



MEDICAL UNIVERSITY  
OF VIENNA

# Well on the way to the digital future of medicine

2022  
Annual Report



# Editorial

## A new dawn – the age of digital medicine

We are not yet living in the age of dataism sketched out by Yuval Harari in his book *Homo Deus*, nor are we in an era of transhumanism. And this foreword was not written by ChatGPT, but by a real-life, flesh-and-blood university rector.

Without doubt, though, digital technologies are fundamentally changing our world – and the health system, too. Digital teaching, AI technologies and telemedicine have long since been an integral part of life at our university as well. Thanks to the innovative spirit of our employees, we have already made a significant number of important, groundbreaking contributions in these areas, enabling us to set the tone when it comes to shaping the future of medicine. We are at the dawn of the new age of digital medicine, but at the same time we must not neglect analogue, human expertise. As Eric Topol puts it in *Deep Medicine*: hopefully, digital technologies will lift some of the burden from our shoulders as doctors and leave more time for direct contact with patients.

Our university will continue to embrace its position as a leader in research, teaching and patient care – which was underlined once again in various international rankings in 2022 – by remaining firmly committed to meeting its responsibilities to society. Day in and day



out, the work of our employees makes an important contribution to health promotion, healthcare as well as health communication and education in Austria.

And this report highlights just how wide-ranging their outstanding achievements are.

A stylized, handwritten signature in dark blue ink, consisting of a long, sweeping horizontal line that curves upwards and then downwards into a series of loops.

Professor Markus Müller  
Rector, Medical University of Vienna

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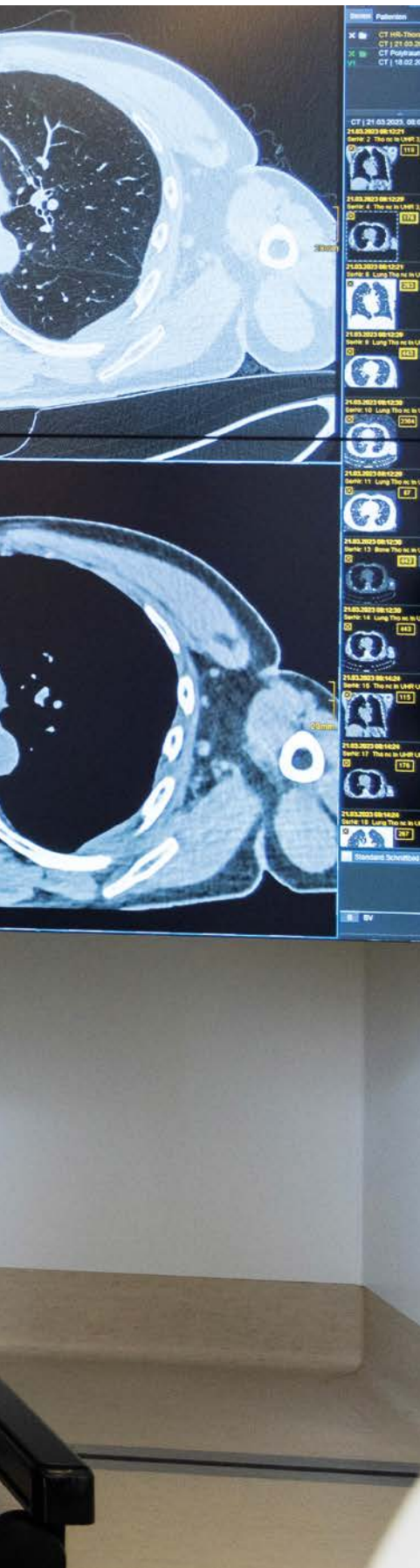
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# Pioneering digital medicine

*MedUni Vienna is leading the way in shaping the future of all fields of medicine, taking various steps designed to turn the university into a hub for digital medicine.*



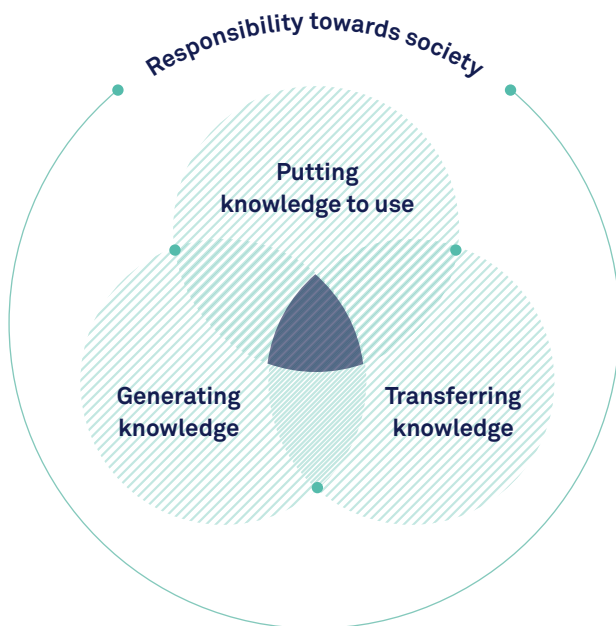
Thanks to its illustrious history and long track record of outstanding scientific achievements, MedUni Vienna is one of the world's most respected medical universities. With around 8,000 students, it is the largest medical training institution in the German-speaking countries. It provides all of the medical staff for University Hospital Vienna – one of the world's largest hospitals, and also one of the best. And with more than 6,000 employees, 30 departments and two clinical institutes, 13 medical theory centres and numerous highly specialised laboratories, it is among the leading institutes in Europe for world-class biomedical research.

Nevertheless, the university has no intention of resting on its laurels. Between now and 2030, MedUni Vienna and University Hospital Vienna will continue to invest in extensive renovation and construction projects at their

shared location, which will allow them to play an instrumental role in shaping 21st century medicine and preparing the infrastructure required to capitalise on the huge impact that digital medicine will have on teaching, research and routine patient care.

Digital technologies are bringing about fundamental changes in the health system and medicine itself. This is being driven by the various omics technologies that evolved following the decoding of the human genome in 2000, and by new methods for processing large amounts of data, which are generating evidence for innovative diagnostic and treatment procedures. MedUni Vienna aims to be in the vanguard of this digital transformation, and its partnerships with University Hospital Vienna – one of the world's top hospitals – and leading national and international research institutes are laying the ideal foundations for it to do so.

"Hands-on" experience in the first semester: the VR anatomy practical is an example of how digital methods can be integrated into the curriculum to maximum effect.



### **More than the sum of its parts**

The three pillars of MedUni Vienna's operations – research, teaching and patient care – each play an equally important part in safeguarding the quality of medical and academic practice. Besides supporting and cross-pollinating one another, they also benefit medical science in terms of maintaining health as well as helping to prevent, alleviate and cure disease. The large number of researchers, physicians, teaching staff and students, coupled with their proximity to patient care, leads to fascinating synergies, projects and experiences in relations between the various tracks.

### **Clear digital strategy**

MedUni Vienna's commitment to expanding research into digital medicine is rooted in its digitalisation strategy, which covers all areas of the university – from research, teaching and patient care to administration, construction plans and professorial appointments. Digital medicine encompasses a wide range of subjects, including data mining, bioinformatics, integrated genomics, radiomics and machine learning. MedUni Vienna is already addressing many of these topics. New professorships will complement existing expertise and help to create a critical mass of experts in digital, personalised and molecular medicine, computing and machine learning, cognitive imaging and computational medicine at the university. Ensuring that the different departments are tightly networked and work closely together by means of interdisciplinary teams will be an essential factor in →





## Anatomy practicals with smart headsets

*Thanks to its virtual reality (VR) anatomy practical, MedUni Vienna has created a virtual learning experience that complements modules on the curriculum.*

In the 2021/2022 winter semester, 720 freshers had their first virtual encounter with the subject of anatomy – in the VR anatomy practical, they put on their smart headsets before taking a virtual tour around the human body. “They had to perform certain tasks and locate specific anatomical structures in the virtual space,” explained Wolfgang Weninger, Head of the Center for Anatomy and Cell Biology. The students were able to move around in the interactive application and select, rotate and virtually cut through modular elements with the help of controllers. Training videos helped with the technical preparations, and specially trained tutors

were on hand to provide support, with Covid-prevention measures in place throughout. However, the pandemic had nothing to do with the launch of this digital course – it was actually an EU project that the university had applied to take part in before the coronavirus emerged.

### ***Tried-and-tested virtual reality***

The VR anatomy practical was continued because it had proved its worth – as a supplement to hands-on experience, as Weninger pointed out: “Manual skills and getting a feel for the physical properties of anatomical specimens are essential in a medical degree. And we will also continue to offer the full



*Wolfgang Weninger,  
Center for Anatomy*

range of traditional dissection courses.” However, new digital tools have enabled virtual reality to be deployed effectively in teaching – and for training – in some fields of anatomy.



the success of digital medicine. This is why structures must be designed in a way that allows for collaboration and sharing of ideas across departmental boundaries.

### ***Focus on precision medicine***

Digital medicine applications are generating added value that directly benefits patients at MedUni Vienna and University Hospital Vienna. The combination of big data and artificial intelligence (AI) in medical science enables hidden patterns and correlations to be identified, leading to a better understanding of the causes of diseases. This can open up fundamental insights that drive prevention, new treatment options for rare diseases, and precision medicine tailored to individual needs – with the latter heralding a paradigm shift in healthcare. Every person's predisposition to certain illnesses is determined by their genetic make-up as well as environmental influences. Precision medicine builds on specific personal factors in order to identify the ideal treatment for the individual concerned.

Construction of the Eric Kandel Institute – Center for Precision Medicine represents a milestone in MedUni Vienna's evolution. Part of one of the largest investment programmes currently under way in Vienna, the 60,000m<sup>2</sup> facility features three centres that will shape the future of 21st century medicine, with a focus on precision medicine,

biomedical research, genome technology, bioinformatics and data technologies. Turn to page 16 for more information on the construction projects that are creating the space required for advances in digital medicine.

### ***Digital medicine in the curriculum***

New medical technologies are having an impact on research and routine patient care through the introduction of digital approaches such as robot-assisted operations, telemedicine, and diagnosis and therapies based on machine learning and artificial intelligence. The effects of these technologies are also being seen in teaching, where methods and contents are being adapted in line with the requirements of digital medicine. This will involve hybrid teaching, medical simulation programmes, virtual and augmented reality, fine-tuning the teaching culture, and also inter-professional education.

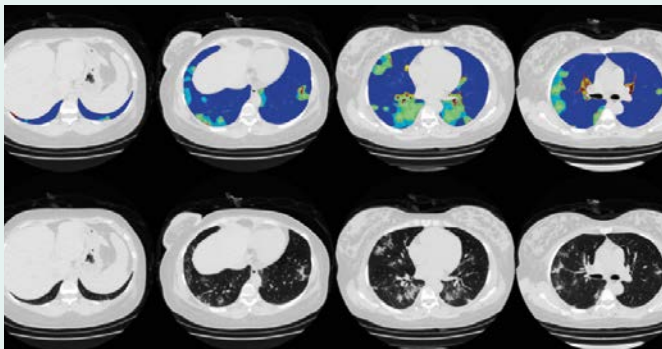
It is important that students learn which digital tools and new media are available in their respective field, how they are used in practice, the degree to which they can support medical staff, and factors that need to be borne in mind when using them. The Molecular Precision Medicine master's programme and changes in the Medical Informatics master's programme will also strengthen MedUni Vienna's strategic focus in its teaching operations. See page 24 for more information.

# Machine learning lays foundations for precision medicine

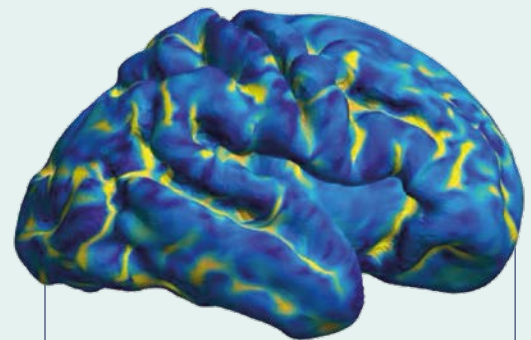
*The researchers at the Computational Imaging Research Lab create models based on image data that give them a deeper understanding of biological processes and enable them to predict disease progression.*



*Georg Langs heads the Computational Imaging Research Lab at the Department of Biomedical Imaging and Image-guided Therapy.*



*The team is developing methods that use data from imaging procedures such as computed tomography and magnetic resonance imaging to support prognoses and inform treatment decisions.*



*Neuronal studies have given the researchers fundamental insights into brain development and the brain's ability to reorganise.*

The team from the Computational Imaging Research Lab at the Department of Biomedical Imaging and Image-guided Therapy are carrying out pioneering work at the intersection of machine learning and precision medicine. They interlink images from computed tomography (CT) and magnetic resonance imaging (MRI) scans with large data sets and then look for patterns – which generates knowledge for basic research, as well as reference points for diagnosis and therapy. How do diseases develop? How do they change? And what treatments are likely to help sufferers? The researchers are using data to try and find answers to these and similar questions in connection with conditions including lung diseases, brain tumours and breast cancer.

## **Joining the dots**

“Image data contain much more information than is used in day-to-day clinical practice,” said Georg Langs. “For example, in the PREDICTOME project, which is funded by the Vienna Science, Research and Technology Fund [WWTF], we match image

data with genetic data in order to predict whether or not neoadjuvant chemotherapy will deliver positive results for a breast cancer patient.” The important information this provides to the treatment team will allow them to perform therapy and surgery as effectively as possible. High-tech methods such as multiparametric imaging and next-generation sequencing have a key role to play in precision medicine. High-resolution images of structure and function are analysed in a sample along with several hundred million gene fragments from the tumour, linked to molecular diagnostic data and then evaluated.

Big data projects like these would be inconceivable without digitalisation, as Langs stresses, although he sees machine learning as a tool in itself and not as a ready-to-use toolbox: “Lots of things still need to be developed in tandem.” He believes that interdisciplinary research in this area represents a huge opportunity to shape the future of medicine – with MedUni Vienna at the forefront.

## Digitalisation task force

MedUni Vienna Vice Rectors Michaela Fritz, Anita Rieder and Volkan Talazoglu

### Working groups

Teaching	Research	Patient care	Administration
Headed by: Georg Dorffner	Headed by: Thomas Wrba	Headed by: Christian Herold	Headed by: Brigitte Haidl
Members	Members	Members	Members

Links between individual projects and all of the working groups are important when it comes to project implementation

## Implementing digital projects

MedUni Vienna has set up a task force that prioritises specific digitalisation projects and supports their implementation. It is headed by MedUni Vienna's three Vice Rectors and is split into four working groups – teaching, research, patient care and administration – which consult closely with each other. The portfolio of initiatives is constantly changing: current projects are being completed and integrated into routine operations all the time, while new ideas are generated and fine-tuned by way of project profiles and assignments. Some initiatives relate to administration, where the aim is to streamline and automate processes and ultimately make them more efficient, while also putting them in a position to support core activities even more effectively.

A number of key digitalisation projects were implemented in 2022. They included Scientific Computing, which makes IT-intensive scientific evaluations possible by providing the required computing capacity; the Planet eStream platform, where teaching staff can upload and share video content; and the synchronous PACS interface, a data interface that links MedUni Vienna's image data platform and University Hospital Vienna's extensive radiological archive (picture archiving and communication system or PACS), allowing for data exchange as part of scientific studies. Since April 2022, PACS image data generated in the hospital has been transferred immediately to MedUni Vienna and made directly available for research purposes. Every day, about 200 gigabytes of data – equivalent to around 1,500 examinations – from more than 600 imaging devices are received from the PACS.



*The fully immersive, interactive VR game Conquer Catharsis helps children and young people to learn relaxation techniques, and enhances their stress resistance and body awareness. MedUni Vienna is conducting a multi-centre study to find out how effective the game is.*

# PedVR Lab: a gateway to the virtual world

*In the PedVR Lab, children and young people dive into VR worlds, helping them to overcome anxiety or making operations as stress-free as possible.*



*Anna Felnhofner now heads the PedVR Lab that she set up in 2018 at the Department of Pediatrics and Adolescent Medicine.*

The child puts on a VR headset and they find themselves on a group of islands where they have to complete eight relaxation exercises. Leaving the beach they head into the forest, then on to a small lake and up a mountain, where they can enjoy the superb views. They can explore the virtual environment to their heart's content, pick some objects up and be beamed to another part of the island by pressing a button on the controller. And this virtual world is not static – it reacts: the slower the child's pulse, the more colourful the leaves in the forest turn, the closer the deer moves, and the clearer the water in the lake becomes.

## **Biofeedback therapy games**

"We use computer games to practice certain learning processes with children and young people – it's not only a lot of fun for them, it also supports therapy processes," explained researcher and clinical psychologist Anna Felnhofner. In 2015, together with Oswald Kothgassner from the Department of Child and Adolescent Psychiatry she provided the initial spark for the introduction of VR as a tool for research as well as interventions with children and adolescents at MedUni Vienna. Biofeedback involves measuring body functions using technical equipment. The subject of extensive research into its role as an adjunctive therapy, biofeedback helps the youngsters to strengthen their self-efficacy and improve awareness of their own bodies.

VR is used in a wide range of applications. "The technology is very well suited to therapy, especially for treatment of anxiety, eating or obses-

sive-compulsive disorders, and also fear of flying or of animals," Felnhofner added. "People with schizophrenia can develop skills for day-to-day living in VR settings, which simplifies the move from the treatment room to everyday life." What's more, VR can create simple simulations that would be very expensive to realise in real life – for example, simulating an aircraft setting for people who are afraid of flying. It does not matter that the subjects may be aware of the difference: as soon as they put on the VR headset, the virtual world feels real and induces true-to-life reactions. "Evolution has conditioned human beings to respond to stimuli as if they were real."

## **Taking the stress out of operations**

Anyone who has had an ingrown toenail will probably know how painful administering a local anaesthetic can be. But while a doctor is operating on their foot, young patients can dive into an underwater world in a game called Fishworld. A study has been launched to identify the extent to which this type of distraction helps the youngsters by collecting data on functions such as heart rate, as well as details of personal feelings. In the study, one group of subjects explore their surroundings passively, while the others collect gold coins in the sea. There is also a control group of subjects without VR headsets. The researchers are looking to identify which approaches are most effective when it comes to making operations like this as stress-free and pain-free as possible.

# Certifications and audits

*Quality and continuous improvement are central to all of MedUni Vienna's activities. And the university's adherence to its own high standards is assessed by independent bodies.*

Quality needs to be more than just a claim, it has to be backed up by evidence – and MedUni Vienna does this by means of regular internal and independent external audits that examine, document and evaluate all processes. Without regular scrutiny of its own processes and services, an organisation will not be in a position to improve them. Several organisational units are already ISO-certified (see info box, right). Certain parts of the university are also the subject of additional audits, some of which are voluntary, while others are required by law, including system accreditation, which puts the entire university's quality management structures under the microscope and reviews all areas of teaching and continuing education. MedUni Vienna completed this audit and received unconditional accreditation in September 2022, in accordance with the Austrian Hochschul-Qualitätssicherungsgesetz (Quality Assurance in Higher Education Act) and the audit guidelines of the Accreditation Agency in Health and Social Sciences (AHPGS).

## **Quality assured**

The external assessors affirmed that MedUni Vienna had implemented and enhanced a broad-based, robust quality assurance system in line with its strategy. They also stated that the university's policies reflected a clear quality strategy, which is executed by means of defined processes and implemented at



the university's various facilities. The audit report confirmed that the quality management system is thriving and generates added value for the university and its degree programmes, teaching staff and students. At the same time, the quality assurance concept also offers sufficient flexibility and scope for the various MedUni Vienna institutions to assess and continuously develop internal processes in research, study and teaching.

MedUni Vienna has obtained unconditional accreditation several times for its Medicine and Dentistry undergraduate programmes. The accreditation certifies that both curriculums meet international quality standards. More information can be found on page 22. MedUni Vienna has also received

## **Signed and sealed**

In 2022, the quality management structures in place across the university as well as all areas of teaching and continuing education were assessed and awarded unconditional certification. The following units at MedUni Vienna have also been certified in accordance with ISO 9001:2015:

- Teaching Center
- Studies and Examinations Department
- Clinical Trials Coordination Centre
- University Library
- Institute of Specific Prophylaxis and Tropical Medicine
- Center for Forensic Medicine
- All University Hospital Vienna departments

# equalitA

DAS GÜTESIEGEL FÜR  
INNERBETRIEBLICHE FRAUENFÖRDERUNG

Austrian government certification as a family-friendly institution. The university first completed the hochschuleundfamilie (“University and Family”) audit in 2010 – the audit evaluates higher education institutions that take steps to promote a family-friendly environment for both employees and students. The certification was renewed for the third time in 2021, meaning that MedUni Vienna was recognised once again as a family-friendly employer.

### **ISO: evaluating processes**

MedUni Vienna began obtaining certification for some organisational units in accordance with the international ISO standards in 2011. The Studies and Examinations Department was the first to be certified, followed by the University Library in 2012 and the Clinical Trials Coordination Centre in 2014. Most recently, the Teaching Center completed an external surveillance audit for its ISO certification in 2022. The ISO 9001 quality management standard is the best-known and most common form of certification worldwide. It concentrates on process management, documentation, regular supplier audits, continuous improvement and knowledge management.

ISO certification requires detailed examination of processes: what is done? What instructions have been documented? Which steps can be examined? If any unnecessary activities are found, the process is adapted and documented accordingly. The audit also checks once again whether defined procedures are adhered to. Certificates issued by inspection bodies show “that the university is subject to particular standards and can demonstrate that it lives up to them,” said Katharina Stowasser-Bloch, Head of the Evaluation and Quality Management Unit at MedUni Vienna. “This commitment to ensuring that processes are reliable underlines the fact that the institution is a dependable contractual partner for all of its stakeholders.”

## **equalitA quality seal for MedUni Vienna**

*In April 2022, MedUni Vienna was awarded the equalitA quality seal by the Austrian Digitalisation and Business Location Ministry for its outstanding commitment to the advancement of women at the university.*

MedUni Vienna is dedicated to promoting gender equality, gender mainstreaming, diversity and gender medicine. And in recognition of this, the university was presented with a special award by the Digitalisation and Business Location Ministry. The equalitA quality seal is awarded to companies that promote the advancement of women internally, ensure gender equality, and support and raise awareness of women’s careers, which in turn ensures professional gender equality both inside and outside the organisation.

This commitment extends from recruiting, management of sabbaticals and maternity leave, language and the corporate culture as well as human resource development, through to specific projects geared towards women’s advancement, including mentoring, women’s networks and the balanced representation of all genders in the organisation’s visual language and public image.

# Building towards the medicine of the future

*MedUni Vienna is building new research centres in order to create a future-ready basis for digital and personalised medicine. This will make it easier to identify the causes of disease at the molecular level and give patients more targeted and individualised treatment in future. The centres will also further increase the level of education for students.*



*Currently taking shape, the Eric Kandel Institute – Center for Precision Medicine will provide new facilities for research into digital and personalised medicine.*

**T**he new research buildings will help to drive advances towards the new era of personalised medicine. Two new research centres are due to be completed by 2026: the Eric Kandel Institute – Center for Precision Medicine and the Center for Translational Medicine. Covering 20,000m<sup>2</sup> in total, these facilities will provide space for about 800 employees who are set to play a part in the evolution of 21st century medicine. MedUni Campus Mariannengasse is creating a state-of-the-art working environment featuring centralised research infrastructure for general use, as well as teaching facilities and a skills lab for students.

## **Launching further projects**

The Center for Technology Transfer is intended to create an ideal environment for interdisciplinary research, especially into digital health and personalised medicine. The plans include facilities for basic research, clinical research and patient care, as well as infrastructure for both dynamic start-ups and established pharmaceutical and medtech companies.



» *Despite the challenging conditions – including problems such as inflation and the energy crisis – our stable financial growth continued in 2022 and we were able to carry on implementing our numerous infrastructure projects, including digitalisation initiatives, without any sacrifices in terms of scope. And further joint efforts will be required over the coming years to safeguard MedUni Vienna's continued development.* «

Volkan Talazoglu,  
Vice Rector for Finance



## Eric Kandel Institute – Center for Precision Medicine

The preparations for construction of the Eric Kandel Institute – Center for Precision Medicine were finalised when the construction contract was signed by the federal government, the City of Vienna and the university, and a corresponding resolution was passed by the city council on 24 November 2022. Named after Vienna-born Nobel Prize winner Eric Kandel, the centre will focus on the mechanisms behind diseases and develop principles for diagnosis, treatment and preventive measures tailored to specific, individual factors. The centre's proximity to University Hospital Vienna is intended to ensure that physicians responsible for patient care can collaborate closely with basic researchers, and that patients can be treated in line with the latest research findings.

### **High-tech location**

At the Center for Precision Medicine, the focus will be on pioneering diagnostic procedures. Genome sequencing, molecular imaging and other leading-edge methods will open the door to an even more precise understanding of the specific causes of diseases, allowing for more targeted treatment. This will greatly increase the chances of recovery from disease, including for sufferers of severe and rare conditions. Enabling staff from various professions to collaborate closely will ensure that patients benefit swiftly from research findings in areas such as biomedical research, genome technology, bioinformatics and IT.

Personalised medicine can be used to treat numerous conditions, including cardiovascular, metabolic, respiratory and infectious diseases and cancer as well as mental illnesses. The institute that is currently taking

shape will consolidate and build on MedUni Vienna's groundbreaking record in precision medicine. The project is being financed through European Union funding and private donations.

### **Eric Kandel Institute**

**Address:** MedUni Campus AKH, Lazarettgasse  
(south of the main building)

**Usable space:** 6,700m<sup>2</sup>

**Start of planning:** 2022

**Construction:** 2023-2026

**Investment:** approx. EUR 90 million

### **Find out more**

For an overview and additional information on all MedUni Vienna construction projects, visit [bauprojekte.meduniwien.ac.at](http://bauprojekte.meduniwien.ac.at) (German only)



*The Center for Translational Medicine is scheduled for completion by 2025. Approximately 14,000m<sup>2</sup> of space will be available for teaching, conferences, laboratories and clinical trials. Two levels will be open to the public.*

## Center for Translational Medicine

A research facility that supports all fields of medicine, with an emphasis on patient benefits – this is the strategic focus of the Center for Translational Medicine, which will help to bridge the gap between basic research and applications, and serve as a location for lively dialogue. “The new centre will enable us to characterise diseases in accordance with the latest standards and quickly translate this information into effective therapies,” explained Christoph Binder of the Department of Laboratory Medicine, who has been involved in the planning from day one.

### **Calling card**

The building is designed as a place for sharing information and ideas. Several conference rooms are planned, including a lecture theatre for about 750 people, and the lobby will serve as a meeting point for all staff working at the campus. “The Center for Translational Medicine is intended to be our external calling card, especially for the medical community, because sharing insights is the lifeblood of research,” Binder added.

The site will feature all of the infrastructure required for practice-led research into diseases: alongside office and laboratory space, there will also be a good manufacturing practice (GMP)-compliant facility for cell therapies, radiopharmaceuticals and biologicals, core facilities, animal accommodation with preclinical imaging capabilities, a biobank, and a clinical centre for phase I and II trials including a ward for subjects. “The wide range of on-site facilities will allow us to test therapies quickly and make them available to patients sooner,” as Walter Berger of the Center for Cancer Research pointed out.

### Center for Translational Medicine

**Address:** MedUni Campus AKH, Lazarettgasse  
(south of the main building)

**Usable space:** 14,000m<sup>2</sup>  
(11,700m<sup>2</sup> for research and  
2,300m<sup>2</sup> for teaching)

**Start of planning:** 2020

**Construction:** 2023–2025

**Investment:** approx. EUR 120 million



## MedUni Campus Mariannengasse

MedUni Vienna and publicly owned Austrian real estate manager Bundesimmobiliengesellschaft (BIG) are laying the foundations for world-class medical research and training for the physicians of the future at the new MedUni Campus Mariannengasse, which is located next door to MedUni Campus AKH. Previously spread throughout the site, MedUni Vienna's pre-clinical facilities will be brought together at a single, 35,000m<sup>2</sup> location that includes state-of-the-art teaching infrastructure. About 750 scientists from the Centers for Physiology and Pharmacology, Anatomy and Cell Biology, Pathobiochemistry and Genetics, Medical Physics and Biomedical Engineering, and the Center for Cancer Research will be based at the new campus, while about 2,000 students will be able to attend courses, study and spend their free time at the new facility.

### **Where old meets new**

The design for MedUni Campus Mariannengasse features a mix of long-standing buildings that have been preserved and refurbished, as well as a distinctive new build – all in the heart of a highly built-up part of the city. According to MedUni Vienna Rector Markus Müller: "The close proximity to MedUni Campus AKH, with the Centers for Precision Medicine, Translational Medicine and Technology Transfer that are taking shape there at the same time, is intended to enhance personal interaction between the various disciplines, which means that basic research findings can be integrated even more quickly into clinical applications and training for the next generation of doctors." And patients

will benefit from the high-tech working and learning environment, too.

Specialised in medical research and teaching, the state-of-the-art campus will be divided into three sections: general, teaching and research. The ground-floor level of the main building will feature three large lecture theatres, with further seminar and training rooms on the first and second floors. For students, there will be learning zones as well as lounge areas where they can bounce ideas off each other. There is also a cafeteria on the ground floor of this listed building. The research facilities are located between the third and seventh floors. The different areas of the site are linked by a public footpath that runs across the campus from Spitalgasse (Altes AKH) to Lazarettgasse (University Hospital Vienna).

### **Campus Mariannengasse**

**Address:** Mariannengasse/  
Spitalgasse/Höfergasse/  
Rummelhartgasse

**Usable space:** 35,000m<sup>2</sup>

**Start of planning:** 2018

**Construction:** 2023–2026

**Investment:** approx. EUR 340 million





## Innovation-led teaching

*A varied range of degree programmes, joined-up curriculums, expert teaching staff and ground-breaking tools: MedUni Vienna does everything it can to ensure its students receive high-quality education – which lays the basis for outstanding career prospects.*



## High-quality teaching

*Outstanding knowledge transfer: MedUni Vienna offers a range of top-class degree and continuing education programmes that reflect its strategic focus.*

**R**esearch-led teaching and compliance with international quality standards are the cornerstones of MedUni Vienna's degree programmes. The largest medical education institution in the German-speaking countries sets high standards for its teaching and training activities that go beyond the statutory requirements. "Assuring and improving quality is one of our priorities," said Anita Rieder, MedUni Vienna's Vice Rector for Education. "It's not enough to just bank on everything running smoothly."

### **Above and beyond legal requirements**

System accreditation, which involves a detailed examination of the entire university's quality management structures as well as all areas of teaching and continuing education, is required by law. MedUni Vienna completed this audit in September 2022, in accordance with the Austrian Quality Assurance in Higher Education Act and the audit guidelines of the Accreditation Agency in Health and Social Sciences (AHPGS). "We received top marks," commented a delighted Anita Rieder. The university was awarded unconditional certification which is valid until the end of July 2029. In addition, MedUni Vienna has voluntarily obtained accreditation for the Medicine and Dentistry programme curricula: the certifications are valid until 2023 and until the end of September 2027 respectively. The process for reaccreditation of the Medicine programme was launched in 2022.

*» The Medical University of Vienna is rated as one of the world's top 100 medical schools in the global rankings. And we safeguard the university's excellent standards of education by means of systematic adjustments, including in terms of advances in digitalisation. «*

Anita Rieder,  
Vice Rector for Education



### **State-of-the-art curriculum**

According to its mission statement, MedUni Vienna's core objective is "maintaining and restoring health through expertise and innovation." This means that teaching also needs to move with the times in terms of methods and contents, and be geared to the requirements of increasingly digital medicine. MedUni Vienna has implemented modern curriculums that deliver high-quality learning outcomes, are practice- and research-led, promote international mobility and are designed to be highly attractive to outstanding students. Contemporary course contents and tools, including hybrid modules, simulation-based training, and virtual and augmented reality, are already an integral part of them. Other goals include lifelong learning by means of postgraduate continuing education that meets the needs of the labour

market, as well as technological innovation. The Molecular Precision Medicine master's programme and changes in the Medical Informatics master's programme will also enhance MedUni Vienna's strategic focus in its teaching.

That said, medicine has always been a hands-on science, and many skills can only be learned by means of practicals. Trainee physicians can gain experience in this aspect from the beginning of their degrees, for example by practising doctor-patient conversations with simulation patients. Here, professional actors slip into various roles and talk about their personal and medical histories, such as a head of department who wants to go straight to the next

meeting despite suffering a heart attack, or a man who thinks beer doesn't count as alcohol but is thinking about giving up drinking. After the conversation, students receive professional feedback. The Medical Communication course has been part of the Medicine curriculum since the 2010/11 academic year.

In the final year of the Medicine programme students complete their Clinical Practical Year, where quality is also a key consideration. The accreditation of 111 teaching hospitals and 101 general practice training surgeries in Austria, as well as numerous teaching hospitals abroad, ensures the high quality of clinical practice training for future doctors.

### **Teaching White Paper**

Drafted by the Teaching Task Force, the Teaching White Paper sets out the ways in which MedUni Vienna is addressing the challenges it currently faces in training the doctors of the future. It covers the key focus areas that will be addressed step-by-step in collaboration with the university's various committees, including careers, interprofessional teaching, medical simulation, digitalisation, final examinations and competence-based evaluation.

*Thanks to their outstanding achievements in research, MedUni Vienna staff make a significant contribution to disease prevention and treatment. A steady stream of innovations has earned the university an excellent reputation both at home and abroad.*

Maria Sibilia,  
Chair of the Senate



# Studying medicine and deepening knowledge

Prospective MedUni Vienna students can choose from a broad range of courses, including the Medicine and Dentistry degree programmes, a diversified selection of doctoral and PhD programmes, as well as master's degrees. The portfolio also includes continuing education courses that enable professionals to enhance their expertise.



## ***Undergraduate degree programmes***

- Medicine
- Dentistry

## ***Master's degree programmes***

- Medical Informatics
- Molecular Precision Medicine (in collaboration with the University of Vienna)

## ***Doctoral programmes in basic medical research***

- Cardiovascular Tissue Regeneration and Repair
- Endocrinology and Metabolism
- Immunology
- Malignant Diseases
- Medical Imaging
- Medical Informatics, Biostatistics & Complex Systems
- Medical Physics
- Molecular Mechanisms of Cell Biology
- Molecular Signal Transduction
- Neuroscience
- RNA Biology
- Signaling Mechanisms in Cellular Homeostatics
- Vascular Biology

## ***Doctoral programmes in applied medical science with a focus on clinical research***

- Clinical Endocrinology, Metabolism and Nutrition
- Biomedical Engineering
- Clinical Neurosciences (CLINS)
- Programme for Organ Failure, Replacement and Transplantation (POET)
- Clinical Experimental Oncology
- Preclinical and Clinical Research for Drug Development
- Musculoskeletal and Dental Research
- Cardiovascular and Pulmonary Disease
- Mental Health and Behavioural Medicine
- Public Health

## ***Joint PhD programmes***

- Molecular Biosciences (in collaboration with the University of Vienna)
- NTU Singapore at MedUni Vienna (in collaboration with Nanyang Technological University)



### **Postgraduate programmes**

- Advanced Diseases – Master of Science (Continuing Education)
- Ergonomics and Fitness for Work
- Industrial Medicine
- Occupational Health Assistant
- Clinical Research
- Endodontology
- Esthetic Dentistry
- Forensic Sciences
- Gender Medicine
- Principles and Practice of Traditional Chinese Medicine (TCM)
- Health Care Management (HCM-MBA)
- Healthcare Facilities
- Critical Care Nursing
- Interdisciplinary Pain Medicine
- Clinical Academic Psychotherapeutic Propaedeutic and Medical Humanities (KAPP-MH) – Master of Science (MSc) (Continuing Education)
- Crisis Intervention and Suicide Prevention
- Master of Advanced Studies (MA) in Insurance Medicine
- Master of Applied Medical Aesthetics (MSc)
- Master of Public Health
- Medical Hypnosis
- Medical Physics
- MSc in Occupational and Organisational Medicine
- Periodontology and Implantology
- Prosthodontics – Interdisciplinary Therapy Concepts: Academic Expert (AE) or Master of Dental Science (MDSc)
- Psychotherapy: Psychoanalytic/Psychodynamic Methods (ULG-PPPM)
- Psychotherapy: Behavioural Therapy
- Psychotherapy Research
- Sleep Coaching – AE or MSc (Continuing Education)
- Study Management – Academically Certified Study Manager (AE)/MSc in Study Management
- Substance Use Disorders – MSc (Continuing Education)
- Toxicology
- Transcultural Medicine and Diversity Care – AE or MSc (Continuing Education)



## **Learning social skills**

**Compulsory practical.** *In the Social Competence course, first-semester students learn to adopt a professional demeanour when interacting with people who need care as well as with counterparts from various health professions.*

A practical focus is a vital part of MedUni Vienna's degree programmes from day one. Starting in the first semester, students are able to gain experience of dealing with patients and learn to see situations from the patient's viewpoint. The Social Competence course includes an introductory seminar, a small-group seminar, weekly practicals and a closing tutorial. Attendance at all course components is compulsory. "We want to underline just how important professional conduct is when dealing with patients and colleagues," explained Vice Rector for Education Anita Rieder.

The compulsory practical was developed jointly by MedUni Vienna and the Haus der Barmherzigkeit hospital. It takes place at two state-of-the-art long-term care hospitals and several cohousing and residential communities – an ideal setting to develop a sensitive approach. This gives students the valuable opportunity to critically analyse their own strengths and weaknesses based on the experience they gain, which is an important step in growing into their future role as a doctor.

## True-to-life 3D training

**Virtual training.** The digital training programme developed by the Department of Pediatrics and Adolescent Medicine helps students gain the expertise required to provide children with effective emergency medical care.

After putting on their VR headsets and starting the application, the students find themselves in a deceptively realistic setting: an exact virtual replica of the emergency outpatient clinic and the neonatal intensive care unit at the Department of Pediatrics and Adolescent Medicine at University Hospital Vienna. Users can move around freely and check a child's pulse and vital signs. Working either in a single-user or multi-user setting, the students work in various situations, such as resuscitating a child, in order to practice key skills in real time in a safe environment.

"This is an immersive learning experience that generates just as much stress as in real life," commented Michael Wagner, who heads the paediatric simulation centre at



The facilities were replicated virtually to create the most realistic experience possible.

the Department of Pediatrics and Adolescent Medicine. Measuring the diameter of the students' pupils and their heart rate gives an idea of how true to life their perceptions of the training course are. And more basic technical applications are also possible, including 360° videos of real-life situations, which enable students to watch medical procedures from their own virtual point of view. Expensive VR headsets are not strictly necessary either. For passive observation, a cardboard smartphone holder is all that is required to turn a mobile phone into a VR headset. MedUni Vienna collaborated with technology partner Soma Reality to implement the applications, and also secured research grants.

## Integrating Ukrainian students

**Freemover programme.** Nine students from Ukraine were accepted onto MedUni Vienna degree programmes. They are being supported and assisted by buddies.



The newly enrolled students from Ukraine received MedUni Vienna T-shirts.

Nine students from Ukraine have been temporarily admitted to MedUni Vienna under a mobility programme. Seven will attend the Medicine programme and two have been enrolled in the Dentistry programme. MedUni teaching staff interviewed the students to gain a picture of their prior knowledge, including their German language skills, and the students were then assigned to the appropriate year of the relevant degree programme.

Buddies who are studying in the same small groups as their Ukrainian colleagues have volunteered to help them navigate day-to-day university life. "120 students responded to the Students' Union's request for help, which underlines their outstanding willingness to help and sense of solidarity. We're delighted that the Ukrainian students have been so warmly welcomed and able to integrate so smoothly into the programmes here at MedUni Vienna, thanks to the amazing dedication of everyone involved," commented Anita Rieder, Vice Rector for Education. The university management, Studies and Examinations Department, International Office and MedUni Vienna Students' Union all played a part in implementing this initiative.



The training sessions are supported and monitored from three adjoining control rooms.

## Practising for emergencies

**Preparation is everything.** The University Simulation Center Vienna operated by the Vienna Healthcare Group (WiGeV) and MedUni Vienna is one of the largest medical training centres in Austria. It was unveiled to the public in September.

When routine care is interrupted by emergencies, there is no room for error. And a perfect environment where doctors, carers and other medical professionals can practise the necessary skills has been set up at Floridsdorf Hospital. Covering a total of 1,000m<sup>2</sup>, the University Simulation Center Vienna offers more than 30 different training situations and combines research, innovation and teaching.

### **State-of-the-art setting**

“The University Simulation Center has state-of-the-art equipment for practising various scenarios as a team in a realistic setting,” explained Oswald Wagner, Vice Rector for Clinical Affairs at MedUni Vienna. The facilities can take the form of an operating theatre, shock room, delivery room, intensive care unit or ward, depending on the training scenario. About 30 simulation manikins are available, ranging from newborns to adults. Some of them can open their eyes, move, breathe and even speak. The latest audio/video technol-

ogy, ultrasound equipment as well as DIY simulators developed in-house are also available at the centre, where students can practise vascular puncture, laparoscopy, ECMO and inserting chest drains.

Participants in medical simulations can work together as a team in a safe setting, which enables them to develop their skills and collaborate more effectively, and to make expert decisions quickly in an emergency. Afterwards, the training session is analysed in detail so that students can learn from any mistakes and enhance the processes, interactions and communication within the team.

Around 200 training sessions are held at the University Simulation Center Vienna every year. About 50 MedUni Vienna and WiGeV trainers from various disciplines, including anaesthesiology, paediatrics, emergency medicine, obstetrics, surgery, paediatric surgery and orthopaedic traumatology, are also involved. Training is aimed primarily at all WiGeV and MedUni Vienna staff working in patient care, but depending on available capacity, employees of other organisations can also practise their skills at the centre.



## 760 freshers

**MedAT.** Large numbers of prospective students sat the entrance exams for the Medicine and Dentistry degree programmes.

Entrance exams for medicine degree programmes were held at several locations throughout Austria once again in 2022. On 8 July a total of 11,643 applicants took the MedAT tests for degree programmes at the medical universities in Vienna, Innsbruck and Graz and the Faculty of Medicine at Johannes Kepler University Linz (JKU Linz). 15,788 applicants had registered originally. In total, 1,850 places were available for the 2022/23 academic year, including 750 at MedUni Vienna. 5,857 prospective students took part in the admissions procedure at MedUni Vienna.

MedAT covers a wide range of subjects: besides testing school leavers' knowledge of biology, chemistry, physics and maths, the exams also assess text comprehension as well as cognitive, social and emotional skills. The entrance exam for Dentistry is largely identical to that for the Medicine programme, with the exception that applicants need to demonstrate manual skills instead of text comprehension and the ability to recognise implications.

### Outstanding process

Introduced in Austria more than a decade ago, MedAT is a structured, legally secure procedure that allows for an objective assessment of applicants' suitability for admission to medicine or dentistry degree programmes. Fairness and equal opportunities for applicants are core considerations in this respect and are analysed in depth in each round of the procedure.



# Celebrating our graduates

**Graduation ceremonies.** More than 600 MedUni Vienna graduates took their academic oaths at the end of November 2022, with their families and friends in attendance.

682 future physicians completed their medicine degrees in Vienna in the 2021/22 academic year. They received their degree certificates from Rector Markus Müller and Vice Rectors Anita Rieder, Michaela Fritz and Volkan Talazoglu in the beautiful setting of Vienna's Konzerthaus. About 8,000 guests attended the ceremonies and applauded the new doctors at the world-famous concert venue.

The next career step for the graduates is training as either a specialist or general practitioner at a hospital or teaching practice, or a period of scientific study.



## “Welcome, White Coats!”

After a two-year break due to the pandemic, MedUni Vienna's White Coat Welcome event for new students made a comeback on 5 October 2022. The first-year Medicine and Dentistry students received their white doctors coats with the MedUni Vienna logo to mark the start of their studies. Rector Markus Müller welcomed the freshers and prepared them for their degrees and their subsequent entry into the medical profession. Afterwards, the students had the opportunity to share ideas and network.

## Musical opening

Academic symphony orchestra Sinfonia Academica set the tone for the new academic year at an event held in the Van Swieten Hall on 3 October 2022. The concert featured works by Brahms, Mozart, Schubert and Johann Strauss II. Soloist Roland Herret supported the ensemble in a performance of Wolfgang Amadeus Mozart's Violin Concerto No. 5 in A major. Established in 2013, the orchestra now comprises more than 50 amateur musicians, many of whom are medical professionals and Alumni Club members.



Soloist Roland Herret has won several national and international violin competitions.



# Research for the future

*Researchers at MedUni Vienna study fundamental biomedical processes and investigate complex biological systems across a broad range of scales. Digital technologies affect every step of the research cycle, creating new opportunities for generating data and analysing and interpreting results along the way.*



# Fundamental understanding of mechanisms

**Digital medicine.** MedUni Vienna covers the full spectrum of digital medicine from the nano to the macro level – with focuses including molecular medicine, systems biology, imaging, analysis of patient data and even models of the healthcare system itself. Machine learning is used as a tool to create evidence for new diagnostic and treatment procedures on the basis of large amounts of data.

MedUni Vienna's strengths, which are built on its research clusters and research platforms, lie in translational and clinical research in combination with basic biomedical research. The future trends of personalised and digital medicine are clearly visible as interdisciplinary topics running through all of the clusters. And MedUni Vienna will play a leading role in the digital transformation through its planned investments in new research infrastructures, new professorships and strategic collaboration projects.

## **New MRI technique for diagnosis and treatment of multiple sclerosis**

Early diagnosis and treatment of multiple sclerosis (MS) has a critical part to play in delaying the progression of the disease, with magnetic resonance imaging (MRI) taking on a central role. In the search for ever more effective methods, a new technique has been applied as part of a research project at MedUni Vienna that has the potential to pave the way for quicker assessment of MS progression. Using the







» At MedUni Vienna, researchers generate large volumes of data at all scales every day. And now, digital technologies are highlighting exciting new scientific questions and opening up insights in basic, translational and clinical research. «

Michaela Fritz,  
Vice Rector for Research and Innovation

7 Tesla MRI scanner, the research team headed by Wolfgang Bogner from the Department of Biomedical Imaging and Image-guided Therapy was able to identify neurochemicals with a specific relevance to MS. "This allowed us to visualise brain changes in regions that appear normal on conventional MRI scans," Wolfgang Bogner explained. According to the study's lead author Eva Niess, these findings could play a significant role in future MS patient care: "Some neurochemical changes that we've been able to visualise with the new technique occur early in the course of the disease and might not only correlate with disability but also predict further disease progression." *(Radiology)*

### **Breakthrough discovery: cell type controls information flows in the brain**

A team at the Center for Brain Research has pinpointed the cells that regulate the transmission of information between the different regions of the brain. Ece Sakalar, Thomas Klausberger and Balint Lasztocki found what they were looking for in a part of the hippocampus called the CA1 area. A central switchboard in the brain, it is there that neurogliaform cells cause information converging in the hippocampus about the current environment and relevant previous experiences to be combined without getting mixed up. "In our preclinical experiments, we have now discovered that neurogliaform cells,

by briefly inhibiting other cell types, ensure that current perception and memories of past experiences can be processed both separately and also in combination," explained study author Balint Lasztocki. This discovery is helping researchers to create the basis for the development of new treatment options for neuropsychiatric conditions in which the coordination of information flows in the brain is impaired, such as schizophrenia or autism. *(Science)*

### **Neural data transfer**

A team of researchers at the Centre for Brain Research at MedUni Vienna has identified the cells that regulate the transmission of information between the different regions of the brain. In the CA1 area of the hippocampus, one of the brain's main switchboards, neurogliaform cells cause converging information about the current environment and relevant previous experiences to be combined without getting mixed up. Medical science had previously been in the dark about the function of these cells. The findings from this preclinical study are helping researchers to create the basis for the development of new treatment options for neuropsychiatric conditions in which the coordination of information flows in the brain is impaired, such as schizophrenia or autism. *(Science)*

*MedUni Vienna plays a key role in training future doctors. Effective medical care for the population and transferring knowledge to society at large play a central role for us.*

Eva Dichand,  
Chair of the University Council



# On the trail of the coronavirus

**Covid-19.** Researchers at MedUni Vienna investigated various vaccination protection, monitoring and other measures associated with SARS-CoV-2 in numerous studies – an overview.

## **Third vaccination effective and safe**

A booster vaccination is safe and effective for people with weakened immune systems who, in many cases, had been unable to form antibodies even after two Covid-19 vaccinations. This was the finding reached by an interdisciplinary research group at MedUni Vienna coordinated by the Division of Rheumatology at the Department of Medicine III. Michael Bonelli and his team showed that even patients with rheumatoid arthritis who were being treated with rituximab and experienced primary vaccine failure were able to develop an immune response after the third vaccination. *Annals of the Rheumatic Diseases.*



## **Immune response in cancer patients following booster vaccination**

Cancer patients often undergo treatments that weaken their immune system. A MedUni Vienna study led by Matthias Preusser from the Division of Oncology showed that many of them were able to build up sufficient immunity after a third dose of the SARS-CoV-2 vaccination was administered. After the booster, the cancer patients' antibody levels rose again. The degree of immunity was still very likely sufficient for protection, though not to the same extent as the healthy control group.

*European Journal of Cancer*

## **Cell mutations**

Certain human genetic conditions significantly influence a person's immune response to the SARS-CoV-2 virus and can affect the severity of a Covid-19 infection. Led by Hannes Vietzen and Elisabeth Puchhammer-Stöckl from the Centre for Virology, a research group showed that specific genetic variants of the CD16a antibody receptor affecting around 15% of the population are associated with the risk of severe Covid-19 symptoms.

*Genetics in Medicine*

## Understanding immune pathways

A team led by Lukas Kenner from the Department of Pathology and Sabine Lagger from Vetmeduni Vienna identified a new biomarker and therapeutic approach for anaplastic large cell lymphoma (ALCL), a type of blood cancer, with the protein PDGFR $\beta$ . “We consider PDGFR $\beta$ -STAT3/5 signalling to be the central factor in ALCL and believe that inhibiting it will bring about a huge improvement in patient survival rates,” said Lukas Kenner. His colleague Ines Garces de los Fayos Alonso demonstrated its efficacy as a therapeutic strategy.  
*Molecular Cancer*

## Bundle of measures for schools

A modelling study conducted by researchers from MedUni Vienna and Graz University of Technology at the Complexity Science Hub Vienna investigated the usefulness of various precautionary measures in preventing the spread of coronavirus infections in Austrian schools. It concluded that a combination of multiple precautions – such as airing out spaces and mask wearing – had the greatest impact, and that the type of school also had a role to play. The contact structures for primary school classes with a small roster of permanently assigned teaching staff were found to be less risky than those for upper secondary school classes, where interacting with multiple teachers led to a greater degree of mixing and increased risk of infection. Optimal protection was also dependent on how consistently the precautions were implemented. The researchers also determined that small clusters had the capacity to spread very rapidly, which made them almost impossible to contain.

*Nature Communications*

## Clear picture through wastewater monitoring

Sequencing of virus particles from wastewater samples is an important element of Austria’s Covid-19 pandemic monitoring activities. A study by the Research Centre for Molecular Medicine (CeMM) at the Austrian Academy of Sciences, MedUni Vienna and various other partners showed how accurately and in what detail wastewater analysis was able to chart the development of different variant waves, and confirmed that the technique was a suitable complementary approach for monitoring epidemiological events. The data helped predict new variants and calculate the reproductive advantage of variants of concern, while also gathering information on asymptomatic individuals as well as those who do not take advantage of testing services.

*Nature Biotechnology*



# Better care for premature babies

**Neonatology.** Study shows huge potential for improvement in neonatal care.

Prematurity remains one of the leading causes of death in children under five, even though advances in neonatal intensive care have led to a significant reduction in mortality rates. One in two premature babies receives transfusions of red blood cells (erythrocytes) due to anaemia. There are, however, no generally accepted clinical guidelines determining the degree of anaemia at which a transfusion should be administered. A team led by Angelika Berger and Vito Giordano from the Division of Neonatology, Intensive Care Medicine and Neuropediatrics at MedUni Vienna’s Department of Pediatrics and Adolescent Medicine conducted a critical review of the data and found that it yielded scant scientific evidence.

The review identified several points that reduce comparability between the studies, making it virtually impossible to integrate the results into clinical guidelines. Nor could it reliably be determined whether red blood cell transfusions could trigger complications in premature babies including diseases of the intestine, retina and lungs, or developmental neurological impairments. “Our work is intended to provide the impetus for research and development of improvements in treatment options for premature babies,” Berger concluded.

*The Lancet Haematology*

# Focus on metabolism

**Liver.** Various studies have delivered fresh insights into the diseases and physiological processes of the liver.

## **Excellent biomarker for fatty liver disease**

A MedUni Vienna study team led by Christoph Binder and Tim Hendriks from the Department of Laboratory Medicine discovered that a certain subtype of macrophage – which belong to the white blood cells – has a protective function in fibrosis (a preliminary stage of liver cirrhosis) in progressive non-alcoholic fatty liver disease. At the same time, these cells proved to be much better biomarkers than previous indicators for determining the status of liver disease.

*Journal of Hepatology*

## **Blood coagulation test for liver cirrhosis**

It was believed that when two factors for blood clotting are not in balance, an increased tendency for the blood to clot and, as a result, a greater risk of thrombosis arises. But a research team led by Matthias Mandorfer, Division of Gastroenterology and Hepatology at MedUni Vienna, has since disproved this. The ratio of factor VIII, which promotes blood clotting, and protein C, which inhibits it, is not enough to draw conclusions about how likely thrombosis is to occur in patients with advanced liver disease. Still, these parameters can serve to better assess the individual risk of complications in patients with liver cirrhosis.

*Journal of Hepatology*



## **Non-invasive assessment of risk of disease**

Combining the functional liver imaging score (FLIS) with spleen sizing creates a new non-invasive method to predict complications in chronic liver disease. The FLIS is assessed using functional magnetic resonance imaging (fMRI) with a contrast agent and displayed on a scale of 0 to 6 points. It has been known for some time that in many cases chronic liver disease leads to high blood pressure in the upstream cardiovascular system. Known as portal hypertension, it is associated with a greater incidence of complications: the more severe the disease, the more pronounced the portal hypertension – and the more enlarged the spleen. As pointed out by study authors Nina Bastati and Lucian Beer from the Department of Biomedical Imaging and Image-guided Therapy at MedUni Vienna and University Hospital Vienna, fMRI and spleen sizing can already be used in clinical practice.

*Journal of Hepatology*



## **Risk for liver and gall bladder**

Patients with chronic liver disease can suffer liver complications as a result of a severe SARS-CoV-2 infection. A team of researchers led by Lukas Hartl, Thomas Reiberger and Michael Trauner from MedUni Vienna's Division of Gastroenterology and Hepatology demonstrated that pre-existing liver conditions often lead to irreversible damage to the bile ducts, known as secondary sclerosing cholangitis (SSC), a condition for which no effective drug therapy currently exists.

*Journal of Hepatology*

## **Hormone offers protection against fatty liver**

A study group at MedUni Vienna showed that similarly to previous observations in animal models, leptin – a hormone derived from adipose tissue – also stimulates the release of lipids from the liver in humans. Led by Thomas Scherer and Matthäus Metz from the Division for Endocrinology and Metabolism, the team believe that leptin can prevent the development of fatty liver. Their study also suggested that the brain influences the metabolism of liver fat via the autonomic nervous system. These findings open up new approaches for the treatment of metabolic diseases such as fatty liver.

*CELL Metabolism*

## **Algorithm measures liver cancer risk in hepatitis C patients**

Treatable with modern pharmaceuticals, the viral infection hepatitis C can be cured in more than 95% of cases. But if the liver has already formed scar tissue, a risk of liver cancer remains. Headed by Mattias Mandorfer and Georg Semmler, a team of researchers from the Division of Gastroenterology and Hepatology at the Department of Medicine III has developed a risk assessment tool: an algorithm takes into account metrics such as blood test results and liver stiffness as well as a range of additional factors including age and alcohol consumption. The predictive value was confirmed in a study and has the potential to significantly simplify follow-up therapy in the wake of hepatitis C treatment.

*Journal of Hepatology*

## Jaw simulations

**Sleep bruxism.** Teeth grinding and clenching of the upper and lower jaws at night can trigger a range of health consequences.



About 15% of the population grinds their teeth at night. The pressure that is exerted on tooth surfaces and jaws is sometimes enormous and can negatively impact dental health and cause pain. A research team led by Benedikt Sagl from the University Clinic of Dentistry Vienna at MedUni Vienna investigated the condition (known as sleep bruxism), and identified certain tooth shapes and positions that can lead to problems with the jaw joints. A computer model of the masticatory region was used to test various research questions that cannot be carried out directly on patients for ethical reasons. A total of twelve cases were simulated.

### **A question of pressure distribution**

“Our results show that both the inclination and location of the wear facets have an influence on the strength of the mechanical load on the temporomandibular joint,” said Benedikt Sagl. “The flatter the tooth, the higher the loading on the joint and therefore the higher the risk of a TMJ disorder,” he concluded. Conversely, if the dental cusps involved in bruxism exhibit a steeper angle of inclination, the calculated joint loading was lower, even when the same grinding or bruxing force was applied.

*Journal of Advanced Research*

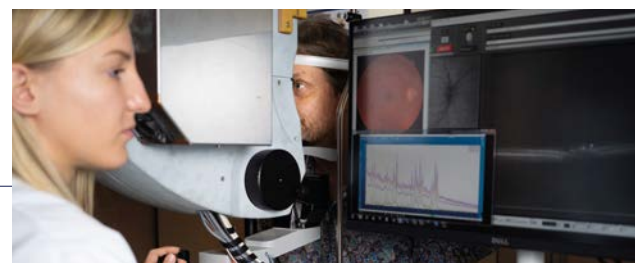
## The eye as a window on the brain

**Eye scanner.** A new technology combines optical coherence tomography (OCT) with Raman spectroscopy to detect neurodegenerative diseases.

Under the major EU project MOON, MedUni Vienna and international partners developed a multimodal eye scanner that combines OCT with Raman spectroscopy – a method which uses light to detect the tiniest molecular vibrations and show the composition of tissue. Given that the new eye scanner not only displays the structure inside the eye, but also provides information at a molecular level, there are hopes that the tool can be used to detect early-stage neurodegenerative diseases, in addition to eye diseases and diabetes. Both the image quality and size for OCT and the OCT angiographs achieved with the prototype developed in the project are unrivalled anywhere in the world. The use of artificial intelligence allows

additional contrast enhancement of OCT angiographs for functional imaging.

It has been confirmed in numerous studies that neurodegenerative diseases, such as Alzheimer’s, alter the sensitive nerve tissue of the retina. The very first relevant Raman spectra from the human eye have now been recorded in the ongoing clinical investigations, confirming initial indications of the method’s diagnostic potential. Long before the occurrence of tissue damage, which can lead to irreversible loss of vision, biochemical changes start to set in as a result of disease-related changes in metabolism. So the earlier such developments are identified, the better. While many therapies are unable to reverse the damage, they can still be deployed to stop it from happening.



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*MedUni Vienna is a global leader in establishing new standards in retinal diagnostics.*

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## Effective combined therapy for rheumatoid arthritis

**Rheumatoid arthritis:** *In the final phase III clinical trial, a new compound showed that the combined therapy works at least as well as the current gold standard for this autoimmune disease.*

Patients with rheumatoid arthritis for whom the folic acid antagonist methotrexate alone is not sufficiently effective are usually given adalimumab – a blocker for the signalling substance tumour necrosis factor (TNF) – as part of a combination therapy. However, up to 25% of people treated for the condition do not respond to any of the current treatment options. A new drug, olokizumab, which is a humanised monoclonal antibody, directly targets the interleukin-6 cytokine – a messenger substance that controls inflammatory reactions and is involved in the progression of the disease. “We now have another option for those patients who did not respond at all or only slightly to established therapies,” said Daniel Aletaha, Head of the Division of Rheumatology.

In the phase III clinical trial, which involved more than 1,600 subjects, the new active substance proved to be at least as good as the current standard therapy when used in combination with methotrexate. “The new drug helps many patients achieve what is termed low disease activity, which is the primary therapeutic goal in this population. Complete disappearance of symptoms of active disease, i.e. remission, occurs in one in eight patients,” explained principal investigator Josef Smolen from the Division of Rheumatology at MedUni Vienna and University Hospital Vienna’s Department of Medicine III.

*New England Journal of Medicine*

**Rheumatoid arthritis** is a chronic autoimmune disease that predominantly affects women. The condition causes inflammation in the joints which leads to swelling and impaired motor function. Around 80,000 people in Austria suffer from this disease.



## Basis for new treatments

**Psoriasis.** *A MedUni Vienna research team has discovered how inflammatory reactions in psoriasis can be slowed down – providing a possible basis for new treatment, diagnosis and prevention strategies.*

Psoriasis is among the most common chronic inflammatory diseases of the skin. Around 250,000 people in Austria suffer from the condition, and one third also develop psoriatic arthritis, or inflammation of the joints. A research group led by Erwin Wagner from the Department of Dermatology and the Department of Laboratory Medicine at MedUni Vienna conducted a study of S100A9, a gene whose activation in skin and immune cells is a risk factor for the development of this disease. The team discovered that the severity of psoriasis and psoriatic arthritis can be lessened when S100A9 is inhibited systemically throughout the body rather than locally on the skin.

Preclinical experiments showed that it was possible to decipher the bearing that the skin and immune cells in which S100A9 is produced have on the severity of the disease. “We now know that the inflammatory responses in psoriasis and psoriatic arthritis are enhanced when S100A9 is inhibited in the skin cells alone. Our study is an important step towards the development of targeted treatments in the form of drugs that do not act on the skin locally, but have a systemic effect,” Wagner explained. New diagnostic and prevention strategies are building on the findings from the study.

*Annals of the Rheumatic Diseases.*

# MedUni Vienna research clusters

*MedUni Vienna bundles its competencies in five research clusters and a research platform which all carry out interdisciplinary, interdepartmental research.*

## **Immunology Research Cluster**

In this research cluster, allergies, inflammations and infections are the subject of networked research activities that are conducted with the goal of developing new diagnostic and therapeutic concepts. Its focus is on basic, translational and clinical research, and the creation of structure-building measures to make even better use of synergies between scientists and to support innovative research activities.

## **Cardiovascular Medicine Research Cluster**

Besides cardiovascular disease, the principal objects of the cluster's research are imaging and non-imaging diagnosis, in addition to epidemiological and genetic issues. The cluster is also well known for its basic research into vascular biology and thrombosis, and a high degree of interdisciplinary collaboration.

## **Cancer Research and Oncology Research Cluster**

The Comprehensive Cancer Center (CCC) combines interdisciplinary care for cancer patients with research and research-led teaching at the highest level. Patients benefit from the innovative procedures and technologies available to the experts working at the CCC thanks to the close links between care and scientific research.

## **Medical Imaging Research Cluster**

Medical Imaging brings together the institutes and research facilities involved in imaging at MedUni Vienna in six areas of specialist research. The focus is on carrying out research into and achieving advances in morphological, functional and molecular imaging, so as to be able to diagnose and treat diseases at an earlier stage.

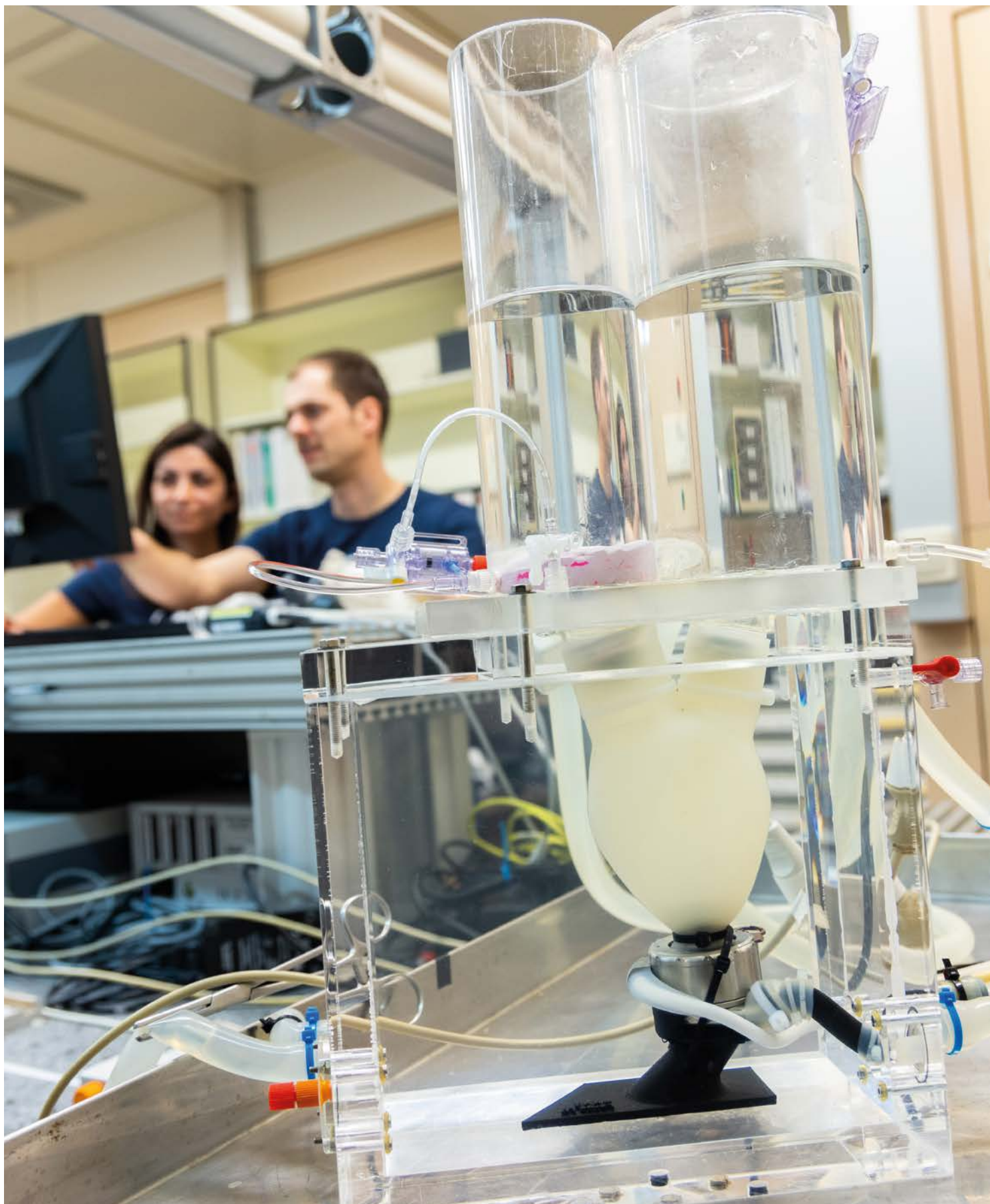
## **Medical Neuroscience Research Cluster**

The broad spectrum of neuroscience and psychosocial science research activities at MedUni Vienna is reflected in this cluster. MedUni Vienna's research is recognised around the world, particularly when it comes to Alzheimer's, depression, multiple sclerosis and pain. The overriding aim is to gain insights that lead to a better understanding of the pathophysiology of nervous system disorders, which in turn will enable more effective diagnosis and treatment.

## **Transplantation Research Platform**

University Hospital Vienna, MedUni Vienna's university hospital, is one of the world's leading centres for transplants. The Transplantation Research Platform is an integrative initiative designed to support networking between academic staff with the aim of increasing the output of high-quality transplantation research at MedUni Vienna.





## Erwin Schrödinger Prize

Bioinformatics expert Christoph Bock was awarded the Austrian Academy of Sciences' Erwin Schrödinger Prize, which recognises outstanding achievements in mathematics and science. In 2021, he took over as Professor of Medical Informatics at MedUni Vienna and as the Head of the Institute for Artificial Intelligence and Decision Support at the Centre for Medical Statistics, Informatics and Intelligent Systems. His working group combines data-based methods including bioinformatics, machine learning and artificial intelligence with modern molecular biological methods such as genome sequencing, CRISPR technology and systems biology. His particular focus is on new methods for precision medicine in close cooperation with clinical working groups, with the aim of improving diagnosis and treatment.



## Fundraising event for precision medicine

A fundraising dinner in aid of precision medicine for seriously ill children was held in the Van Swieten Hall at MedUni Vienna on 10 November 2022. At the event, diners learned about the potential of personalised medicine. Precision medicine opens up new treatment options through networked, interdepartmental research. It can enable long-term survival and a lasting improvement in health development for children and adolescents with acute life-threatening conditions as well as previously incurable chronic and rare diseases, children with brain and spinal cord tumours, severe congenital malformations and extremely preterm babies. The event raised around EUR 100,000, which will help to further advance research in this field.



Successful Department of Pediatrics and Adolescent Medicine fundraiser (from left): Johannes Gojo, Angelika Berger and Katrin Klebermass-Schrehof with Rector Markus Müller.

## Mannagetta Prize for Medicine

Two researchers received a Johann Wilhelm Ritter von Mannagetta Prize for Medicine, each endowed with EUR 4,000, from the Austrian Academy of Sciences:

- Biochemist **Polina Kameneva** from MedUni Vienna's Center for Brain Research received her prize in recognition of her achievements in the field of neuroimmunology. She demonstrated that neuroblastomas contain cell populations that resemble the developmental stages of human sympathoblasts (cells of origin), bridge cells and chromaffin cells. Peripheral nerves represent a unique niche for stem cells during human development.
- In his work on transcriptome-based parcellation of the cerebral cortex, neuroscientist **Gregor Gryglewski** from MedUni Vienna's Department of Psychiatry and Psychotherapy explored regional enrichment with genes associated with brain diseases. For some conditions, specific genes could be highlighted that might play a role in disease mechanisms or new treatments.

# Funding for excellence: ERC grants

*In 2022 four researchers at MedUni Vienna received significant grants from the European Research Council (ERC), in a high-profile tribute to scientific excellence:*

**Eva Schernhammer** from the Division of Epidemiology at MedUni Vienna's Center for Public Health received a EUR 2.5m ERC Advanced Grant. Over the course of the next five years she will be investigating the health consequences of a "perturbed circadian rhythm" in the CLOCK-risk project – which is the first of its kind and a pioneering example of the kind of work that will be done at the new Eric Kandel Institute – Centre for Precision Medicine.

**Tibor Harkany** from the Division of Molecular Neurosciences at MedUni Vienna's Center for Brain Research is the beneficiary of a substantial ERC Proof of Concept Grant. With the support of his team, he is working on the development of active substances for the treatment of post-traumatic stress disorders as part of the SECRET-DOCK project.

**Dimitrios Tsiantoulas** from the MedUni Vienna Department of Laboratory Medicine was awarded a EUR 1.5m ERC Starting Grant. The B-Miracle project aims to investigate the functions of B lymphocytes in atherosclerosis, and to identify new immunotherapies for cardiovascular diseases.

**Thomas Vogl** from MedUni Vienna's Centre for Cancer Research received a five-year ERC Starting Grant worth EUR 1.65m for the EarlyMicroAbs project. The aim is to gain new insights into the interaction between the immune system and the gut microbiome. It is hoped that profiling the immune system in early life will yield insights into the development of antibody repertoires.

## Ongoing ERC projects in 2022:

### Starting Grants

**Sarah Melzer, PeptidesAndFear**  
Division of Neuronal Cell Biology/Center for Brain Research  
Period: 2022-2027

### Consolidator Grants

**Kaan Boztug, iDysChart**  
LBG and MedUni Vienna,  
Period: 2019-2024

**Alwin Köhler, NPC-BUILD**  
Division of Molecular Cell Biology/Center for Medical Biochemistry,  
Period: 2018-2024

**Christoph Bock, EPI-CART**  
Institute of Artificial Intelligence/Center for Medical

Statistics, Informatics and Intelligent Systems,  
Period: 2021-2026

### Advanced Grants

**Maria Sibilja, TNT-TUMORS**  
Center for Cancer research,  
Period: 2016-2022

**Erwin Wagner, CSI-Fun**  
Department of Dermatology  
Period: 2018-2024

**Eva Schernhammer, CLOCKrisk**  
Division of Epidemiology/Center for Public Health  
Period: 2022-2027

**Tibor Harkany: FOODFORLIFE**  
Division of Molecular Neurosciences/Center for Brain Research  
Period: 2022-2026

### Synergy grants

**Joanna Loizou, DDREAMM**  
Center for Cancer research, in collaboration with ETH Zurich and University of Cambridge,  
Period: 2020-2022

**Igor Adameyko (coordinator), KILL-OR-DIFFERENTIAT**  
Division of Neuroimmunology/Center for Brain Research, in collaboration with Harvard Medical

School, Karolinska Institutet and Institut Curie,  
Period: 2020-2026

**Oskar Aszmann, Natural BionicS**  
Department of Plastic, Reconstructive and Aesthetic Surgery, in collaboration with Istituto italiano di tecnologia and Imperial College London,  
Period: 2019-2025

### Proof of Concept Grant

**Tibor Harkany: SECRET-DOCK**  
Division of Molecular Neurosciences/Center for Brain Research  
Period: 2022-2024

# Leading-edge patient care

*From preventive measures and effective treatments to personalised precision medicine that employs state-of-the-art methods: MedUni Vienna takes its responsibilities as a healthcare provider extremely seriously and offers a wide range of world-class medical services.*





# One of the world's best 25 hospitals

**Top ranking.** In 2022, MedUni Vienna and University Hospital Vienna were placed 24th in a list of the world's 250 leading hospitals.

A total of 2,200 hospitals in 27 countries were assessed for the ranking, which was compiled by US news magazine Newsweek in cooperation with data provider Statista. The international comparison confirmed that University Hospital Vienna and its departments at MedUni Vienna are in an extremely strong position: their ranking improved by three places compared to 2021. The results provide a striking cross-section of excellence in healthcare across the globe. 21 countries feature in the top 150. The best hospital in Europe was Berlin's Charité university hospital, which took fifth place. Alongside MedUni Vienna/University Hospi-

tal Vienna (ranked 24), Innsbruck University Hospital (57) and Graz University Hospital (82) also made the top 100.

University Hospital Vienna, MedUni Vienna's university hospital, is one of the largest hospitals in Europe. It treats around 80,000 inpatients each year, while its outpatient and special outpatient clinics handle a further 1.2 million appointments. Together with MedUni Vienna doctors, around 3,000 nursing staff, more than 1,000 medical, therapeutic and diagnostic health professionals, and many other staff in a diverse range of professions take care of the hospital's patients.



**TOP 25**  
\*\*\*\*\*  
**WORLDWIDE**

» Digital methods have long been a part of our day-to-day clinical practice and are being constantly enhanced. Our position among the world's 25 best hospitals underlines the high quality of our services. «

Oswald Wagner,  
Vice Rector for Clinical Affairs



» Being ranked as a top international location shows that we are moving in the right direction by optimising our organisational set-up and modernising our structures, always with the aim of ensuring that our patients receive the best possible treatment. «

Herwig Wetzlinger,  
Director, University Hospital Vienna  
(a business unit of the Vienna Hospitals Association)

## High-tech for heart valves

**Implants.** Pioneering developments at MedUni Vienna have opened up additional treatment options for heart patients.

The Cardioband system was used at University Hospital Vienna for the first time in 2022 to treat a female patient who can now lead a largely normal life. This innovation has added another minimally invasive option for the treatment of heart valve diseases to the range of procedures available at the Department of Cardiac Surgery.

Tricuspid valve regurgitation is one of the most common heart valve diseases. It causes blood to leak backward into the right atrium and the venae cavae. About 90% of

cases are due to significant widening of the valve's basic structure. And this is where the new Cardioband implant comes in: it is anchored into the valve annulus with the aid of precise apparatus using 17 screws.

### Trilogy Heart Valve System

As people grow older, there is an increasing risk that their aortic valve will not close properly, allowing blood to flow back into the left ventricle. In severe cases, surgery is required to reconstruct or replace the valve. Developed at the Department of Cardiac Surgery at MedUni Vienna and University Hospital Vienna, the Trilogy Heart Valve implant technology was used successfully for the first time in Austria in November 2018. It means that previously inoperable patients can now receive treatment. The treatment team led by Martin Andreas has carried out further surgeries since December 2021 following approval of the technology.

## Newborn screening

**Early detection in babies.** A success story that began in the 1960s, the screening programme for newborn babies has been expanded.

The Austrian Newborn Screening (ÖNGS) programme is one of the most comprehensive of its kind in Europe. Thanks to the programme, about 100 newborns with severe hereditary diseases can be diagnosed and treated swiftly after birth every year. Since June 2021, as part of a scientific project, babies born in Austria have also been tested for spinal muscular atrophy (SMA) and severe combined immunodeficiency (SCID). SMA is a disease of the nervous system that, if untreated, progressively worsens, leading to paralysis due to muscle atrophy, and in severe cases it can quickly cause death. In the first year, 12 newborns were found to have SMA and two were diagnosed with SCID. They received treatment at the ideal time, namely before the initial symptoms appear.

### Comprehensive screening

The ÖGNS programme covers a wide range of rare diseases. "They are mainly congenital metabolic and hormone disorders. If left undetected and untreated, they would lead to severe organ dysfunction, metabolic



Every year, almost 90,000 babies are screened for rare congenital diseases free of charge. This has given more than 4,000 children in Austria the chance of a better start in life.

or hormone imbalances and early death," explained Susanne Greber-Platzer, Head of the Department of Pediatrics and Adolescent Medicine at MedUni Vienna and University Hospital Vienna, who is also responsible for the screening programme, which has been in place there since 1966.

## Closed-loop system

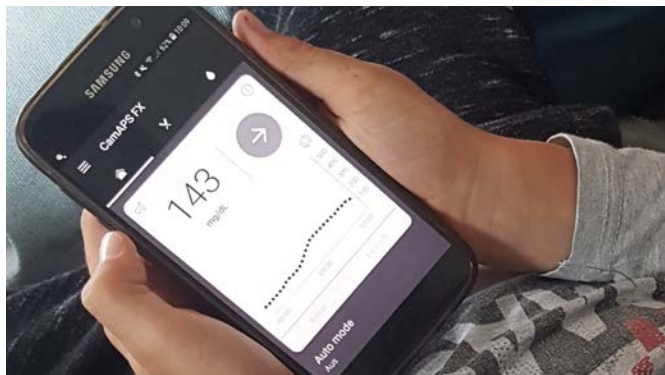
### **Simplifying management of diabetes in children.**

*The EU's KidsAP project has shown that an algorithm in a smartphone app, coupled with a glucose sensor and an insulin pump can greatly simplify everyday life for families of children with diabetes.*

Treating small children who have type 1 diabetes is time-consuming and literally gives parents sleepless nights. Blood sugar levels have to be measured during the day, with the insulin dose calculated and administered based on the child's carbohydrate intake. But several checks are also required at night, in case the child requires additional insulin or carbohydrates. If there is an excessively sharp and sudden drop in blood sugar, this can lead to loss of consciousness and seizures. But if blood glucose levels remain high for too long, this increases the risk of a metabolic imbalance and development of a life-threatening condition called diabetic ketoacidosis.

For children with diabetes, sensor-based insulin pumps have already proved their worth. An algorithm that controls the closed-loop system helps to improve glucose management and substantially reduces the burden on parents. This was the key finding of the EU's international KidsAP project. Coordinated by the University of Cambridge, MedUni Vienna (represented by Birgit Rami-Merhar of Department of Pediatrics and Adolescent Medicine) played a significant part in the initiative. The insulin dose is automatically adjusted on the basis of either predicted or real-time glucose values. Insulin only needs to be administered at mealtimes, but at all other times the algorithm keeps glucose levels stable – and for much longer periods, as the data show – in line with the programmed target value.

*New England Journal of Medicine*



*The closed-loop system forms an artificial pancreas comprised of the CamAPS FX app, a glucose sensor and an insulin pump.*



## High blood pressure in adolescents

**Hypertension.** *From puberty onwards, blood pressure rises alarmingly more and more often. Boys are three to four times more likely to be affected by the condition and about 20% of adolescent males have high blood pressure.*

The main cause of high blood pressure among young people is obesity: primary hypertension – meaning the condition is not triggered by a disease – occurs in 1.4% of adolescents whose weight is normal, but in 7.1% of overweight adolescents; for obese teenagers, the figure rises to 25%. “Abdominal fat combined with an increased waist circumference is particularly closely correlated with high blood pressure and early development of cardiovascular disease,” reported Susanne Greber-Platzer, Head of the Department of Pediatrics and Adolescent Medicine at MedUni Vienna/University Hospital Vienna. A lack of exercise contributes to a threefold increase in the risk of developing hypertension, while chronic stress, sugary drinks, a high-salt diet, and the strong growth spurts that occur during puberty – especially in boys – also have a direct impact. Prematurity, low birth weight and genetic predisposition have a role to play as well.

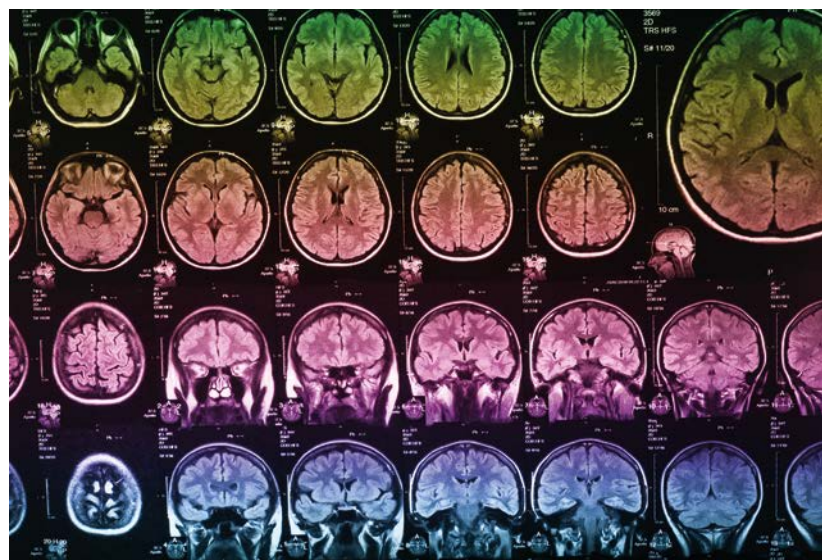
Age, gender and height are taken into account when measuring blood pressure in under-15s, and from the age of 16 onwards, blood pressure above 140/90 – as with adults – shows that the patient is suffering from hypertension. If untreated, hypertension can even lead to damage in the vascular walls and strain on the heart among young adults in the long term, resulting in complications that can be as serious as heart attacks and strokes. It is recommended that children and adolescents have their blood pressure checked every two years.



## New classification for brain tumours

**Standard reference.** Experts from MedUni Vienna were involved in producing the latest edition of the WHO's Blue Book on brain tumours, which sets the international standards for diagnosis and treatment.

Volume 6 of the WHO Blue Books classifies the 150 or so known types of brain tumour and forms the authoritative worldwide basis for neuro-oncological precision medicine. The fifth update involved 199 international experts and took one and a half years to complete. MedUni Vienna specialists Christine Haberler and Johannes Hainfellner from the Division of Neuropathology and Neurochemistry at the Department of Neurology, and Matthias Preusser of the Division of Oncology, part of the Department of Medicine I, were asked to contribute as they had published extensive research on central nervous system tumours in recent years.



### Precise diagnosis for tailored therapy

"The new contents in this edition include numerous molecular markers, as well as the introduction of DNA methylation profiles as a diagnostic method for the classification of brain tumours," said Christine Haberler. These characteristics allow for a precise diagnosis of tumour types and molecular subgroups that are important for patient treatment. "Thanks to the particularly accurate results it generates, molecular biology enables the application of targeted and – as a result – less invasive therapeutic measures for patients," Johannes Hainfellner confirmed. However, this is not intended as a replacement for histology, he pointed out, which is why the WHO classification now includes both diagnostic instruments.

## Focus on heart-lung machines

**Reducing risk.** A study has shown that prostaglandin E1 makes the use of heart-lung machines safer.

If a person's heart and/or lungs fail, organ function can be maintained for days or even weeks using a heart-lung machine. However, although the technology is advanced, fatal complications sometimes occur. One crucial issue is that human blood comes into contact with extracorporeal surfaces. This can prompt a physiological immune response – the blood

clotting system is activated, meaning that a blood clot can form, which could potentially block both the heart-lung machine and the patient's own blood vessels. A research team headed by Thomas Staudinger of the Department of Medicine I found that the active substance prostaglandin E1 (PGE1) increases the safety of this procedure for intensive care patients. After receiving PGE1 their blood was less likely to clot and they showed fewer visible signs of bleeding. As a consequence, there are high hopes that this substance will help to improve the use of heart-lung machines.

**American Journal of Respiratory and Critical Care Medicine**

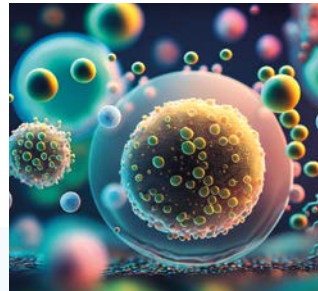
# Comprehensive Centers

## Meeting of Europe's leading university hospitals in Vienna

The Members' Assembly of the European University Hospital Alliance (EUHA) took place in Vienna on 28 November 2022. At the event, the directors of the nine leading European university hospitals that make up the organisation compared notes on the latest developments and new infrastructure models. In discussions on the theme of "healing architecture", the members shared their views on new building measures that will satisfy the requirements of care, research and teaching in the future. Various modernisation and new construction projects are also under way on the site shared by University Hospital Vienna and MedUni Vienna – for more information, turn to the articles starting on page 16.

### **Growing membership**

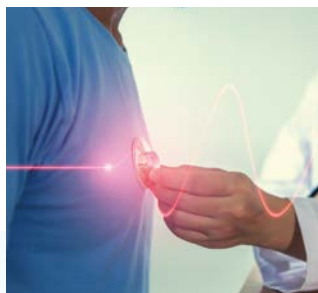
The rotating six-month EUHA presidency passed from Herwig Wetzlinger, Director of University Hospital Vienna, to Ian Abbs, CEO of London-based King's Health Partners. The organisation is set to expand: "Under Vienna's presidency, over the past few months we have built up a solid basis for discussions with excellent candidates that are highly enthusiastic about contributing to EUHA, which would generate significant added value for the alliance," Wetzlinger commented.



The **Comprehensive Cancer Center (CCC)** brings together all of the professionals working at MedUni Vienna and University Hospital Vienna who are involved in cancer patient treatment, as well as cancer research and teaching in this field. This enables the centre to combine expert, interdisciplinary patient care with clinical and basic research, as well as world-class teaching. The outcome is innovative diagnostic and treatment methods that directly benefit the CCC's patients.

A flagship European project, the **Comprehensive Center for Pediatrics (CCP)** brings together MedUni Vienna's experts in prenatal care, paediatrics and adolescent medicine at a single location, and facilitates cooperation between them. The focus is on interdisciplinary exchange in order to provide the best possible care for patients. At the heart of the CCP are the five divisions of the Department of Pediatrics and Adolescent Medicine, including St. Anna Children's Hospital, as well as the Division of Obstetrics and Feto-Maternal Medicine, the Division of Pediatric Surgery and the Department of Child and Adolescent Psychiatry.

*MedUni Vienna's six Comprehensive Centers highlight just how effective the interplay between research, teaching and patient care can be.*



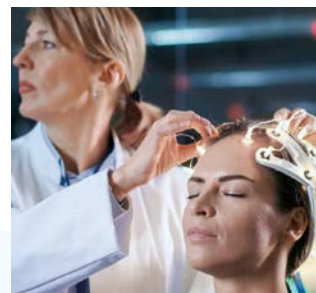
The **Comprehensive Center for Cardiovascular Medicine** specialises in the treatment of patients with cardiovascular diseases, as well as clinical and basic research. It aims to ensure that patients benefit from improved diagnostic and treatment procedures that begin with the involvement of primary care specialists. Cardiovascular diseases are among the most common causes of death in the western world. Close interdisciplinary cooperation is essential for diagnosis, treatment and targeted research in this field.



The **Comprehensive Center for Perioperative Medicine** links all the specialist disciplines and professions at MedUni Vienna and University Hospital Vienna that treat patients before, during and after surgical procedures and interventions. The centre's aim is to improve and enhance perioperative and periprocedural diagnostic and treatment processes by means of interdisciplinary cooperation between various professions.



The **Comprehensive Center for Infection Medicine** facilitates close collaboration between all the facilities and professions at MedUni Vienna and University Hospital Vienna that specialise in prevention, hygiene, antibiotic treatment, management and microbiological diagnostics for infections as well as vaccinations and prophylaxis. Research, knowledge transfer and education in these fields is designed to continuously improve patient care and bring about a broad understanding of these topics.



The **Comprehensive Center for Clinical Neurosciences and Mental Health** focuses on diseases of the nervous system, bundling the wide-ranging expertise of the various divisions and departments at MedUni Vienna and University Hospital Vienna under one roof. Neuropsychiatric disorders are the most common cause of physical and mental conditions worldwide and the second most common cause of death. Combating them requires joined-up strategies aimed at further enhancing university-based, multiprofessional, high-end medicine, as well as cutting-edge research and teaching in this field.

**Six more centres are due to be set up by 2024:**

- Comprehensive Center for Chest Diseases
- Comprehensive Center for Musculoskeletal Disorders
- Comprehensive Center for Inflammation and Immunity
- Comprehensive Center for Rare and Un(der)diagnosed Diseases
- Comprehensive Center for Integrated Diagnostics
- Comprehensive Center for Metabolism (and Nutrition)



*In the course of a comprehensive renovation project, construction defects from previous decades were addressed, period wall paintings uncovered and sealed asphalt pathways removed from the courtyard.*



*The highlights of the collection include the upright full-body models. They can be admired on the first floor in a near-unchanged setting; in their original display cases crafted from rosewood and hand-blown Venetian glass.*

# Josephinum reopens after renovation

*Following a multi-year restoration project, the fully renovated Josephinum reopened its doors as a modern museum with even more exhibition space for its extraordinary collection.*

After a top-to-toe renovation project lasting four years, the Josephinum reopened at the end of September 2022. Now with around 1,000m<sup>2</sup> of exhibition space, the newly enlarged exhibition has been elevated to the ranks of Vienna's medium-sized museums. "The Josephinum is now a real museum and does justice to the collections of the Medical University of Vienna," said Director Christiane Druml. The remarkable collection of medical history artefacts covers a broad spectrum from the era when the institution was first established back in 1785 to modern-day high-tech medicine.

Its biggest attraction is the collection of anatomical wax models that were specially commissioned in Florence by Emperor Joseph II (1741-1790). "The models were brought over the Alps on mules, before continuing to Vienna along the Danube, and remained virtually unmoved until the renovation project," Christiane Druml noted. "To keep them safe while renovation work was carried out, we had to relocate them to another room – which was a logistical challenge." An expert team prepared the move and ensured that the figures remained intact.

The construction and renovation measures were planned by Graz-based architectural firm eep Architekten, in close consultation with the Federal Monuments Office. Publicly-owned Austrian real estate manager Bundesimmobiliengesellschaft (BIG) invested

around EUR 11m in renovating the building.

## **New lease of life**

Located on Währinger Strasse, the palace is a gem to behold from the outside and one of the most important examples of classicist architecture in the city. Inside its walls, medical history was made – like virtually no other place, it embodies Joseph II's determination to reform the education and health sectors. Through his travels and experiences on the front, the Emperor knew that the way surgeons were being trained left a lot to be desired. With medicines such as antibiotics yet to be discovered, soldiers wounded in war were forced to rely on crude operations if they were to have a chance of survival. So in 1785, Joseph II founded the Josephinum as a "surgical military academy" for surgeons in training. Advised by his personal surgeon and the institution's first director Giovanni Ales-

sandro Brambilla, he commissioned around 1,200 anatomical and obstetric wax models in Florence, which served as teaching materials and were also on show for the general public to see.

The Josephinum Library, which houses the extensive and historically and scientifically important medical history library, is also part of the Josephinum.

Many of the other objects on show at the Josephinum are also outstanding pieces of craftsmanship, and significant from both an artistic and scientific perspective. Historically important documents can be found here as well as paintings and medical instruments and apparatus, such as the world's first endoscope, which the institution acquired in 1806. On the ground floor, numerous medical treasures are displayed in newly created themed rooms including "Images of the Body", "State, Power and Medicine", and "Teaching and Research" where they are presented in the context of present-day developments.

The museum concept sets out a blueprint for the continuous expansion of the permanent exhibition. The flexible exhibition space will incorporate new findings from medical research while also focusing on current topics in the debate surrounding bioethics. "Vienna is the place where medical science began. And it is with pride that we honour our obligation to present this historical development in a newly redesigned museum," said Christiane Druml.

## **Visiting the Josephinum**

### **Opening hours:**

Wednesdays, Fridays, Saturdays  
and public holidays  
10:00am-6:00pm  
Thursdays  
10:00am-8:00pm

For further information, visit  
[www.josephinum.ac.at](http://www.josephinum.ac.at)



The MedUni Vienna Rectorate (left to right): Rector Markus Müller; Michaela Fritz, Vice Rector for Research and Innovation; Anita Rieder, Vice Rector for Teaching; Volkan Talazoglu, Vice Rector for Finance; and Oswald Wagner, Vice Rector for Clinical Affairs.

## Rectorate reappointed

The current MedUni Vienna Rectorate team was re-elected unanimously for another term of office.

The MedUni Vienna Senate and University Council extended Rector Markus Müller's term of office until September 2027. The vice-rectors were also reappointed. "This unanimous vote of confidence comes in recognition of their outstanding achievements to date, as well as major ongoing infrastructure projects such as the Eric Kandel Institute - Centre for Precision Medicine and

the new MedUni Campus Mariannengasse building. "University Hospital Vienna, MedUni Vienna's university hospital, is currently ranked among the world's top 25 hospitals, which underlines the university's outstanding international profile," explained Eva Dichand, Chair of the MedUni Vienna University Council.

"The Senate supports our university's successful progress under the leadership of Rector Müller. With 15 ERC prizewinners and a large number of new international appointments, we have been able to set an important course for the future in research and teaching," added Maria Sibilica, Chair of the Senate.

## Newly constituted Senate

The MedUni Vienna Senate began its work in October 2022 in a constitutive meeting. Maria Sibilica was re-elected chair, with Ivo Volf, Till Buschhorn and Michael Trauner named first, second and third vice-chairs respectively. The Senate comprises representatives from all areas: 13 university professors including the heads of organisational units with research and teaching duties, six university lecturers or academic staff involved in research and teaching, one representative of the general university staff, one from the Working Group on Equal Opportunities and six students. The term of office for this governing body runs until the end of September 2025.



## New HR management

Maria Eder, most recently responsible for HR at Deloitte Austria, took over as Head of Human Resources and Human Resources Development at MedUni Vienna on 1 November 2022. Her goal is to oversee the department's evolution into a modern and service-oriented point of contact for its more than 6,000 employees. "I am really impressed with MedUni Vienna's services. The highly committed people who work here make these outstanding achievements possible in the first place. Which is why, as Head of Human Resources, I want to put employees at the forefront of all processes," said Maria Eder of her new challenge.

## Focus on facts

MedUni Vienna commemorated its founding as the Medical Faculty of the University of Vienna in 1365 with a full programme on 11 March 2022.

The Covid-19 pandemic triggered a renaissance for superstition, pseudoscience, disinformation and myth-making. One of MedUni Vienna's core tasks in this environment was to generate and communicate fact-based insights. In light of this, the 2022 Medical University of Vienna Day – a date on which it commemorates the founding day of the Medical Faculty of the University of Vienna in 1365 – was inspired by “Focus on Facts”.

The day offered a multi-faceted programme, starting with an hour-long commemoration at the Memorial Against Forgetting. The traditional lecture, which explored the influence of the coronavirus vaccination on the pandemic, was given by renowned virologist Florian Krammer from New York's Icahn School of Medicine at Mount Sinai. As part of the MedUni Vienna Alumni Club's Lebenswege



At the Career Talk, Vice Rector Michaela Fritz discussed possible career paths at MedUni Vienna with tenure-track professors Dea Slade and Claudia Kuntner-Hannes (from left).

series, Anton Laggner, who was the first professor to set up the University Department of Emergency Medicine, and Ingrid Pabinger-Fasching, who played a key role in shaping groundbreaking thrombosis and haemostasis research, spoke about their own careers. Vice Rector Michaela Fritz discussed the wide range of career options at MedUni Vienna with tenure-track professors Dea Slade and Claudia Kuntner-Hannes at the Career Talk. Participants also had the opportunity to follow a live broadcast of a heart operation.

## Inventors of the Year

Gabriele Häusler, Department of Paediatrics and Adolescent Medicine, and Thomas Wrba, Department of IT Systems & Communications (ITSC), were named MedUni Vienna's Inventors of the Year 2021. They developed the wachstum.at portal, which compares children's and adolescents' body measurements to determine deviations from the age-appropriate reference range. Free to use, the medical tool introduces a standardised nationwide tool for assessing height and weight in children in Austria for the first time. Gabriele Häusler was responsible for the content, and Thomas Wrba for technical implementation.



## 2022 diversity award

MedUni Vienna pays tribute to various diversity-related projects through the Veronika Fialka-Moser Diversity Award, with the winners of each category receiving EUR 2,000.

- **Engagement category:** Charlotte Rösel and Igor Grabovac claimed first place with their project on the experiences of discrimination among young LGBTQI+ people. Stefan Riedl and Veronika Riedl-Schlauss came second with their needs-based care concept for children and adolescents with gender development variants. Third place went to Andreas Böck for his achievements during his 35 years spent teaching in Austria and abroad.
- **Theses category:** Lovro Markovic dealt with trans\* and non-binary patients and their experiences in the Austrian health care system, Türkan Akkaya-Kalayci and Simon Reichert examined the quality of life of 6-12-year-olds with and without immigrant backgrounds. Florian Reichl and Yen Y. Tan focused on breast cancer in men.

# New professors in their own words

*In 2022, MedUni Vienna awarded new professorships to various experts in their field. Here they give an insight into their working lives in a series of quick-fire interviews*

## Andreas Bergthaler

**Professorship:** Molecular Immunology at MedUni Vienna

**Research focuses:** inflammatory processes and immune system reactions to viral infections

**What has made a particularly deep impression on me** is the interdisciplinary collaboration between colleagues.

**Science is fascinating** because in many cases the most exciting findings just cannot be planned. Thank God, or alas, depending on the way you look at it.

**Currently I am working on** unresolved questions about cachexia in infection and cancer, and new surveillance methods for infectious agents.

**MedUni Vienna in three words:** ambition, excellence, potential.

**Science is successful** when you work together on a fundamental question as a team and communicate the new findings accordingly.



## Tilman Kühn

**Professorship:** Public Health Nutrition

**Research focuses:** nutrition-related aspects of public health

**In my area I find** cooperation within international consortiums particularly interesting.

**In my view, the greatest scientific achievement is** among others, the moon landing in 1969.

**What has made a particularly deep impression on me** is my time in Belfast, Northern Ireland.

**What I like about my work is** its relevance to everyday life.

**Currently I am working on** nutrition and planetary health.



## Eva Katharina Masel

**Professorship:** palliative care

**Research focuses:** evidence-based palliative care and palliative research

**In my area I find** the contact with people that goes beyond their illness, the human aspects and medical diversity particularly interesting.

**My most important tool is** my mouth.

**What I like about my work is** the fact that we are not here forever makes life so special. As inspired by Hemingway: "The world is a fine place and worth fighting for."

**I am currently working on** graphic medicine, medical humanities and palliative care for severe mental illness.

**My favourite place at MedUni Vienna is** the view from the palliative care ward on the 17th floor that sometimes extends all the way to Schneeberg in Lower Austria.



## Julia Walochnik

**Professorship** in the subject field Infectiology

**Research focuses:** molecular parasitology

**In my area I find** the co-evolution of pathogens and humans particularly interesting.

**What has made a particularly deep impression on me is** the time spent in other countries, and my mentor, Prof. Aspöck.

**My most important tool is** the computer.

**Currently I am working on** setting up a new PhD programme.

**Science is successful** when people work well together.



## Marta Rizzi

**Professorship:** Clinical Experimental Immunology

**Research focuses:** human B-cell lymphocytes

**The greatest achievement in medicine is** the development of the first smallpox vaccine by Jenner, and the discovery of penicillin by Fleming.

**What has made a particularly deep impression on me is** the time I spent at the University of California in San Diego for my PhD.

**My most important tool is** my laptop – and in the lab, my 50-colour flow cytometer.

**I am currently working on** how disturbances in B-cell function can lead to autoimmunity.

**Science is fascinating** because every discovery generates new questions.

# Interacting with the public

MedUni Vienna promotes the development of health literacy among the wider population, creates awareness of relevant topics and actively provides information about research achievements. An overview of some of the initiatives that gave children and adults a closer insight into research and medicine in 2022.

## Public service

Press and public relations are important tools for raising awareness of important health issues and helping to disseminate information on research projects with a broader social and medical relevance among the wider population. In 2022 MedUni Vienna put out more than 100 press releases, which were carried in national and international media alike.

## Video overviews

Numerous videos were produced during the year with a variety of goals including showcasing the Researchers of the Month and their research activities, and offering support to parents of premature babies. In one video series, Martin Moder, member of the Science Busters cabaret troupe, explains how cancer develops and whether it is curable. And in the #expertchecks series, MedUni Vienna experts provide information on current scientific issues. The 143rd video was posted online in 2022. [www.meduniwien.ac.at/expertcheck](http://www.meduniwien.ac.at/expertcheck) (German only)



## Captivating lecture series

Once again in 2022, MedUni Vienna offered various lectures, webinars and panel discussions on a range of health-related topics; due to the pandemic, online broadcasts were made at the streaming studio in the Van Swieten Hall:

- Several events focused on cancer, including the **Breast Cancer Forum** and **Forum Cancer in Women** webinar series produced in cooperation with the Federal Chancellery, as well as the Cancer School, a series of seminars initiated in 2011 for patients, their relatives and patient representatives.
- On 12 themed evenings as part of the **@VHSScience** cooperation between MedUni and Vienna's VHS adult education centres, medical and research content was shared



On World Obesity Day on 4 March 2022, experts from MedUni Vienna and people affected by obesity shared their experiences and presented a range of solutions. Florian Kiefer (pictured above) showed the link between obesity and hormones.

with audiences in an accessible and captivating format. There was also a VHS lecture series on AI in diagnostic imaging in the summer of 2022.

- Experts from MedUni Vienna once again gave webinars on **MeinMed.at**, a platform run by Regionalmedien Austria, which in 2022 covered topics including the immune system, viruses and vaccinations.
- Several **information days dedicated to important health topics**



informed members of the public about various causes, prevention strategies, diagnostic techniques and treatment approaches. The Obesity Day, Allergy Consultation and Everything about Knees and Hips were among the year's highlights.

- The internal **“How do I get my research work into the media?” seminar** gave MedUni Vienna researchers guidance on using press work to get exposure.

## Health and research

Numerous events involving MedUni Vienna experts provided a source of interaction and entertainment during the year. In one such example in September, the Vienna Research Festival attracted around 10,000 visitors to Vienna City Hall where they were given the chance to immerse themselves in science and research in numerous workshops. And the Lower Austria Research Festival took place at the end of September. Children, teens and adults were able to talk to researchers, ask questions, discover new things and conduct their own experiments at Palais Niederösterreich in Vienna.

## Active on social media

Throughout 2022, MedUni Vienna made extensive use of all of its social media channels to showcase its activities and interact with its various target groups. The **social media market researchers at BuzzValue analysed the interactions of Austrian universities in January 2022 and ranked MedUni Vienna in fourth place nationally, with a total of 90,170 interactions and 57,560 fans.** By the end of the year, the university had increased its reach still further (as of December 2022):

- Instagram: 13,800 followers
- LinkedIn: 22,350 followers
- Facebook: 21,600 followers
- Twitter: 8,300 followers
- YouTube: 2,600 subscribers



## Fundraising for research

Several initiatives raised awareness of specific conditions and generated funds for precision medicine. In one such example, the Comprehensive Center for Pediatrics (CCP) held a fundraising dinner (see page 42) and shared information about precision medicine for children and adolescents in three mailshots.



## Coronavirus vaccination education

MedUni Vienna took on an active educational role with respect to the Covid-19 pandemic, providing fact-based information on the latest scientific findings:

- In two of Vienna's shopping centres, experts offered a **fake check and fact check**, and exchanged information with the general public in cooperation with the Kronenzeitung daily newspaper.
- The **website [www.corona-schutzimpfung.at](http://www.corona-schutzimpfung.at)** collated vaccination-related information and was continuously updated to reflect the latest developments.
- **Covid heroes:** the Comprehensive Center for Pediatrics (CCP) used five cartoon characters to teach children five rules to help contain the virus.
- Meanwhile the experts participating in the **Alumni Club's #experttalk Live** explored various ideas including "Testing and Vaccination", "Crisis in the Mind", and "Covid's Precursors - from the Plague to the Spanish Flu".



## Podcasts: audible success

MedUni Vienna and the Springer Verlag publishing house launched HörGang, a podcast that gives experts from science and practice their say. The many topics up for discussion include the history of gender medicine, imaging in forensics and healthy sleep. [www.springermedizin.at/podcast-hoergang/](http://www.springermedizin.at/podcast-hoergang/)



## Medical research trail

*During the Long Night of Research, more than 7,000 fans immersed themselves in the world of medical sciences at around 100 stations lining MedUni Vienna's Medical Research trail.*



On 20 May 2022 the numerous activities staged by MedUni Vienna as part of its participation in the Long Night of Research attracted large numbers of people. Some 100 stations – many of them interactive – meant that there was plenty to discover for the 7,171 visitors on the night. The aim of the popular event, which took place for the tenth time in 2022, is to break down people's inhibitions when it comes to engaging with science and research. There was significant interest in the university's offering: broadcast live for the first time as part of the Long Night of Research, a brain operation was watched by more than 800 people. Beforehand, specialists detailed what was going to happen in the procedure and gave insights into the diagnosis, prognosis and treatment of brain aneurysms. Also streamed live, the heart surgery likewise attracted a large audience.



### **Heart and brain research brought to life**

The Heart and Brain programme offered a varied mix of content, with paediatric health proving a particularly popular focus. Lots of participants donned the virtual reality headsets provided to find out more about emergency management of premature births, and watched a video with accompanying lecture on how to heal sick children's hearts. In addition, would-be surgeons had the opportunity to implant a heart valve prosthesis on a model under the watchful eyes of the professionals and to explore the anatomy of the brain first hand in exclusive workshops.

## **Monika Redlberger-Fritz is Communicator of the Year**

The MedUni Vienna virologist was named the 2022 Communicator of the Year at the Austrian Communication Day in May 2022. This award was presented by the Public Relations Association Austria (PRVA) in recognition of her “tireless commitment to communicating medical facts to the public at large in an expressly factual yet easily understandable manner, helping to allay people’s fears in the process”, said PRVA President Karin Wiesinger, explaining the decision. The award speech was given by Elisabeth Puchhammer-Stöckl, Head of the Centre for Virology at MedUni Vienna, who had been awarded a special prize for Covid communication by the PRVA the year before.



## **Peter Klimek is Scientist of the Year**

A physicist and complexity researcher from MedUni Vienna and Complexity Science Hub Vienna was named Scientist of the Year 2021. Awarded by the Club of Education and Science Journalists, this title honours outstanding research that is presented in a way that makes them understandable to the wider public. Peter Klimek is researching new methods for analysing huge volumes of data – big data being the key term here – in medicine and deriving models from it. He conveys research findings in a concise and accessible way and is not afraid to speak his mind when it comes to dubious political decisions – was how the club, which promotes reliable science journalism, explained their motivation behind selecting him for the award.

## **Welcome to KinderuniMedizin**

*In mid-July, children aged between seven and twelve with a thirst for knowledge once again packed the lecture theatres at MedUni Vienna.*

The brain and the nervous system were the focus of the numerous lectures offered to the young students at the 2022 KinderuniMedizin Children’s Medical University. At the start of the event, MedUni Vienna Vice Rector Anita Rieder reiterated just how important it was to bring the doctors of tomorrow into contact with the world of science at an early age: “We’re looking forward to kindling a passion for medical science in lots of children.”

The budding researchers completed a “brain training with a difference” exercise, found out the answers to various questions including “Why children are smarter than mice, and delved into the world of viruses and bacteria. During a basic and advanced course in surgery, they performed life-saving operations on teddy bears, learned about the anatomy of the body in a bone puzzle, took a look inside cells and had the opportunity to perform various science experiments themselves.

### **Curiosity wins**

KinderuniWien took place for the 20th time in 2022, with around 3,000 children registering to take part in one or more of the almost 300 courses at seven locations. The exciting experience ended on 23 July with a graduation ceremony in the Main Ceremonial Hall of the University of Vienna, where the young participants received a certificate and had to make a pledge to always remain curious.



The 2022 Cancer Research Run took place in perfect running weather at the MedUni Campus Altes AKH in Vienna.



## Donations pour in for cancer research run

*Sport for a good cause: in October, thousands of participants raised a considerable sum for cancer research.*

Around 3,000 runners, including teams from 84 companies, donned their running shoes in the name of cancer research on 8 October 2022. The event raised EUR 200,000, with all of the proceeds going to projects run by MedUni Vienna's Cancer Research Initiative. Since its inception in 2007, this charity sporting event has gone on to support more than 60 scientific projects to improve the diagnosis and treatment of tumour diseases. The latest donations will be used to fund another 14 promising projects. Led by MedUni Vienna scientists, they are primarily aimed at advancing the development of personalised therapies as part of cancer research.

### Research successes

In Austria, about 42,000 people are diagnosed with cancer every year – the most common being breast cancer in women and prostate cancer in men. The fact that cancer mortality is falling while the number of new cases is rising is largely attributable to advances in research. The relative three-year survival rate has increased continuously over the past few decades and averaged around 65% in the 2013 to 2016 diagnosis period (source: Austrian Cancer Report 2021).



### Book series: healthy reading

Key health topics such as high blood pressure, diabetes, sleep, the intestine, and pollen and allergies presented in a simple and readable format: aimed at non-medical readers and people affected by the issues they cover, the MedUni Vienna guides are an easily accessible source of expert information. The latest addition to the series, which focuses on back pain, explains the causes and provides tips on how to treat and prevent spinal issues.

[www.manz.at/gesundheitswissen](http://www.manz.at/gesundheitswissen)

## Top workplace for research

MedUni Vienna was awarded the HR Excellence in Research Award by the European Commission.

The HR Excellence in Research Award is presented in recognition of the work of research institutions that actively and specifically implement the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers. MedUni Vienna first pledged its support back in 2009, and on 15 March 2022 it became the eighth institution in Austria to land the award. Following a comprehensive initial analysis of the way that the principles of the Charter and Code have been implemented at the institution, targeted action plans will continue to be developed and implemented on an ongoing basis. The process is evaluated and supported by experts from the EU Commission.



### Clear rules

Published by the European Commission in 2005, the Charter and Code aim to foster the continued development of the European Research Area while creating an attractive, open and transparent labour market for researchers. The principles of the Charter set out the roles, responsibilities and rights of researchers, their employers and funding institutions. Targeted at employers and funding institutions, the Code, meanwhile, sets out general guidelines for the recruitment and employment of researchers.

## An active approach to pain prevention

*A new guide uncovers the causes of back pain – and outlines various ways to alleviate it.*

Around 1.9 million people in Austria suffer from chronic back pain – making it the second most common cause of sick leave in the country. The most common causes of lower and upper back pain are physical inactivity, negative stress and degenerative changes due to wear and tear. As numerous other causes are also behind the condition, back pain is in many cases treated using interdisciplinary therapy concepts. Richard Crevenna, Head of the Department of Physical Medicine, Rehabilitation and Occupational Medicine at MedUni Vienna, outlines this approach in his recently published guide, in which he and fellow experts share fresh insights into the subject based on the latest scientific findings.



**Rückenschmerzen – Vorbeugen und aktiv behandeln**  
(Back pain – prevention and active treatment)  
Richard Crevenna  
Part of the *Gesundheit, Wissen* series; MedUni Vienna, published by Manz Verlag  
ISBN 978-3-214-02529-8,  
208 pages, EUR 23.90

## Twin top spots

*MedUni Vienna significantly improved its position in two respected rankings.*

In spring 2022, MedUni Vienna made a significant leap forward in the Medicine category of the QS World University Ranking by Subject: Austria's largest medical university advanced eleven places compared to the previous year, from 77th to 66th place, even finishing ahead of the Charité - Universitätsmedizin Berlin (68th). The QS ranking, which covers some 51 categories, uses indicators of research impact as well as the results of a survey of over 130,000 academics and 75,000 employers worldwide on the academic reputation and employability of graduates.

In the autumn, the university also enhanced its standing in the 2023 edition of the renowned Times Higher Education World University Ranking: MedUni



Vienna improved to 194th place, breaking into the top 200 for the first time. This ranking is based on 13 indicators for research, teaching, citations, internationalisation and the acquisition of third-party funding from industry. Two surveys each contribute around one third of the score: in one, around 40,000 scientists are surveyed on research and teaching, and in the other, bibliometric indicators such as publications and citations are used.

## Researchers of the Month in 2022

Each month, MedUni Vienna names one or more young scientists Researcher of the Month. In 2022, it was awarded to the following outstanding young researchers:



- Tamara Weiss
- Sabine Taschner-Mandl
- Vera Vorstandlechner
- Maximilian Baumgartner
- Polina Kameneva
- Katharina Dörr
- Katharina Rindler
- Erik Küng
- Maximilian Mair
- Julia Maria Berger
- Christoph Kornauth
- Tea Pemovska
- Dimitrios Tsiantoulas
- Gregor Dovjak
- Rebecca Herzog



# New CD labs approved

*The Christian Doppler Laboratories (CD Laboratories) conduct applied basic science at the highest level in the form of cooperation projects with innovative commercial partners. Funded by the Federal Ministry of Labour and Economic Affairs, the Christian Doppler Research Association (CDG) supports these research laboratories.*

Four more CD laboratories were approved in 2022:

- **MR Imaging Biomarkers**  
Project leader: Wolfgang Bogner (Department of Biomedical Imaging and Image-guided Therapy)  
Commercial partners: Siemens Healthcare Diagnostics GmbH, Vitaflo Deutschland GmbH, Brainlab AG
- **Immunometabolism and Systems Biology of Obesity-Related Diseases**  
Project leader: Omar Sharif (Center for Physiology and Pharmacology)  
Commercial partner: Boehringer Ingelheim International GmbH
- **Machine Learning for Precision Imaging**  
Project leaders: Georg Langs, Helmut Prosch (Department of Biomedical Imaging and Image-guided Therapy)  
Commercial partner: Siemens Healthcare Diagnostics GmbH
- **Microinvasive Heart Surgery**  
Project leader: Martin Andreas (Department of Cardiac Surgery)  
Commercial partner: LSI SOLUTIONS INC.

The following CD labs were also operational at MedUni Vienna in 2022:

- **Inner Ear Research: Protection and Regeneration**  
Project leader: Christoph Arnoldner  
Commercial partner: MED-EL Elektromedizinische Geräte GmbH
- **Artificial Intelligence in Retina**  
Project leader: Hrvoje Bogunovic  
Commercial partner: Heidelberg Engineering GmbH
- **Personalised Immunotherapy**  
Project leader: Matthias Preusser  
Commercial partner: Roche Austria GmbH
- **Multimodal Analytical Imaging of Aging and Senescence of the Skin**  
Project leader: Florian Gruber  
Commercial partner: Chanel Parfums Beauté
- **Portal Hypertension and Fibrosis in Liver Disease**  
Project leader: Thomas Reiberger  
Commercial partner: Boehringer Ingelheim International GmbH
- **Applied Metabolomics**  
Project leader: Alexander Haug, Lukas Kenner  
Commercial partner: Siemens Medical Solutions USA, Inc.
- **Arginine Metabolism in Rheumatoid Arthritis and Multiple Sclerosis**  
Project leader: Gernot Schabbauer  
Commercial partner: Boehringer Ingelheim International GmbH
- **Molecular Stress Research in Peritoneal Dialysis**  
Project leader: Klaus Kratochwill  
Commercial partner: Zytotec GmbH
- **Clinical Molecular MR Imaging**  
Project leader: Siegfried Trattng  
Commercial partner: Siemens AG Österreich
- **Innovative Optical Imaging and its Translation to Medicine**  
Project leader: Rainer Leitgeb  
Commercial partners: Carl Zeiss Meditec Inc., Exalos AG

# MedUni Vienna's national research partners

Cooperation is an essential aspect of research: within the university, at the national level and internationally (see page 69 for a list of international cooperation partners).



# Subsidiaries and investments

## ACOMarket GmbH

Established together with five other Austrian universities to bundle digital activities, this company is a central IT Service Broker and service provider.

## Alumni Club

This postgraduate knowledge, dialogue and career platform for MedUni Vienna graduates, students and staff also involves the general public.

## CBmed GmbH – Center for Biomarker Research in Medicine

Besides MedUni Vienna and Graz's three universities, CBmed's shareholders include the Austrian Institute of Technology (AIT) and Joanneum Research, as well as numerous partners in science and industry.

## Forensisches DNA-Zentrallabor Wien GmbH (DNA Central Laboratory)

The DNA Central Laboratory's principal services are trace analysis and forensic DNA analysis in relation to criminal and parentage investigations.

## Josephinum – Collections of the Medical University of Vienna

The Josephinum keeps the university's medical legacy alive. It houses MedUni Vienna's medical history collections, as well as operating a museum and staging exhibitions to make them accessible to the public.

## Karl Landsteiner Privatuniversität für Gesundheitswissenschaften GmbH

MedUni Vienna is one of the four maintaining bodies of the private Karl Landsteiner University of Health Sciences in Krems.

## Max Perutz Labs Support GmbH

This joint facility operated in cooperation with the University of Vienna works in cutting-edge areas of life sciences, for example investigating the structure of essential cell molecules.

## Medical University of Vienna International GmbH (MUVI)

This international healthcare consultancy is specialised in providing management, knowledge transfer and medical education services.

## Universitätszahnklinik Wien GmbH

With around 400 employees, the University Clinic of Dentistry – a subsidiary of MedUni Vienna – is one of the largest and most advanced university dental hospitals in Europe.

## Pan-European cooperation

MedUni Vienna participated in a total of 84 EU-funded projects in 2022.

- 67 in the core Horizon 2020 and Horizon Europe framework programmes (Health, ERC, MSCA etc.)
- 13 projects in the Innovative Medicines Initiative 2 (IMI2) programme
- 2 projects in the EU4Health Programme
- 2 projects in programmes of the Directorate-General for Justice and Consumers

11 MedUni Vienna researchers coordinated EU consortiums with partners from European and other countries.

17 projects commenced in 2022.

# Ludwig Boltzmann Institutes

The Ludwig Boltzmann Gesellschaft (LBG) supports new Research approaches in medicine and life sciences. The LBG is an important partner for MedUni Vienna for externally financed research, with the following Ludwig Boltzmann Institutes (LBIs) located at the university:

- **LBI for Digital Health and Patient Safety**  
(Heads: Harald Willschke and Maria Kletečka-Pulker)
- **LBI for Applied Diagnostics**  
(Heads: Markus Mitterhauser and Gerda Egger)
- **LBI for Rare and Undiagnosed Diseases**  
(Heads: Kaan Boztug and Georg Stary)
- **LBI for Arthritis and Rehabilitation**  
(Head: Tanja Stamm)
- **LBI for Hematology and Oncology**  
(Head: Peter Valent)
- **LBI for Cardiovascular Research**  
(Head: Johann Wojta)

# 2022 in brief

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Christian Doppler  
Laboratories

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ERC grants

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Comprehensive  
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Centres  
of medical  
science

32

University departments and  
clinical institutes

6

Ludwig Boltzmann Institutes

22

Patent  
applications

12

Patents  
granted

188,361

citations of publications,  
2012-2021

University Clinic of Dentistry

37,755

patients (134,887 treatment sessions)

Clinic Data  
University  
Hospital Vienna

**60,175**

inpatient cases

**505,952**

outpatient cases

**1,684,588**

clinic appointments

**44,465**

operations

**2,977**

Lead, senior and  
corresponding  
authorships

**4,633**  
academic  
publications

**6,382**  
employees,  
incl. 4,228 researchers

**8,297**  
students

## International partners

Top 10 international research partnerships based on number of publications

1,169 Charité University Hospital Berlin,  
Free University of Berlin,  
Humboldt University of Berlin

1,106 University of Hamburg

1,101 Harvard University

976 Université de Paris

886 Ruprecht Karls University Heidelberg

875 Ludwig-Maximilians-Universität Munich

815 Karolinska Institutet

798 University College London

795 University of Zurich

782 Charles University Prague

2019-2022, source: InCites

**EUR 131.1m**

Revenue

from R&D projects (127.8) and donations (3.4)

# Organisational structure



# as at 31 December 2022

## University Council

5 members

## Scientific Advisory Board

### Organisational units with university management responsibilities (Infrastructure and services)

#### 10 service departments

- University Management Office
- Human Resources
- Legal Department
- Corporate Communications
- Studies and Examinations Department
- Research Service, Knowledge Transfer and International Affairs
- Clinical Trials Coordination Centre
- Finance Department
- Facility, Security and Infrastructure Management
- IT Systems and Communications

#### 4 staff units

- Internal Audit
- Evaluation and Quality Management
- Gender Mainstreaming and Diversity
- Controlling

### Subsidiaries and shareholdings

- Alumni Club
- Medical University of Vienna International GmbH
- Universitätszahnklinik Wien GmbH
- Max Perutz Labs Support GmbH
- FDZ – Forensisches DNA-Zentral-labor GmbH
- CBmed GmbH
- Karl Landsteiner Privatuniversität für Gesundheitswissenschaften GmbH
- Josephinum – Medizinische Sammlungen GmbH
- ACOmarket GmbH

### Committees

- Working Group on Equal Opportunities
- Works Council for scientific university staff
- Works Council for General University Staff
- Ethics Committee
- Data Protection Commission
- Arbitration Committee
- Students' Union (ÖH Med Vienna)
- Data Clearing House
- Ombudsman for Good Scientific Practice
- Intramural Committee for Animal Experimentation
- Advisory Board for People with Disabilities

### Curriculum Directors

- Medicine
- Dentistry
- PhD Programme and Doctoral Programme in Applied Medical Science
- Medical Informatics master's programme
- Molecular Precision Medicine Master's Programme
- Continuing education courses

## University management

### • Rectorate

The Rectorate is the university's executive management body.

Prof. Markus Müller, Rector  
Dr. Michaela Fritz, Vice Rector for Research and Innovation  
Prof. Anita Rieder, Vice Rector for Education  
Dr. Volkan Talazoglu, Vice Rector for Finance  
Prof. Oswald Wagner, Vice Rector for Clinical Affairs  
[www.meduniwien.ac.at/rectorate](http://www.meduniwien.ac.at/rectorate)

### • University Council

The University Council is one of the University's three most senior management bodies, alongside the Rectorate and the Senate. Two of the Council's members are appointed by the Senate of the Medical University of Vienna, and two by the federal government. A fifth member is elected by these four members.

Dr. Eva Dichand (Chair)  
Dr. Brigitte Ettl  
Prof. Irene Virgolini  
Prof. Reinhart Waneck  
Prof. Thomas Zeltner  
[www.meduniwien.ac.at/university-council](http://www.meduniwien.ac.at/university-council)

### • Senate

The Senate is made up of 13 representatives from among the university's full professors, six representatives of teaching and research staff, one representative of the general university staff and six student representatives, appointed by election or, in the case of student representatives, by delegation in accordance with section 25 Universities Act 2002.

*Term of office until 30 September 2022*

PROFESSORS  
Prof. Maria Sibilía (Chair)  
Prof. Angelika Berger  
Prof. Christoph Binder  
Prof. Barbara Bohle  
Prof. Renate Koppensteiner  
Prof. Irene Lang  
Prof. Michael Trauner (Third Deputy)  
Prof. Bruno Podesser  
Prof. Daniela Pollak-Monje Quiroga  
Prof. Shahrokh Shariat  
Prof. Harald Sitte  
Prof. Rudolf Valenta  
Prof. Ursula Wiedermann-Schmidt

UNIVERSITY LECTURERS/ACADEMIC STAFF INVOLVED IN RESEARCH AND TEACHING, INCL. DOCTORS IN SPECIALIST TRAINING

Prof. Martin Andreas  
Dr. Miriam Kristin Hufgard-Leitner  
Dr. Regina Patricia Schukro (First Deputy)  
Prof. Ivo Volf  
Prof. René Wenzl  
Prof. Birgit Willinger

STUDENTS

Eren Eryilmaz (Second Deputy)  
Till Buschhorn  
Isolde Kostner  
Noam Hartman  
Yannick T. Suhr  
Berfin Sakar

GENERAL UNIVERSITY STAFF

Gerda Bernhard

REPRESENTATIVE OF THE WORKING GROUP FOR EQUAL OPPORTUNITIES

Prof. Alexandra Kautzky-Willer  
[www.meduniwien.ac.at/senate](http://www.meduniwien.ac.at/senate)

*Term of office from 1 October 2022*

PROFESSORS

Prof. Maria Sibilía (Chair)  
Prof. Angelika Berger  
Prof. Christoph Binder  
Prof. Barbara Bohle  
Prof. Renate Kain  
Prof. Irene Lang  
Prof. Bruno Podesser  
Prof. Shahrokh Shariat  
Prof. Tanja Stamm  
Prof. Michael Trauner (Third Deputy)  
Prof. Edda Tschernko  
Prof. Rudolf Valenta  
Prof. Markus Zeitlinger

UNIVERSITY LECTURERS/ACADEMIC STAFF INVOLVED IN RESEARCH AND TEACHING, INCL. DOCTORS IN SPECIALIST TRAINING

Prof. Martin Andreas  
Dr. Miriam Kristin Hufgard-Leitner  
Dr. Judith Rittenschober-Böhm  
Prof. Ivo Volf (First Deputy)  
Prof. René Wenzl  
Prof. Birgit Willinger



## STUDENTS

Till Buschhorn (Second Deputy)  
Noam Hartman  
Isolde Kostner  
Yannick T. Suhr  
Nicole Brunner  
Florian Waldschütz

## GENERAL UNIVERSITY STAFF

Gerda Bernhard

## REPRESENTATIVE OF THE WORKING GROUP FOR EQUAL OPPORTUNITIES

Prof. Alexandra Kautzky-Willer  
[www.meduniwien.ac.at/senate](http://www.meduniwien.ac.at/senate)

## • Advisory Board for People with Disabilities

Chair: Prof. Richard Crevenna  
Deputy Chair: Prof. Johannes Wancata  
[www.meduniwien.ac.at/disabilities](http://www.meduniwien.ac.at/disabilities)

## • Arbitration Committee

Chair: Dr. Anna Sporrer  
[www.meduniwien.ac.at/arbitrationcommittee](http://www.meduniwien.ac.at/arbitrationcommittee)

## • Students' Union (ÖH Med Vienna)

Chair: Nicole Brunner  
First Deputy: Isolde Kostner  
Second Deputy: Florian Waldschütz  
[www.oehmedwien.at](http://www.oehmedwien.at)

## • Data Clearing House

Chair: Dr. Thomas Wrba (*until 27 April 2022*)  
Chair: Jessica Einzinger (*from 27 April 2022*)  
Deputy Chair: Dr. Michael Prinz  
[www.meduniwien.ac.at/data-clearing-house](http://www.meduniwien.ac.at/data-clearing-house)

## • Ombudsman for Good Scientific Practice

Spokesperson: Prof. Elisabeth Förster-Waldl  
[www.meduniwien.ac.at/gsp](http://www.meduniwien.ac.at/gsp)

## • Medicine Curriculum Director

Prof. Anahit Anvari-Pirsch  
Deputy: Prof. Franz Kainberger  
Deputy: Prof. Günther Körmöczki  
Deputy: Prof. Harald Leitich  
Deputy: Prof. Michaela Riedl

## • Dentistry Curriculum Director

Prof. Anita Holzinger  
Deputy: Prof. Andrea Nell  
Deputy: Prof. Andreas Schedle  
Deputy: Prof. Martina Schmid-Schwab

## • PhD Programme and Doctorate Programme in Applied Medical Science Curriculum Director

Prof. Stefan Böhm  
Deputy: Prof. Sylvia Knapp

## • Medical Informatics Curriculum Director

Prof. Georg Dorffner  
Deputy: Prof. Georg Duftschmid

## • Molecular Precision Medicine Master's Programme Curriculum Director

Prof. Thomas Ashley Leonard  
Deputy: Prof. Ruth Herbst

## Committees

### • Working Group on Equal Opportunities

Chair: Prof. Alexandra Kautzky-Willer  
First Deputy Chair: Prof. Ulrike Willinger  
(*until 28 September 2022*)  
Prof. Daniela Marhofer (*from 29 September 2022*)  
Second Deputy Chair: Irene Bednar  
[www.meduniwien.ac.at/equalopportunities](http://www.meduniwien.ac.at/equalopportunities)

### • Works Council for Scientific University Staff

Chair: Dr. Johannes Kastner  
First Deputy: Dr. Stefan Konrad  
Second Deputy: Dr. Sophie Pils  
Third Deputy: Prof. Michael Holzer  
[www.meduniwien.ac.at/wc-sus](http://www.meduniwien.ac.at/wc-sus)

### • Works Council for General University Staff

Chair: Gabriele Waidringer  
First Deputy Chair: Gerda Bernhard  
Second Deputy Chair: Ingrid Palzer  
[www.meduniwien.ac.at/wc-gus](http://www.meduniwien.ac.at/wc-gus)

### • Ethics Committee

Prof. Jürgen Zezula and Dr. Martin Brunner  
[www.meduniwien.ac.at/ethics](http://www.meduniwien.ac.at/ethics)

### • Intra-university Data Protection Commission

Chair: Jessica Einzinger  
Deputy: Gordana Sikanic  
[www.meduniwien.ac.at/dbc](http://www.meduniwien.ac.at/dbc)

#### • Continuing Education Curriculum Director

Prof. Henriette Löffler-Stastka  
Deputy: Prof. Martin Bauer

#### • Intramural Committee for Animal Experimentation

[www.meduniwien.ac.at/intramural-committee-for-animal-experimentation/](http://www.meduniwien.ac.at/intramural-committee-for-animal-experimentation/)

### Scientific Advisory Board

This external body advises the MedUni Vienna Rectorate on all matters related to research, with the aim of safeguarding the University's strategic positioning for the long term.

#### • Joseph Thomas Coyle

Professor of Psychiatry and Neuroscience,  
Harvard Medical School, Boston

#### • Hedvig Hricak

Chair, Department of Radiology, Memorial  
Sloan-Kettering Cancer Center, New York City

#### • Christoph Huber

Emeritus Professor of Hematology, Oncology and  
Immunology

#### • Sarah König

Head of the Institute of Medical Education and  
Education Research, Julius Maximilian University of  
Würzburg

#### • Michael Roden

Professor of Medicine, Scientific Director of the  
German Diabetes Center and Director, Institute for  
Clinical Diabetology, Heinrich Heine University  
Duesseldorf

#### • Robert Schwarcz

Professor of Psychiatry, Pharmacology and  
Pediatrics, Department of Psychiatry, University of  
Maryland School of Medicine

### University Departments

MedUni Vienna's clinical division consists of 30 departments, including two clinical institutes. 11 of these comprise a number of different divisions (in accordance with section 31(4) Universities Act). Departments, institutes and divisions also serve as patient care departments (pursuant to section 7(4) Hospitals Act).

#### Department of Medicine I

Interim Head: Prof. Heinz Burgmann

- Division of Oncology
- Division of Hematology and Hemostaseology
- Division of Palliative Medicine
- Division of Infectious Diseases and Tropical Medicine

#### Department of Medicine II

Head: Prof. Christian Hengstenberg

- Division of Cardiology
- Division of Angiology
- Division of Pulmonology

#### Department of Medicine III

Head: Prof. Rainer Oberbauer

- Division of Endocrinology and Metabolism
- Division of Nephrology and Dialysis
- Division of Rheumatology
- Division of Gastroenterology and Hepatology

#### Department of General Surgery

Head: Prof. Oliver Strobel

- Division of Visceral Surgery
- Division of Vascular Surgery
- Division of Transplantation

#### Department of Obstetrics and Gynecology

Head: Prof. Christian Singer (*from 1 May 2022*)

Deputy Head: Prof. Petra Kohlberger

- Division of Obstetrics and Feto-Maternal Medicine
- Division of General Gynecology and Gynecologic Oncology
- Division of Gynecological Endocrinology and Reproductive Medicine

#### Department of Otorhinolaryngology

Head: Prof. Wolfgang Gstöttner

- Division of General Ear, Nose and Throat Diseases
- Division of Speech and Language Therapy

#### Department of Anaesthesia, Intensive Care Medicine and Pain Medicine

Head: Prof. Klaus Markstaller

- Division of General Anaesthesia and Intensive Care Medicine
- Division of Special Anaesthesia and Pain Medicine
- Division of Cardiac Thoracic Vascular Anaesthesia and Intensive Care Medicine

#### Department of Psychiatry and Psychotherapy

Deputy Head: Prof. Johannes Wancata

- Division of Biological Psychiatry
- Division of Social Psychiatry

#### Department of Pediatrics and Adolescent Medicine

Head: Prof. Susanne Greber-Platzer

- Division of Neonatology, Intensive Care Medicine and Neuropediatrics
- Division of Pediatric Cardiology
- Division of Pediatric Pulmonology, Allergology and Endocrinology
- Division of Pediatric Nephrology and Gastroenterology
- Division of Pediatrics with special focus on Pediatric Hematology-Oncology (St. Anna Children's Hospital)

#### Department of Biomedical Imaging and Image-guided Therapy

Head: Prof. Christian Herold

- Division of General and Paediatric Radiology
- Division of Cardiovascular and Interventional Radiology
- Division of Neuroradiology and Musculoskeletal Radiology
- Division of Nuclear Medicine

#### Department of Orthopedics and Trauma-Surgery

Head: Prof. Reinhard Windhager

- Division of Orthopedics
- Division of Trauma Surgery

#### Department of Dermatology

Head: Prof. Wolfgang P. Weninger

#### Department of Radiation Oncology

Head: Prof. Joachim Widder

#### Department of Urology

Head: Prof. Shahrokh Shariat

#### Department of Neurosurgery

Head: Prof. Karl Rössler

#### Department of Oral and Maxillofacial Surgery

Head: Prof. Emeka Nkenke

#### Department of Cardiac Surgery

Head: Prof. Günther Laufer

#### Department of Thoracic Surgery

Interim Head: Prof. Konrad Hötzenecker

#### Department of Plastic, Reconstructive and Aesthetic Surgery

Interim Head: Prof. Christine Radtke

#### Department of Pediatric and Adolescent Surgery

Head: Prof. Martin Metzelder

#### Department of Emergency Medicine

Head: Prof. Wilhelm Behringer

#### Department of Neurology

Head: Prof. Thomas Berger

- Division of Neuropathology and Neurochemistry

#### Department of Physical Medicine, Rehabilitation and Occupational Medicine

Head: Prof. Richard Crevenna

#### Department of Child and Adolescent Psychiatry

Head: Prof. Paul Plener

#### Department of Psychoanalysis and Psychotherapy

Head: Prof. Stephan Doering

#### Department of Ophthalmology and Optometrics

Head: Prof. Ursula Schmidt-Erfurth

#### Department of Blood Group Serology and Transfusion Medicine

Head: Prof. Antonia Müller (*from 1 May 2022*)

Deputy Head: Prof. Günther Körmöczi

#### Department of Hospital Epidemiology and Infection Control

Head: Prof. Elisabeth Presterl

#### Department of Clinical Pharmacology

Head: Prof. Markus Zeitlinger

#### Department of Laboratory Medicine

Head: Prof. Oswald Wagner

- Division of Clinical Virology
- Division of Clinical Microbiology

#### Department of Pathology

Head: Prof. Renate Kain

#### University Clinic of Dentistry Vienna

Head: Prof. Andreas Moritz

## Centres of Medical Science

### Center for Anatomy and Cell Biology

Head: Prof. Franz-Michael Jantsch

- General Division of the Center for Anatomy and Cell Biology
- Division of Anatomy
- Division of Cell and Developmental Biology

### Center for Physiology and Pharmacology

Head: Prof. Michael Freissmuth

- Institute of Vascular Biology and Thrombosis Research
- Institute of Pharmacology
- Institute of Physiology
- Division of Neurophysiology and Neuropharmacology

### Center for Public Health

Head: Prof. Anita Rieder

- Department of General Practice and Family Medicine
- Department of Social and Preventive Medicine
- Department of Environmental Health
- Department of Epidemiology
- Department of Medical Psychology
- Department of Health Economics

### Center for Brain Research

Head: Prof. Thomas Klausberger

- Division of Neuroimmunology
- Division of Neurophysiology
- Division of Molecular Neurosciences
- Division of Neuronal Cell Biology
- Division of Cognitive Neurobiology
- Division of Pathobiology of the Nervous System

### Center for Pathobiochemistry and Genetics

Head: Prof. Markus Hengstschläger

- Medical Genetics
- Institute of Medical Chemistry and Pathobiochemistry

### Department of Medical Biochemistry

Part of Max Perutz Labs, a joint venture of MedUni Vienna and the University of Vienna for research in the field of molecular biosciences.

Head: Prof. Alwin Köhler

- Division of Molecular Biology
- Division of Molecular Genetics

### Department of Virology

Head: Prof. Elisabeth Puchhammer

- Division of Applied Medical Virology

### Department of Forensic Medicine

Head: Prof. Daniele U. Risser

- DNA – Zentrallabor

### Center for Pathophysiology, Infectiology and Immunology

Head: Prof. Ursula Wiedermann-Schmidt

- Institute of Pathophysiology and Allergy Research
- Institute of Immunology
- Institute of Specific Prophylaxis and Tropical Medicine
- Institute of Hygiene and Applied Immunology

### Center for Medical Physics and Biomedical Engineering

Head: Prof. Wolfgang Drexler

### Center for Medical Statistics, Informatics and Intelligent Systems

Head: Prof. Martin Posch

- General Division of the Center for Medical Statistics, Informatics and Intelligent Systems
- Institute of Medical Statistics
- Institute of Clinical Biometrics
- Institute of Biosimulation and Bioinformatics
- Institute of Medical Information Management
- Institute of the Science of Complex Systems
- Institute of Artificial Intelligence and Decision Support
- Institute of Outcomes Research

### Department of Biomedical Research

Head: Prof. Bruno Podesser

### Center for Cancer Research

Head: Prof. Maria Sibilía

## **Organisational Units with special Service Functions**

### **Comprehensive Cancer Center**

Head: Prof. Joachim Widder (*until 31 October 2022*)  
Prof. Shahrokh Shariat (*from 1 November 2022*)

### **Comprehensive Center for Pediatrics**

Head: Prof. Angelika Berger

### **Comprehensive Center for Cardiovascular Medicine**

Head: Prof. Günther Laufer

### **Comprehensive Center for Perioperative Medicine**

Head: Prof. Klaus Markstaller (*from 1 June 2022*)

### **Comprehensive Center for Clinical Neurosciences and Mental Health**

Head: Prof. Thomas Berger (*from 1 June 2022*)

### **Comprehensive Center for Infection Medicine**

Head: Prof. Elisabeth Presterl (*from 1 July 2022*)

### **Core Facilities**

Head: Prof. Johann Wojta

- Genomics: DNA analysis
- Genomics: genome analysis
- Imaging
- Proteomics
- Cell Sorting

### **Core facility laboratory animal breeding and husbandry**

Interim Head: Prof. Wilfried Ellmeier

### **Library**

Head: Karin Cepicka

### **Ethics, History of Medicine and Historical Collections**

Head: Dr. Christiane Druml

### **Teaching Center**

Head: Prof. Anahit Anvari-Pirsch

- Postgraduate Education and Training Unit
- Research Unit for Curriculum Development
- Resources Management
- Curriculum Management
- Assessment and Skills
- Medical Didactics
- Digital Learning

## **Service departments**

### **University Management Office**

Head: Ingrid Riedel-Taschner

### **Human Resources**

Head: Eva Kriegler (*until 31 October 2022*)  
Maria Eder (*from 1 November 2022*)

### **Legal Department**

Head: Prof. Markus Grimm

### **Corporate Communications**

Head: Johannes Angerer

### **Studies and Examinations Department**

Head: Harald Jäger

### **Research Service, Knowledge Transfer and International Affairs**

Head: Dr. Michaela Fritz

### **Clinical Trials Coordination Centre**

Head: Prof. Michael Wolzt

### **Finance Department**

Head: Gerhard Hatzl

### **Facility, Security and Infrastructure Management**

Head: Harald Trezza

### **IT Systems and Communications**

Head: Dr. Brigitte Haidl

## **Staff units**

### **Internal Audit**

Head: Markus Künzel

### **Evaluation and Quality Management**

Head: Dr. Katharina Stowasser-Bloch

### **Gender Mainstreaming**

Head: Sandra Steinböck

### **Controlling**

Head: Karin Fartacek

# Financial statements

## I. Statement of financial position as at 31 December 2022

### ASSETS

	31 December 2022 EUR			31 December 2021 EUR,000		
<b>A. Fixed assets</b>						
I. Intangible assets						
1. Concessions and similar rights, and licences thereto		376,201.91			426	
<i>of which acquired by purchase</i>	376,201.91				426	
2. Rights of use		20,000,000.00	20,376,201.91		20,000	20,426
II. Property, plant and equipment						
1. Land, leasehold rights and buildings including buildings on third-party land		20,941,890.28			17,204	
<i>a) of which land value</i>	718,605.00				719	
<i>b) of which building value</i>	740,037.41				800	
2. Plant and machinery		15,997,845.90			14,976	
3. Scientific literature and other scientific media		8,744,476.61			8,626	
4. Other plants, operating and office equipment		4,152,980.06			3,677	
5. Advance payments and plants under construction		14,845,788.45	64,682,981.30		11,848	56,331
III. Financial assets						
1. Investments in subsidiaries and associates		649,000.00			3,104	
2. Loans to subsidiaries and associates		659,867.12			141	
3. Securities and similar instruments held as fixed assets		214,514,445.97	215,823,313.09	300,882,496.30	155,876	159,121 235,878
<b>B. Current assets</b>						
I. Inventories						
1. Operating resources		620,000.00			620	
2. Services rendered to third parties not yet invoiced		96,436,289.31	97,056,289.31		82,176	82,796
II. Receivables and other assets						
1. Trade receivables		24,754,344.08			14,963	
2. Receivables from associates		1,902,455.12			1,433	
3. Other receivables and other assets		19,383,399.50	46,040,198.70		19,364	35,760
III. Securities and equity interests			7,104,273.09		7,696	
IV. Cash and cash equivalents			174,960,883.45	325,161,644.55	187,343	313,595
<b>C. Accruals and deferrals</b>				2,233,232.18	2,002	
<b>TOTAL ASSETS</b>			<b>628,277,373.03</b>	<b>551,475</b>		

The 2022 financial statements were given an unqualified audit certificate by auditors Mazars Austria GmbH Wirtschaftsprüfungs- und Steuerberatungsgesellschaft.

## PASSIVA

	31 December 2022 EUR		31 December 2021 EUR,000	
<b>A. Equity</b>				
1. University negative equity		-8,334,166.31		-8,334
2. Net profit		25,317,551.84	16,983,385.53	18,808 10,474
<i>profit brought forward</i>	18,807,638.68			16,533
<b>B. Investment grants</b>		<b>30,168,571.36</b>		<b>30,330</b>
<b>C. Provisions</b>				
1. Provisions for severance payments		24,172,890.29		21,267
2. Other provisions		177,907,028.90	202,079,919.19	170,732 191,999
<b>D. Liabilities</b>				
1. Advances received		191,559,453.35		164,718
<i>of which deductible from inventories</i>	88,065,644.11			76,115
2. Trade payables		28,721,334.59		21,471
3. Payables to associates		144,513.11		287
4. Other liabilities		25,351,080.82	245,776,381.87	25,084 211,560
<b>E. Accruals and deferrals</b>		<b>133,269,115.08</b>		<b>107,112</b>
<b>TOTAL LIABILITIES</b>		<b>628,277,373.03</b>		<b>551,475</b>

### Note regarding equity:

In 2022, the university recognised positive equity, amounting to EUR 17.0m, for the first time since 2019. Irrespective of this, the Universitäts-Rechnungsabschlussverordnung (University Financial Statements Order) 2010 gives medical universities the option of capitalising investments relating to additional clinical expense, research and teaching as rights of use. As a result of capitalising these investments, taking into account investment grants recognised as at 31 December 2022, positive equity in the meaning of section 16(2) University Financial Statements Order was EUR 47.2m (2021: EUR 40.8m).

## II. Statement of profit or loss 2022

	2022 EUR	2021 EUR,000
<b>1. Revenue</b>		
a) Revenue from Federal Government global budget allocation	528,648,658.61	495,842
b) Revenue from tuition fees	1,079,726.19	1,095
c) Revenue from postgraduate training programmes	1,879,454.81	1,743
d) Revenue pursuant to section 27 Universities Act	92,155,814.09	102,342
e) Reimbursements of costs pursuant section 26 Universities Act	15,516,364.40	15,193
f) Other revenue and reimbursements	17,092,172.16	16,187
<i>of which revenue from federal ministries</i>	309,344.75	410
	<b>656,372,190.26</b>	<b>632,402</b>
<b>2. Change in services rendered to third parties not yet invoiced</b>	<b>14,260,169.41</b>	<b>4,431</b>
<b>3. Other operating income</b>		
a) Income from disposal or write-up of fixed assets (excl. financial assets)	3,060.00	4
b) Income from reversal of provisions	2,042,885.75	2,905
c) Other	16,044,236.97	18,339
<i>of which from reversal of investment grants</i>	10,161,353.53	10,403
	<b>18,090,182.72</b>	<b>21,248</b>
<b>4. Expenditure for materials, consumables and purchased services</b>		
a) Expenditure for materials and consumables	-21,000,113.00	-19,074
b) Expenditure for purchased services	-5,397,073.89	-5,436
	<b>-26,397,186.89</b>	<b>-24,510</b>
<b>5. Staff costs</b>		
a) Salaries and wages	-391,484,875.55	-370,099
<i>of which refunds to the Federal Government for officials assigned to the university</i>	68,571,155.55	70,126
b) Expenditures for teaching according to use category 17 und 18 Hochschulstatistik- und Bildungsdokumentationsverordnung – UHSBV, BGBl. II Nr. 216/2019, current version	-1,279,109.63	-1,684
c) Cost of severance payments and payments to employee benefits funds	-9,324,667.44	-6,212
<i>of which refunds to the Federal Government for officials assigned to the university</i>	0.00	0
d) Cost of pensions	-13,299,012.60	-12,306
<i>of which refunds to the Federal Government for officials assigned to the university</i>	402,697.17	414
e) Social security contributions and other pay-related contributions	-80,008,084.26	-76,887
<i>of which refunds to the Federal Government for officials assigned to the university</i>	14,354,049.51	14,926
f) Other employee benefits	-5,514,348.43	-11,973
	<b>-500,910,097.91</b>	<b>-479,161</b>



	2022 EUR	2021 EUR,000
<b>6. Depreciation and amortisation</b>	<b>-23,417,729.23</b>	<b>-22,866</b>
<b>7. Other operating expenses</b>		
a) Taxes other than those under item 13	-1,087,752.00	-1,230
b) Reimbursements to hospital operator pursuant section 33 Universities Act	-50,089,116.63	-50,073
c) Other	-58,059,181.24	-62,179
	<b>-109,236,049.87</b>	<b>-113,482</b>
<b>8. Subtotal items 1 to 7</b>	<b>28,761,478.49</b>	<b>18,062</b>
<b>9. Income from financial resources and investments</b>	<b>2,317,031.86</b>	<b>2,599</b>
a) of which from write-ups	0.00	458
<b>10. Expenditure arising from financial resources and equity holdings</b>	<b>-24,023,515.04</b>	<b>-17,820</b>
a) of which from write-downs	561,578.29	37
b) of which expenditure arising from subsidiaries and associates	17,952,984.53	17,734
<b>11. Subtotal items 9 to 10</b>	<b>-21,706,483.18</b>	<b>-15,221</b>
<b>12. Earnings before tax (sum of items 8 and 11)</b>	<b>7,054,995.31</b>	<b>2,841</b>
<b>13. Taxes on income and profit</b>	<b>-545,082.15</b>	<b>-566</b>
<b>14. Loss/profit after tax</b>	<b>6,509,913.16</b>	<b>2,275</b>
<b>15. Loss/profit brought forward</b>	<b>18,807,638.68</b>	<b>16,533</b>
<b>16. Net profit/loss for the year</b>	<b>25,317,551.84</b>	<b>18,808</b>

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