a robust leading candidate and complete Phase I and II trials, with the potential for acquisition by a larger pharmaceutical company to conduct further trials."*

For postdocs or researchers considering launching their own startups, Natalia recommends building a diverse network and seeking support from University Innovation offices. Securing patents and understanding market niches are crucial steps.

Romina Matter-Marone & Lukas Jeker, Cimeio

Cimeio Therapeutics AG

Cimeio is an applied gene editing, cellular, and immunotherapy company developing a portfolio of Shielded-Cell & Immunotherapy Pairs™ for patients with debilitating and life-threatening diseases. Cimeio's proprietary technology platform is based on the discovery of novel protein variants, which when inserted into cells allow them to preserve function while resisting depletion by a precisely paired immunotherapy. This technology has significant therapeutic potential, which Cimeio is using to develop curative treatments for patients with genetic diseases, hematologic malignancies, and severe autoimmune disorders.

To start with the success story of Cimeio Therapeutics, we introduce Romina Matter-Marone and Lukas Jeker, who laid the foundation for the company with their research at the DBM. Lukas studied medicine and pursued an MD PhD to dive deeper into the mechanisms behind medical phenomena. Romina studied biology at ETH Zürich, completed her PhD at the FMI in Basel and after two postdoctoral fellowships, joined Lukas' lab. Together, they worked on a project screening small molecule compounds for a specific microRNA, miR-17-92. Their research together with another postdoc, Mara Kornete, led to the successful establishment of CRISPR/Cas9 on T cells and hematopoietic stem and progenitor cells (HSPC), laying the groundwork for their current translational projects.

They developed a flow cytometry assay to quantify gene editing outcomes with single-cell and allele resolution. Initially inefficient, the assay marked a turning point, demonstrating its potential therapeutic use. By using the murine congenic markers CD45.1/2 and CD90.1/2, they quantified editing efficiency, later applying the principle to human HPSC. They identified a single point mutation that maintains a functional protein but prevents antibody binding, creating shielded

Bridging Science and Enterprise: DBM Researchers Transforming Innovations into Startups

by Martina Konantz

cells. Romina explains, *"If we inject these shielded edited cells in mice, we can specifically deplete the unmodified cells and co-injected tumor cells using antibody-based strategies, while avoiding depletion of the edited cells."*

Their approach preserves the function of the engineered target, a technically challenging but advantageous strategy, leading to granted broad patents in several countries. Lukas, fascinated by Biotech and its potential to help patients, remarks, *"Doing basic research and then trying to actively make a difference for patients is incredibly rewarding. If a company succeeds, I can help many more patients than by seeing individual patients myself."*

Challenges exist, such as the perception that translational research is less valued than pure basic research. *"Maybe this is because of misinformation or prejudice or because I am not following a path that someone else foresaw for me,"* Lukas concludes. People for example think, that the research that is performed in the lab cannot be published because of the company behind, however, academic freedom and the right to publish is one of the most important conditions imposed by the university for a research collaboration. Romina adds that managing sensitive information during interactions with colleagues was a challenge, but presenting data at conferences is still possible while e.g. mutations have to be coded until final publication. Other conflicts comprise time-management, however, this is not really different from running a large lab, being the head of a clinic and doing research and teaching at the same time. Additionally, startups can be more stop-and-go; while a program is active, the company puts a lot of resources on it to move very fast and it can become difficult to keep up. On the other hand, decisions to stop a program can affect the collaboration from one day to the other. *"This can be challenging. Academic collaborations sometimes also abruptly stop but companies are stricter in that respect,"* Lukas summarizes.

For the partnership with Cimeio, Lukas focuses on experiments that bring new insights and proof-of-concept, leaving routine tasks to the company or a contract research organization. For Postdocs and PhD students in the lab, however, it is important to ensure that they are involved in publishable projects, therefore Lukas carefully considers which parts of the collaboration with Cimeio they get involved in, ensuring their academic growth. Vice versa, for the company, preventing accidental public disclosure of results is crucial, necessitating careful education of personnel.

Lukas highlights their recent publications, demonstrating that excellent science is achievable within this setup. *"Maybe the quality has even increased because key experiments were independently performed in the lab and the company by different people and approaches."*

Managing dual roles was more demanding initially for Lukas, but now the company is run by professionals. Lukas also highlights the resources and tools that have been particularly helpful in managing the complexities of his dual roles. *"Baselaunch was instrumental in the early phase and talking to many advisors, mainly in the US but also in Switzerland, UK, Germany was very important. Unitectra provided important guidance and a private law firm helped me setup the contracts and think through possible conflicts of interest."* Now that the company is run by professionals, he no longer takes care of the day-to-day business. Running an academic lab, he notes, is also to some extent entrepreneurial, requiring multitasking and problem-solving.

Romina, who never assumed an operational role within the company, continued her academic research projects. She gained valuable insights by attending internal meetings and observing decision-making processes. She acknowledges that developing a scientific proof-of-concept into a clinical proof of concept and later an approved drug is a long and capital-intensive process, requiring careful selection of indications and clinical trial paths, similar to what Natalia emphasized before.

Bridging Science and Enterprise: DBM Researchers Transforming Innovations into Startups

by Martina Konantz

“The journey so far has been extremely rewarding, and I am convinced that founding a company did not hinder my creativity or scientific quality. We are still doing the research I envisioned academically but now with clinically relevant molecules, increasing the chance of clinical success.“

— Lukas

The company now has to find the best indications and path to clinical trials and hopefully approval. By working with different partners, Cimeio hopes to be able to perform clinical trials in diverse disease areas, such as genetic and malignant blood disorders. These are ambitious plans that can possibly also end up with some failures. Funding first-in-human (FIH) studies in Switzerland are challenging, often necessitating conducting most clinical studies abroad, since e.g. the Swiss National Science Foundation excludes FIH/safety studies from investigator initiated clinical trials.

Lukas has however ideas for applying the cell shielding concept to autoimmune and infectious diseases, requiring further research independently from Cimeio. He wishes more academic colleagues would view building a spin-off as a noble and worthwhile endeavor. *“We are at the beginning of an era where biology and medicine become an engineering discipline, and the problems cannot be solved in a small, isolated academic lab.”*

Romina highlights the close collaboration with the company, including novel insights into industry mentality and rapid decision-making. *“It provided a chance to engage with leading international scientists and medical professionals in the field. I am convinced that it has also made our work more valuable,“* she concludes.

We thank Alois, Natalia, Romina and Lukas for sharing their valuable insights and wish all the companies continued success.

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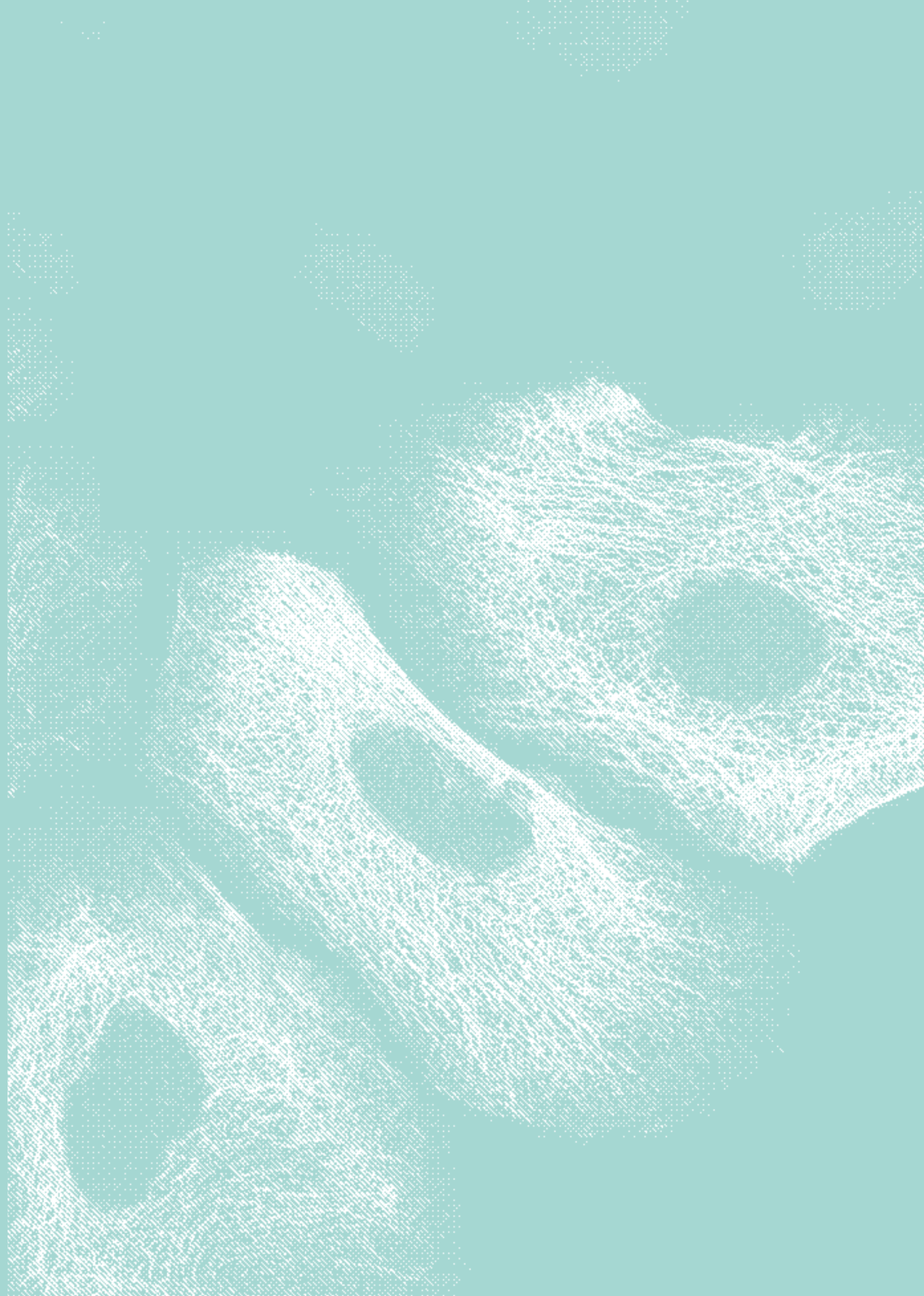

Research Group at a Glance
Portrait SAB Member
Publications

Research Group at a Glance Heinzelmann Lab

Group Photo – Lab Retreat "Wasserfallen" May 2023.
Left to right: Ricardo Coelho, Renata Lima, Alessandro Stumpo, André Fedier, Tihomir Todorov, Viola Heinzelmann-Schwarz, Monica Nunez, Natalie Rimmer, Anatole Haefele, Flavio Lombardo, Francis Jacob, Ulrike Lischetti.

A Quick Overview of Our Research

Gynecological malignancies originate from women's reproductive organs. Early detection of some gynecological cancers is challenging and treatment options are often limited. While there are ongoing investigations into rare gynecological cancers such as carcinosarcoma, vulvar cancers and vulvar melanoma, our primary research focus is on ovarian cancer, particularly the high-grade serous subtype, which is the most common and aggressive form of epithelial ovarian cancer. Importantly, there has been limited improvement in survival rates over the last five decades, emphasizing the urgent need for continued research in this field.

High-grade serous ovarian cancer exhibits a multifaceted heterogeneity, encompassing molecular, cellular, and anatomical variations both spatially and temporally. The serous subtype is usually characterized by *TP53* mutations present in almost all patients, along with gene alterations including *NF1, BRCA1, BRCA2,* and high genomic instability. In our research, we envision to find valuable and feasible options to overcome the desperate situation ovarian cancer patients are facing even nowadays. Thus, coming from a patient cohort screening and biomarker research at the beginning of the team's efforts, our current research focuses on personalized oncology, utilizing routine, emerging, and exploratory technologies. We believe that major breakthroughs in improving the survival of patients with gynecological malignancies are primarily possible through the support of our ongoing biobanking efforts, covering >4000 specimens, often longitudinal, tissue, ascites and blood, and from two continents (Europe/Australia). We have developed various research tools and models, like gene-editing, spheroid drug testing and zebrafish xenografts and have a wide range of national and international collaborations fostering interdisciplinarity and translational research.

Highlights, Breakthroughs and Current Projects

Our journey began almost 20 years ago with a focus on identifying potential tumor biomarkers using cutting-edge technologies such as bulk transcriptomics and proteomics. This research led to the identification of several biomarkers that have since then become standard in clinical practice (HE4, EpCAM, and Claudin 4). The group has made significant contributions to biomarker research (1–3) and elucidated novel mechanisms promoting ovarian cancer metastasis (4,5). In particular, our research on metastasis into the neglected organ "omentum" was supported by a Synergia SNF grant which allowed us to build a 3D omentum model via 3D printing (6), an important collaboration with the Tissue Engineering Group of the DBM (Ivan Martin), FHNW (Uwe Pieles), and the University of Fribourg (Barbara Rothen-Rutishauser). Our focus extended beyond biomarker research to include the identification of molecular signatures for early detection and treatment, prognosis prediction, and identification of novel drug targets (7). For instance, we have assessed clinical factors in patient cohorts (8) and identified DNA repair-associated genes in systematic analyses that could predict a patient's response to PARP inhibitor therapy (9).

The team's involvement in the SwissTumor Profiler Consortium has further solidified our role in turning research findings into new treatments for cancer. By combining advanced technologies, biological knowledge, and clinical expertise, we address key questions in cancer research. Our conjoint efforts have led to the establishment of a robust and continuously advancing multi-omics platform for dissecting tumor samples, allowing in-depth analysis at the molecular level. This platform integrates single-cell and bulk technologies focusing on DNA, RNA, protein, circulating tumor DNA, and ex vivo drug response (10). Furthermore, our team has pioneered advances in gene-editing techniques, initially with zinc finger nucleases and later adopting CRISPR technologies. We now have a portfolio of methods for generating knock-out cell lines and for conducting functional CRISPR screens, along with the development of efficient knock-in strategies (11).

Another significant focus of the team's research has been on understanding cancer cell glycosylation. Our recent work provides evidence that this process plays an important role in cancer, particularly in lipid glycosylation and cell plasticity (12, 13). In addition, using an untargeted mass spectrometry approach (14), we have demonstrated that different cancer sampling sites display distinct glycosylation signatures with some of these glycan structures promoting cancer omentum metastasis (5, 15)

Research Group at a Glance Heinzelmann Lab

the preferred metastatic site of ovarian cancer (15). One notable achievement of our team is the initiation of a project, funded through the FreeNovation program, to study the glycome of single cells. Collaborating with Christian Beisel and Gunnar Rätsch (ETH), this project aims to augment our understanding of how glycosylation affects cancer at the single-cell level.

Current projects:

1. Identification of synergistic drug combinations and understanding response by investigating the tumor microenvironment: Building on our research on the well-described cancer-associated protein mesothelin (4), we have identified the synergistic effect of SMAC mimetics in combination with single chemotherapeutic compounds using a large drug library screen (16). Through validation by functional assays and candidate expression in patient cohorts, we currently focus on the role of tumor-associated macrophages to understand the mechanisms leading to the synergistic effect of our proposed drug combination.
2. Genomic and proteomic dissection of rare diseases within a PHRT project on longitudinal high-grade serous ovarian cancer samples and vulvar cancers. We have profiled >200 samples using bulk RNAseq, whole-exome sequencing, and proteomics, currently exploring derived data.
3. Personalized oncology through multi-modal tumor assessment supports clinical decision-making: We are members of a Tumor Profiler Consortium, a multicentric group of scientists who have developed a functional multi-omics platform for dissecting tumor samples. The knowledge generated from the technologies involved is discussed in molecular tumor boards to evaluate potential treatment options for each individual patient. In addition to hypothetically altering treatment (manuscript in preparation), we have recently obtained approval from the ethical committee to soon commence our groundbreaking OV Precision randomized controlled Swiss trial aimed at identifying treatment options for a group of homologous recombination-proficient ovarian cancer patients at initial diagnosis. Here, as a central laboratory, we are ready for the first patient samples to be biobanked, processed and characterized for downstream analysis. In parallel, we are continuing to explore the feasibility of long-read sequencing on patient samples (17).
4. Apart from the above outlined main projects, we continue with our investigation of cancer cell glycosylation by developing tools to dissect the glycosylation repertoire on a single-cell level and to understand alteration during cancer cell plasticity and metastasis. Here, we also aim to spatially resolve glycans in tumor tissue through our long-term collaboration with the Institute for Glycomics, Gold Coast, Australia, using MALDI imaging.

Our Vision for the Future

Our long-term vision is to contribute to the future of healthcare centering on personalized oncology. To address continuously rising cost concerns, we propose considering targeted drug repurposing based on individual molecular tumor signatures, a journey that also demands focused molecular research. By formulating precise questions, utilizing ex vivo cultures, and refining genetic tools, we aim to fast-track targeted therapy development. We foresee collaboration as one key to drive this progress through shared passion and innovation, overcoming challenges together. Furthermore, we are committed to nurturing the next generation of scientists through practical education, ensuring a legacy of innovation in personalized medicine. In summary, our vision is indeed bold but nevertheless attainable. Through innovation, collaboration, and education, we have the chance to alter the treatment of ovarian cancer patients soon, ensuring that treatments are as unique as the individuals they serve.

Team Spirit – Introduction of Our Lab

The Ovarian Cancer Research group brings together molecular and computational biologists as well as clinical scientists who work together across disciplines to solve problems together. We share a vision of providing the best academic education for future scientists at all levels, from pupils to PhD students and postdoctoral fellows. We see our research without any boundaries and personal hierarchies in order to keep independent-minded thinking at the highest level possible in the given set-up. As a team, we foster individual strengths while addressing weaknesses, always aiming at creating a supportive environment where each member can thrive and contribute effectively. The Ovarian Cancer Research group is characterized by its eagerness to learn, explore new ideas, and embrace paradigm-shifting directions in their field. We are committed to sharing our expertise and knowledge, fostering collaboration within the DBM community and beyond, and actively engaging in knowledge exchange and interaction.

Research Group at a Glance
Heinzelmann Lab

Group Photo – X-mas Dinner.
Left to right: Kathrin Labrosse, Monica Nunez, Flavio Lombardo Ricardo Coelho, Ruth Eller, Francis Jacob, Natalie Rimmer, Renata Lima, Viola Heinzelmann-Schwarz.

We are

Viola Heinzelmann-Schwarz	Research Group Leader
Francis Jacob	Co-Research Group Leader
Andre Fedier	Project Leader
Ricardo Coelho	Postdoc
Flavio Lombardo	Postdoc
Antoine Hanns	Postdoc
Kathrin Labrosse	Postdoc
Tibor Zwimpfer	Postdoc
Ruth Stefanie Eller	Postdoc
Monica Nunez Lopez	Research Assistant
Natalie Rimmer	Research Assistant
Renata Lima	Research Assistant
Tihomir Todorov	PhD Candidate (Paul Scherrer Institute, Villigen)

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Research Group at a Glance
Recher Lab

A Quick Overview of our Research

Inborn errors of immunity (IEI) are caused by germline mutations in immune system genes and cause increased susceptibility to infection, autoimmune disease, lymphoproliferation or a combination of these. IEI are being identified at an accelerated rate due to facilitated next-generation sequencing techniques and augmented research efforts. Currently more than 500 different IEI have been identified. Molecular dissection of immune-dysregulation in individual patients may identify known or novel IEI and inform on personalized prognosis and targeted treatment options to most selectively normalize dysregulated immune cell function.

Our lab aims to report novel clinical manifestations associated with known or novel IEI, develop novel IEI-specific diagnostic tests, first describe novel IEI entities along with first-in-man targeted treatment trials.

Highlights, Breakthroughs and Current Projects

We have established a prospective cohort of patients with immune-dysregulation which currently consists of more than 530 individuals. Besides detailed clinical follow up, extensive immune-phenotyping and biobanking is performed together with next generation sequencing to detect potentially disease-causing or disease-phenotype contributing immune gene variants. Using our cohort as a cornerstone, we could identify novel IEI entities such as SDHA-gain-of-function related persistent polyclonal B cell lymphocytosis or monoallelic DNA ligase IV related combined immunodeficiency.

We are currently finalizing manuscripts first reporting novel IEI-genes or novel molecular culprits causing phenocopies of IEI.

Our Vision for the Future

Our research aims to rapidly identify the underlying genetic cause of immune dysfunction in patients with unknown causes to optimize treatment strategies within a growing set of available specific immune-modulating compounds and to prospectively validate their clinical and molecular efficacy. We call this strategy ‘variant-specific treatment personalization’. Functional properties and the interactome of novel IEI genes/proteins will be studied in detail in subsequent studies using modern multi-omics platforms.

We will also closely collaborate with associated research groups at the DBM or the DKF, and other national or international institutions to identify IEI patients that require allogeneic stem cell transplantation or would be eligible for gene correction. We will also investigate if and how IEI-gene variants influence the effectiveness of immune oncology treatments, allowing variant-specific treatment selection in collaboration with the oncologists.

Group Photo – Coffee Break.
Left to right: Hiroyuki Yamamoto, Fabio Poletti, Julia Hirsiger (from the Berger lab), Mike Recher, Adrian Baldrich, Robin Hupfer, Katia Pini.

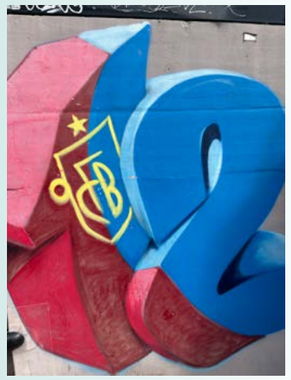
We are

Mike Recher	Group Leader
Hiroyuki Yamamoto	Postdoctoral Researcher
Luca Seitz	Postdoctoral Researcher
Fabio Poletti	PhD Candidate
Robin Hupfer	PhD Candidate
Adrian Baldrich	PhD Candidate
Julius Köppen	MD Doctoral Student
Anouk Pieters	MD Doctoral Student
Elisabeth Bamberg	Medicine Master Student
Oluwatobi Fashola	Medicine Master Student
Katia Pini	Biology Master Student

DBM Basel

Research Group at a Glance
Recher Lab

Team Spirit – Introduction of our Lab



Interview with our Scientific Advisory Board member Giulio Cossu

Giulio Cossu has been the Constance Thornley Professor of Regenerative Medicine at The University of Manchester since 2013 and a member of the Scientific Advisory Board of the Department of Biomedicine since 2016.

What inspired you to become a scientist?

As it happens for many things in life, we don't always choose our paths: in reality, we are chosen. Stepping into a lab for the first time for a short rotation in my first year of medical school, I felt immediately that this was the life I wanted. Thus, the short rotation lasted fifty-two years (so far).

What is your area of expertise?

I was trained as an MD though I never practiced, and that was really good for patients. I rather stayed in research and began to work on the development of skeletal muscles. Unknown to the rest of the world, I succeeded, still as student, to isolate and culture mouse satellite cells, at a time when only a couple of labs in the world could. I published the work on the high-profile journal „Bollettino di Zoologia" with a major impact: since 1978 the paper has been cited zero times, but who knows? After a post-doc at Penn where I worked on glycoproteins, I started to work on the development and heterogeneity of skeletal muscle progenitors, which led to understand the induction of myogenesis in somites and the identification of non-canonical, vessel-derived myogenic progenitors. One of these, that we named "mesoangioblast", was used to develop novel cell therapies for muscular dystrophy. After preclinical work in various animal models, we conducted a first trial with HLA-matched donor mesoangioblasts that showed safety but little efficacy. Since then, we have been focusing on developing *ex vivo* gene therapy tools to enhance the efficacy of cell transplantation.

When and why did you agree to join the Scientific Advisory Board of the DBM Basel?

In January 2016, I was invited to join the Scientific Advisory Board of the DBM Basel. I immediately accepted because I knew many of the excellent scientists working there and was aware of the overall reputation of the DMB nationally and internationally. Since then, I have never regretted accepting the invitation, even during periods when many other overlapping commitments made it hard to cope with all.

What changes and developments have you noticed at DBM Basel in recent years?

I have observed a natural turn-over, with many excellent scientists retiring or moving elsewhere and many younger and brilliant colleagues replacing them. I have seen the change in directorship, with a continuum in promoting scientific excellence, while also implementing some logistical and managerial changes. The lack of a new building, where all DBM members may work together, is a long-lasting problem. A new building would undoubtedly boost research, but it does not seem likely to occur in the very near future.

What do you consider the strengths of the DBM Basel?

Excellent science, very good collaborations existing and more encouraged, good financial support.

In your opinion, what is the most important role of an advisory board?

The main goal of an advisory board, as I have seen in my experience on several boards, is to promote the best science. This involves providing help and advice to the director, senior scientists and junior researchers, as well as advising on general issues such as facilities and student programs.

Can you tell us an interesting fact about yourself that people wouldn't know from your resume?

More than a fact, I'd like to share a single episode that I still remember. Many years ago, I spent an extended sabbatical at the Pasteur institute, in the lab of Margaret Buckingham. During that time, Margaret's group was creating transgenic mice where a reporter gene (nuclear LacZ) was under the transcriptional control of different muscle-genes. These mice represented the fulfilment of a long-lasting dream of mammalian embryologists: a cell autonomous, tissue specific and inheritable marker that would allow to follow the fate of specific cell types during development *in vivo* or their potency upon transplantation into wild type mice. I requested and received permission to establish colonies of these mice back in my laboratory in Rome. In those days (the early 90s), it was possible to bring mice on a flight with you as pets, for an extra ticket of 50 francs. Today, I would have gone straight to jail. I brought them in a nice cage and went to check-in at the airport (no online check in then). Just in front of me in the cue was an elegant lady, also with a cage – but hers contained a cat! While humans would not notice the mice easily, the cat immediately did and began to jump towards the mice, causing a significant chaos. I had to run away from the cue and return when the lady had left with the boarding pass and her cat. When I was asked where I wanted to sit, I immediately emphasized for a seat far away from the lady with the cat. In this way, I saved the mice from the cat, who had clearly a different idea on how to use them, and succeeded to establish one of the first transgenic colonies in Italy.

Interview with our Scientific Advisory Board member Karl-Heinz Krause

Karl-Heinz Krause is Full Professor at the Department of Pathology and Immunology at the University of Geneva and has been a member of the Scientific Advisory Board of the Department of Biomedicine since the beginning of 2009.

What inspired you to become a scientist?

When I decided to study medicine, I had two very divergent visions of my future. One was to work as a general practitioner on the country side, and one was to get deeply involved into molecular science. And the more I got into medicine, the more I felt the force of attraction of science. I always loved medicine and I am still seeing patients, but I felt that a deeper, molecular understanding of health and disease was key for me personally, but also for the future of medicine.

What is your area of expertise?

To begin with, I am an internal medicine physician with a subspecialty in infectious diseases. And that's where my first scientific area of expertise comes from: white blood cells, inflammation, and production of reactive oxygen species. About twenty years ago, I started to develop a major interest in novel therapeutic approaches, namely cell and gene therapies. Over the years, this has become my second area of expertise and now represents the field where I dedicate my full focus.

When and why did you agree to join the Scientific Advisory Board of the DBM Basel?

I joined the Scientific Advisory Board of the DBM Basel when it was created in 2009. My first reason was scientific curiosity: learn more about what is going on in other universities, see a bit from the outside how other research groups are working. But there are additional reasons that explain why I stayed for such a long time. I felt that the longitudinal follow-up of research groups, the way it is organized for the SAB by the DBM, gives a great additional dimension to the work. We can see how research groups are developing, and we can also learn about our science assessment. Were our praises, our worries, our reservations about a given research group confirmed by their scientific development? Should we have sounded the alarm earlier? Or should we have been more positive? Another reason that made me stay is the fact that I have the impression that many of the points raised by the SAB were diligently followed up by the DBM leadership. Thus, I feel that the SAB had impact on the evolution of the DBM.

What changes and developments have you noticed at DBM Basel in recent years?

The most important development for me is the transition from a loose accumulation of individual research groups that shared few common elements to a well organized structure that has an enhanced ability to facilitate the work of the research groups as well as their interactions. Some specific examples include the successful PhD student program and the tutoring of new faculty members.

What do you consider the strengths of the DBM Basel?

Trying to bring together research groups from clinical and basic sciences and make them interact and create synergies is a difficult balancing act. Over the years, I feel that the DBM is doing this better and better. I also think that the DBM has made a series of very strong recruitements over the years, making it a strong force within Swiss Science.

In your opinion, what is the most important role of an advisory board?

The first most important role of the advisory board is to listen and to observe with empathy. This allows us to provide constructive feedback on the things that are going well, but also on areas that need to be improved and how these improvement could be put into place. Sharing best practices and discussing how different issues are handled by other universities can be insightful, as different approaches are always possible.

Can you tell us an interesting fact about yourself that people wouldn't know from your resume?

At the age of around 50, I discovered something about myself that I hadn't even suspected, namely that I enjoy excursions into the world of business. Obviously I am talking about start-ups and biotechnology and my initial motivation was certainly the science part. But then I realized that I also found the understanding of the business part surprisingly engaging. Earlier this year, I took over the presidency of the Geneva Foundation for Medical Research with the aim to create high quality lab space where start-up companies can grow and become successful.

Publications

All publications we have received from the period between January and April 2024. The publications are listed by date.

Single-cell characterization of human GBM reveals regional differences in tumor-infiltrating leukocyte activation

Schmassmann P, Roux J, Dettling S, Hogan S, Shekarian T, Martins TA, Ritz MF, Herter S, Bacac M, Hutter G.

Elife.2023 Dec 21:12:RP92678. doi: 10.7554/eLife.92678.

SARS-CoV-2-associated T-cell infiltration in the central nervous system

Mohme M, Schultheiß C, Piffko A, Fitzek A, Paschold L, Thiele B, Püschel K, Glatzel M, Westphal M, Lamszus K, Matschke J, Binder M.

Clin Transl Immunology. 2024 Jan 31;13(2):e1487. doi: 10.1002/cti2.1487.

The glutaminase inhibitor CB-839 targets metabolic dependencies of JAK2-mutant hematopoiesis in MPN

Usart M, Hansen N, Stetka J, Almeida Fonseca T, Guy A, Kimmerlin Q, Rai S, Hao-Shen H, Roux J, Dirnhofer S, Skoda RC.

Blood Adv. 2024 Jan 31:bloodadvances.2023010950. doi: 10.1182/bloodadvances.2023010950. Online ahead of print. PMID: 38295283

Development of Resistance to Type II JAK2 Inhibitors in MPN Depends on AXL Kinase and Is Targetable

Codilupi T, Szybinski J, Arunasalam S, Jungius S, Dunbar AC, Stivala S, Brkic S, Albrecht C, Vokalova L, Yang JL, Buczak K, Ghosh N, Passweg JR, Rovo A, Angelillo-Scherrer A, Pankov D, Dirnhofer S, Levine RL, Koche R, Meyer SC.

Clin Cancer Res. 2024 Feb 1;30(3):586-599. doi: 10.1158/1078-0432.CCR-23-0163.

Mutation-specific CAR T cells as precision cell therapy for IGLV3-21R110 expressing high-risk chronic lymphocytic leukemia

Märkl F, Schultheiß C, Ali M, Chen SS, Zintchenko M, Egli L, Mietz J, Chijioke O, Paschold L, Spajic S, Holtermann A, Dörr J, Stock S, Piseddu I, Anz D, Dühren-von Minden M, Zhang T, Nerreter T, Hudecek M, Minguet S, Chiorazzi N, Kobold S, Binder M.

Nat Commun. 2024 Feb 2;15(1):993. doi: 10.1038/s41467-024-45378-w.

SARS-CoV-2 vaccination may mitigate dysregulation of IL-1 family cytokines and gastrointestinal symptoms of the post-COVID-19 condition

Fischer C, Willscher E, Paschold L, Gottschick C, Klee B, Diexer S, Bosurgi L, Dutzmann J, Sedding D, Frese T, Girndt M, Hoell JI, Gekle M, Addo MM, Schulze zur Wiesch J, Mikolajczyk R, Binder M, Schultheiß C.

NPJ Vaccines. 2024 Feb 5;9(1):23. doi: 10.1038/s41541-024-00815-1.

Tolerability and Efficacy of the Cancer Vaccine UV1 in Patients With Recurrent or Metastatic PD-L1 positive Head and Neck Squamous Cell Carcinoma Planned for First-line Treatment with Pembrolizumab -the Randomized Phase 2 FOCUS Trial

Brandt A, Schultheiß C, Klinghammer K, Schafhausen P, Busch CJ, Blaurock M, Hinke A, Tometten M, Dietz A, Müller-Richter U, Hahn D, Alt J, Stein A, Binder M.

Front Oncol. 2024 Feb 7:14:1283266. doi: 10.3389/fonc.2024.1283266.

Cell-binding IgM in CSF is distinctive of multiple sclerosis and targets the iron transporter SCARA5

Callegari I, Oechtering J, Schneider M, Perriot S, Mathias A, Voortman MM, Cagol A, Lanner U, Diebold M, Holdermann S, Kreiner V, Becher B, Granziera C, Junker A, Du Pasquier R, Khalil M, Kuhle J, Kappos L, Sanderson NSR, Derfuss T.

Brain. 2024 Mar 1;147(3):839-848. doi: 10.1093/brain/awad424.

IL-1β promotes MPN disease initiation by favoring early clonal expansion of JAK2-mutant hematopoietic stem cells

Rai S, Zhang Y, Grockowiak E, Kimmerlin Q, Hansen N, Stoll CB, Usart M, Luque Paz D, Hao-Shen H, Zhu Y, Roux J, Bader MS, Dirnhofer S, Farady CJ, Schroeder T, Méndez-Ferrer S, Skoda RC.

Blood Adv. 2024 Mar 12;8(5):1234-1249. doi: 10.1182/bloodadvances.2023011338.

Publications

A novel, patient-derived RyR1 mutation impairs muscle function and calcium homeostasis in mice

Benucci S, Ruiz A, Franchini M, Ruggiero L, Zoppi D, Sitsapesan R, Lindsay Ch, Pelczar P, Pietrangelo L, Protasi F, Treves S, Zorzato F.

J Gen Physiol. 2024 Apr 1;156(4):e202313486. doi: 10.1085/jgp.202313486.

Engagement of sialylated glycans with Siglec receptors on suppressive myeloid cells inhibits anticancer immunity via CCL2

Wieboldt R, Sandholzer M, Carlini E, Lin CW, Börsch A, Zingg A, Lardinois D, Herzig P, Don L, Zippelius A, Läubli H, Rodrigues Mantuano N.

Cell Mol Immunol, 2024 Mar 6. doi: 10.1038/s41423-024-01142-0.

B cell depletion with anti-CD20 promotes neuroprotection in a BAFF-dependent manner in mice and humans

Wang AA, Luessi F, Neziraj T, Pössnecker E, Zuo M, Engel S, Hanuscheck N, Florescu A, Bugbee E, Ma XI, Rana F, Lee D, Ward LA, Kuhle J, Himbert J, Schraad M, van Puijenbroek E, Klein C, Urich E, Ramaglia V, Pröbstel AK, Zipp F, Gommerman JL.

Sci Transl Med. 2024 Mar 6;16(737):eadi0295. doi: 10.1126/scitranslmed.adi0295.

Central tolerance shapes the neutralizing B cell repertoire against a persisting virus in its natural host

Florova M, Abreu-Mota T, Paesen GC, Beetschen AN, Cornille K, Marx AF, Narr K , Sahin M, Dimitrova M, Swarnalekha N, Beil-Wagner J, Savic N, Pelczar P, Buch T, King CG, A Bowden T, Pinschewer DD.

Proc Natl Acad Sci U S A.2024 Mar 12;121(11):e2318657121. doi: 10.1073/pnas.2318657121.

Loss of Dnmt3a increased self-renewal and resistance to pegIFN⍰ in JAK2-V617F-positive myeloproliferative neoplasms

Usart M, Stetka J, Luque Paz D, Hansen N, Kimmerlin Q, Almeida Fonseca T, Lock M, Kubovcakova L, Karjalainen R, Hao-Shen H, Börsch A, El Taher A, Schulz J, Leroux JC, Dirnhofer S, Skoda RC.

Blood. 2024 Mar 17:blood.2023020270. doi: 10.1182/blood.2023020270.

T helper cells exhibit a dynamic and reversible 3′-UTR landscape

Seyres D, Gorka O, Schmidt R, Marone R, Zavolan M, Jeker LT.

RNA. 2024 Mar 18;30(4):418-434. doi: 10.1261/rna.079897.123.

Structural implications of BK polyomavirus sequence variations in the major viral capsid protein Vp1 and large T-antigen: a computational study

Durairaj J, Follonier OM, Leuzinger K, Alexander LT, Wilhelm M, Pereira J, Hillenbrand CA, Weissbach FH, Schwede T, Hirsch HH.

mSphere. 2024 Apr 23;9(4):e0079923. doi: 10.1128/msphere.00799-23.

Engineered human osteoarthritic cartilage organoids

Doenges L, Damle A, Mainardi A, Bock T, Schoenenberger M, Martin I, Barbero A.

Biomaterials. 2024 Jul:308:122549. doi: 10.1016/j.biomaterials.2024.122549.

Role of GLR-1 in Age-Dependent Short-Term Memory Decline

Gharat V, Peter F, de Quervain D , Papassotiropoulos A and Stetak A.

eNeuro. 2024 Apr 9;11(4):ENEURO.0420-23.2024. doi: 10.1523/ENEURO.0420-23.2024.

Publications

Neurofilaments as biomarkers in neurological disorders — towards clinical application

Khalil M ,Teunissen Ch E, Lehmann S, Otto M, Piehl F, Ziemssen T, Bittner St, Sormani M P, Gattringer T, Abu-Rumeileh S, Thebault S, Abdelhak A, Green A, Benkert P, Kappos L, Comabella M, Tumani H, Freedman M S, Petzold A, Blennow K, Zetterberg H, Leppert D & Kuhle J.

Nat Rev Neurol. 2024 Apr 12. doi: 10.1038/s41582-024-00955-x.

Clonal heterogeneity leads to secondary resistance in a melanoma patient after adoptive cell therapy with tumor-infiltrating lymphocytes

König D, Sandholzer M, Uzun S, Zingg A, Ritschard R, Thut H, Glatz K, Kappos E.A., Schaefer D.J., Kettelhack C, Passweg J.R., Holbro A, Baur K, Medinger M, Buser A, Lardinois D, Jeker L.T., Khanna N, Stenner F, Kasenda B, Homicsko K, Matter M, Rodrigues Mantuano N, Zippelius A, Läubli H.

Cancer Immunol Res. 2024 Apr 17. doi: 10.1158/2326-6066.CIR-23-0757.

Selective haematological cancer eradication with preserved haematopoiesis

Garaudé S, Marone R, Lepore R, Devaux A, Beerlage A, Seyres D, Dell'Aglio A, Juskevicius D, Zuin J, Burgold T, Wang S, Katta V, Manquen G, Li Y, Larrue C, Camus A, Durzynska I, Simonetta LCF, Urlinger S, Jeker LT.

Nature. 2024 May 22. doi: 10.1038/s41586-024-07456-3.

Nucleobase adducts bind MR1 and stimulate MR1-restricted T cells

Vacchini A, Chancellor A, Yang Q, Colombo R, Spagnuolo J, Berloffa G, Joss D, Øyås O, Lecchi C, De Simone G, Beshirova A, Nosi V, Loureiro JP, Morabito A, De Gregorio C, Pfeffer M, Schaefer V, Prota G, Zippelius A, Stelling J, Häussinger D, Brunelli L, Villalba P, Lepore M, Davoli E, Balbo S, Mori L, De Libero G.

Sci Immunol. 2024 May 10;9(95):eadn0126. doi: 10.1126/sciimmunol.adn0126.

A metabolic dependency of EBV can be targeted to hinder B cell transformation

Müller-Durovic B, Jäger J, Christine E, Schuhmachers P, Altermatt S, Schlup Y, Duthaler U, Makowiec C, Unterstab G, Roffeis S, Xhafa E, Assmann N, Trulsson F, Steiner R, Edwards-Hicks J, West J, Turner L, Develioglu L, Ivanek R, Azzi T, Dehio P, Berger C, Kuzmin D, Saboz S, Mautner J, Löliger J, Geigges M, Palianina D, Khanna N, Dirnhofer S, Münz C, Bantug GR, Hess C.

Science. 2024 May 23:eadk4898. doi: 10.1126/science.adk4898.

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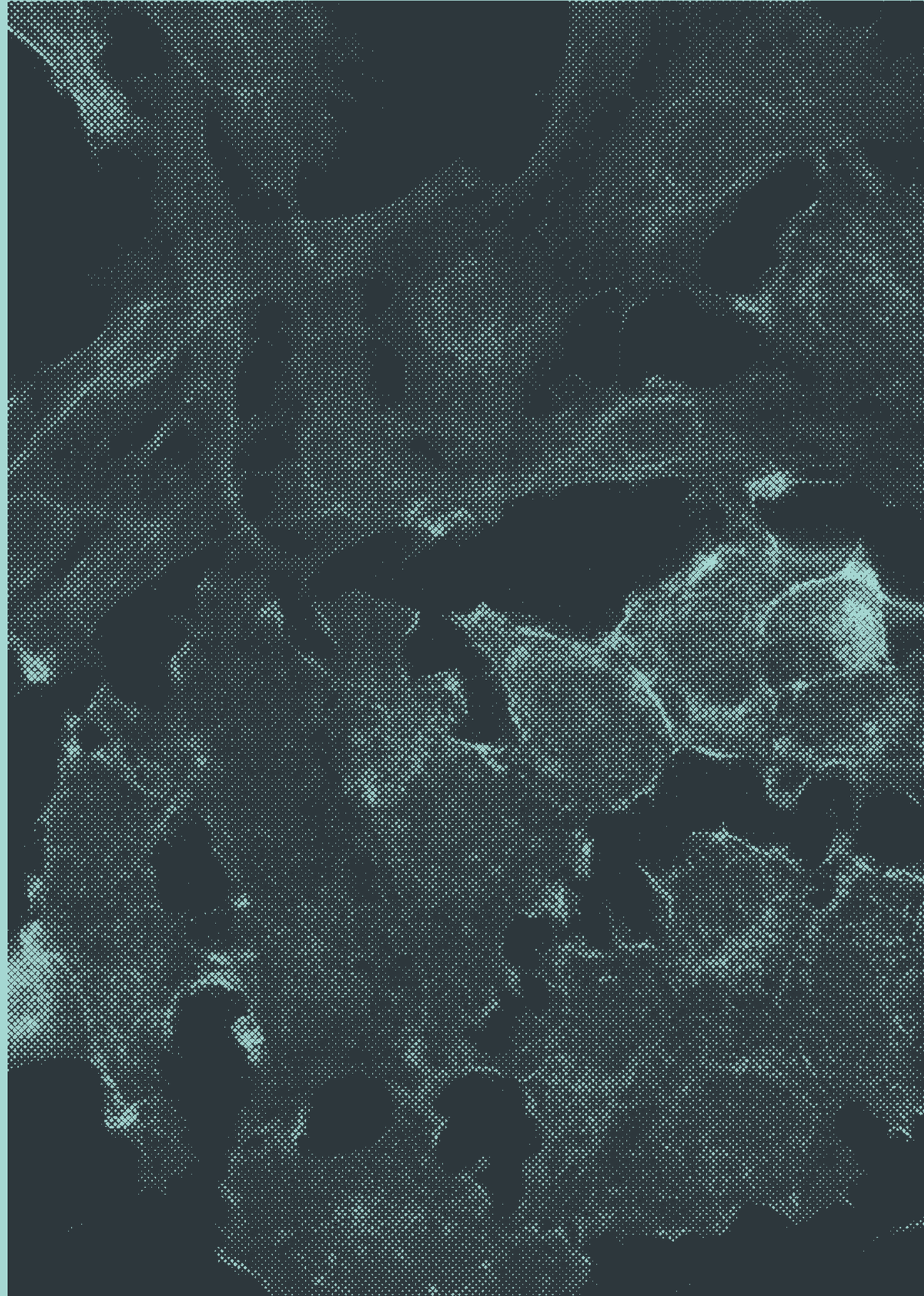
Congratulations
Events



The DBM Congratulates

Awards since January 2024

We extend our heartfelt congratulations to the following DBM members for their remarkable awards and achievements since January 2024.

Congratulations to **Romina Marone, Emmanuelle Landmann, Anna Devaux and Rosalba Lepore** on obtaining the 2nd place at the 2024 Swiss Transplantation Society Award for their publication: "Epitope-engineered human hematopoietic stem cells are shielded from CD123-targeted immunotherapy."

Tobias Derfuss for receiving a SNF project grant about "B cells and antibodies in autoimmune CNS diseases."

Petya Apostolova on her SNF project grant about "Leveraging acute myeloid leukemia metabolism to enhance the graft-versus-leukemia immunity."

Rolf Zeller for his appointment as Vice-President of the Swiss 3RCC.

Furthermore, for becoming the Founding Member of the European Molecular Biology Laboratory Ethics Board (EEB).

Ivan Martin on his SNF project "Engineered human bone marrow niches to investigate leukemic cell chemo-resistance and to support normal hematopoiesis (EngBM)."

Moreover, on his HORIZON EU project - "ENCANTO Randomized, controlled, multi-center phase II clinical trial for the treatment of patellofemoral osteoarthritis with nasal chondrocyte-based tissue engineered cartilage implantation vs current standard of care."

Andrea Barbero on his SNF project grant about "Laser-Assisted RObot-guided CArtilage REgeneration (LAROCARE)."

Arnaud Scherberich on his INTERREG project "Matériaux protéiques hybrides naturels personnalisables pour l'ingénierie tissulaire (ALBUCOL)."

Karoliina Pelttari on her SNF project grant about "Unravelling the role of epigenetic modulation on metabolism in human tendinopathies (SPARK)."

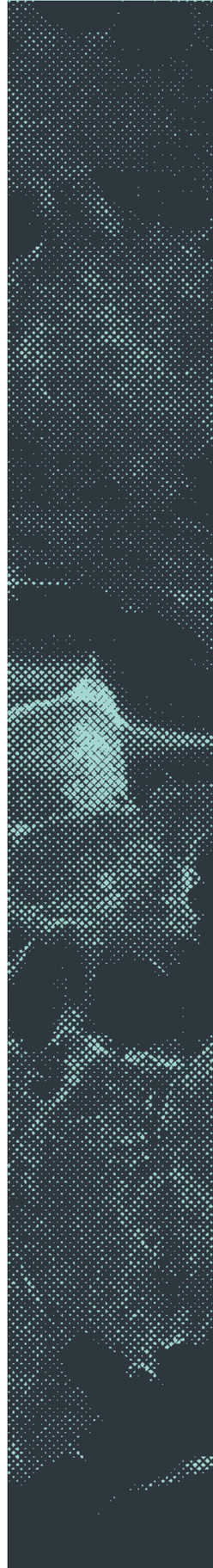
Michele Garioni and Viviane Tschan on obtaining the Third Prize Best Abstract (Oncology) at the European Assiociation of Urology (EAU) annual meeting for the two first co-authors.

Anne-Katrin Pröbstel for accumulating a Horizon Grant ID Dark Mattern https://www.darkmatter-project.eu. The Medical University of Vienna is coordinating an international research project to understand how infectious diseases (IDs) together with environmental and genetic factors trigger the onset of non-communicable diseases (NCDs). The project entitled "ID-Dark-Matter-NCD", with a total funding of €8.4 million from the EU Framework Programme for Research and Innovation, includes 12 European consortium partners.

Magdalena Filipowicz Sinnreich on her SNF project grant about "MAIT cells as immunomodulators within the gut-liver axis in human liver homeostasis and disease."

Andrea Banfi on his SNF project grant about "Decoding angiocrine signaling for therapeutic bone regeneration."

Gregor Hutter and **Radek C. Skoda** for receiving the Dora Seif Award 2024.



The DBM Congratulates

Beltra Jean-Christophe for receiving a SNF project grant about "Uncovering innovative strategies to reverse CD8T cell exhaustion and improve cancer Immunotherapies."

Binder Mascha on her SNF project grant about "Synthetic immunity for precision targeting of oncogenic antigen receptors in lymphoma (IMMORTAL)."

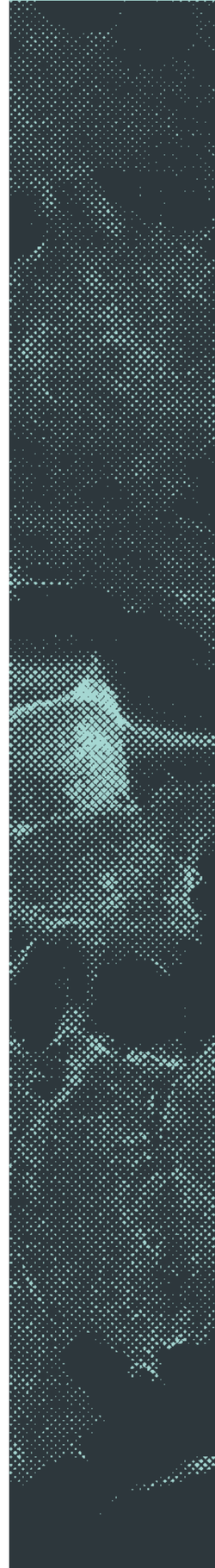
Guzman Raphael on his SNF project grant about "Early minimally invasive image-guided endoscopic evacuation of intracerebral haemorrhage (EMINENT-ICH): a randomized controlled trial."

Jacob Francis for receiving a SNF project grant about "Shedding light on the dark matter of tumor hybrid cells."

Kuster Pfîster Gabriela on her SNF project grant about "Mechanisms of tyrosine kinase inhibitor cardiotoxicity."

Neutzner Albert on his INTERREG project "Studying the neuroprotective roles of meningothelial cells in a bioprinted model of the subarachnoid space."

Pröbstel Anne-Katrin for receiving a SNF project grant about "MicroBe - Towards harnessing Microbiota - B cell interaction for immune modulation in neuroinflammation."



The DBM Congratulates

PHD Defenses since January 2024

09.01.2024	Molecular Biology	**Aisha Beshirova** Tumor recognition by MR1T cells
10.01.2024	Medical-Biological Research	**Jian Yang Low** Unveiling the Impact of Tritrichomonas musculus Colonization and its Interplay with Host Metabolism and Immunity
25.01.2024		**Liang Zhou** Expression and regulation of the glucocorticoid receptor in steroid-resistant asthma and COPD
26.01.2024	Cell Biology	**Anja Kusch** The role of H3K27me3 dosage for thymus development and function
27.02.2024	Molecular Biology	**Henrik Landerer** Expression von immunreaktiven NKG2DL in der gesunden und malignen Hämatopoese
28.02.2024	Medical-Biological Research	**Julia Hirsiger** Harnessing innate immunity to enhance the quality of adaptive vaccine responses
11.03.2024	Molecular Biology	**Ana Ricardo da Costa Xavier** Targeting phosphoinositide 3-kinase γ adapter subunits to attenuate mast cell-induced inflammation with minimal impact on host immunity
13.03.2024	Medical-Biological Research	**Dominic Schmid** Counteracting Resistance to Cancer Immunotherapy with Neoadjuvant Immune Checkpoint Blockade and Targeting of Novel Regulators of T Cell Exhaustion
21.03.2024	Medical-Biological Research	**Marlon Arnone** Evaluation of phenotypic heterogeneity and the role of MRC2 in leukemic stem cells

Gymnasium Liestal Visit

A group of ‘Gymnasium Liestal’ students visited the Department of Biomedicine. The class is currently studying the topic of modern medicine and wanted to further expand their knowledge by gaining insights about CAR-T cell therapy. Heinz Läubli and his team provided an overview of their work and showed them around the laboratory.

Plenary Assembly

The 2024 DBM Plenary Assembly was a productive and engaging event. Members from different disciplines came together to listen to presentations and exchange ideas. This year, the special agenda item „Open Feedback Box“ provided a platform for members to share their thoughts and openly exchange ideas. Events that encourage open communication are increasingly important these days, and we want to continue to promote them.






Explore the Lab

The Explore the Lab seminar is a networking event for DBM members and a great place to share and learn about your colleagues' latest findings and research. On April 24th, the research groups of Petya Apostolova, Gregor Hutter and Heinz Läubli were presented. It was a great success and we are looking forward to the next Explore the Lab seminar in the fall.



Upcoming Events

Athena's Journey Seminar

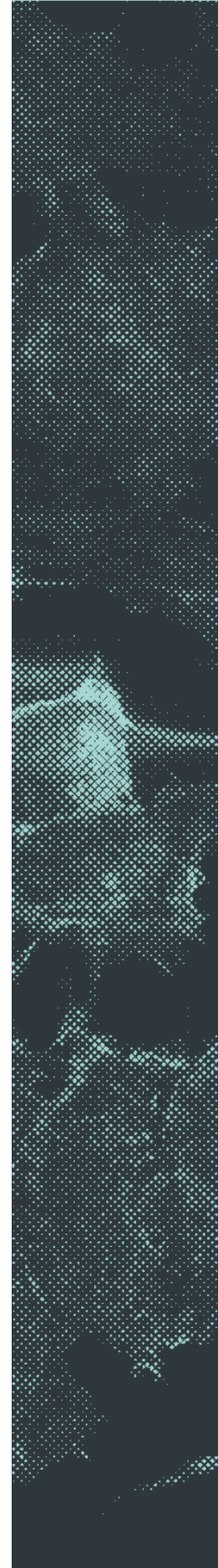
13.06.2024

Athena's Journey Summer Networking Event

27.06.2024

DBM Summer Symposium and Barbecue 2024

22.08.2024



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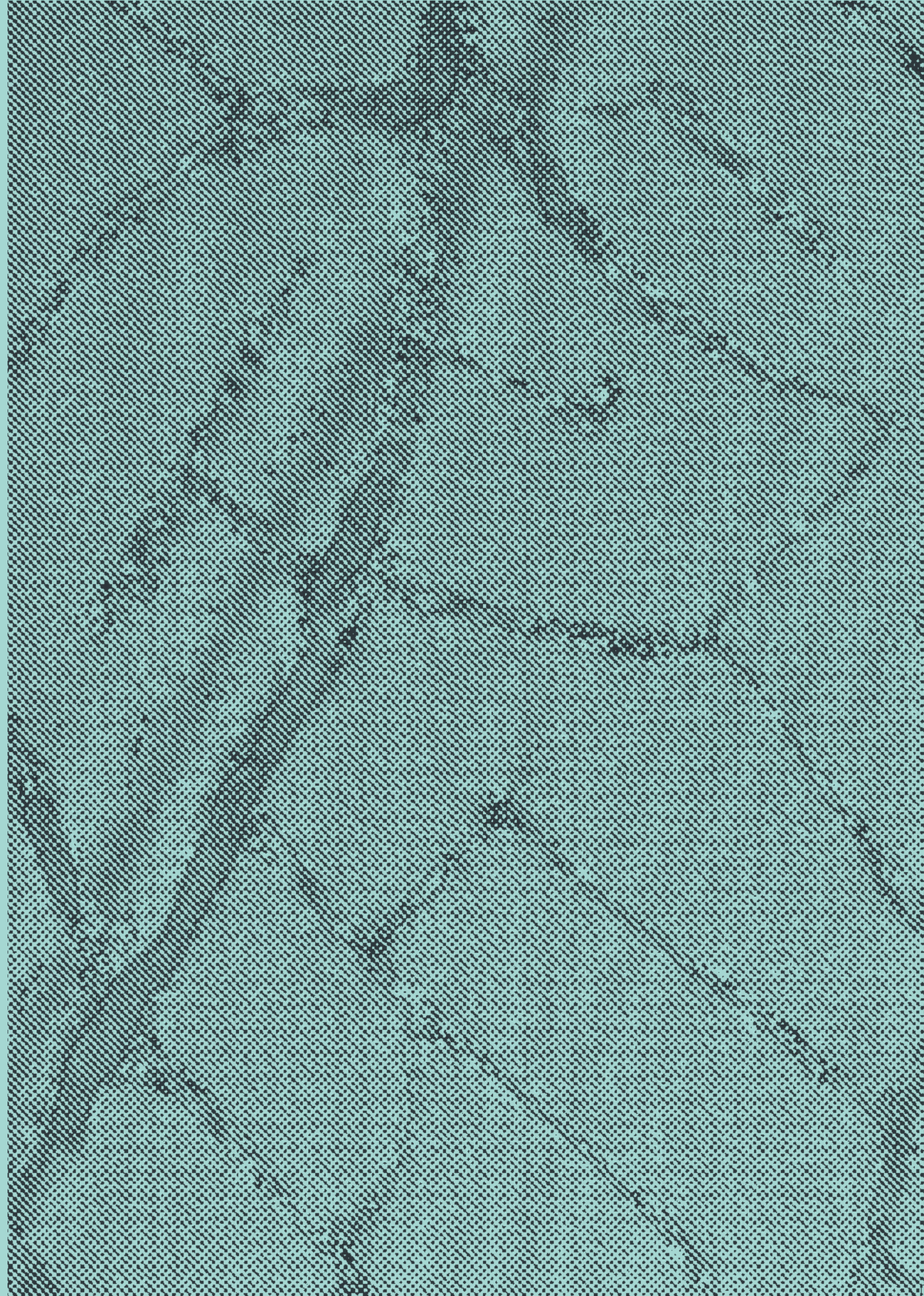
Biomedicine



New Colleagues

New Colleagues from January to April 2024

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

Ackerknecht Sabine
Andreis Massimo
Anezo Loic
Beltra Jean-Christophe
Bläsi Martina
Blum Yannick
Bochicchio Daniela
Buser Tamara
Butaye Anais
Büttner Amira-Philine
Cano-Muniz Santiago
Chanton Nicolas
Chu Taly
De Vaan Joelle
Demarco Verara
Benjamin Matias
Du Marc
Ez Zahraoui Amina
Fuhrmann Friedrich Jakob
Gary Mariam
Gremelspacher Tatjana
Guagnini Benedetta
Gustinelli Alessandro
Gysin Vera
Hanns Antoine
Hessel Darja
Hofer Isabel Marie
Immer-Dammann Sandra
Iseli Galya Clara
Juric Doria
Käch Melanie
Kerschbamer Emanuela
Kido Kenshiro
Kobivasan Swethiny
Korah Alina
Kreme Amandine
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Thank you!

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

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