



Medical University of Vienna

Annual Report 2012

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20

Goodbye to chronic pain

Opioids aren't only effective for temporarily relieving pain – they can also erase pain memories. This is giving rise to new, long-lasting approaches in pain therapy.

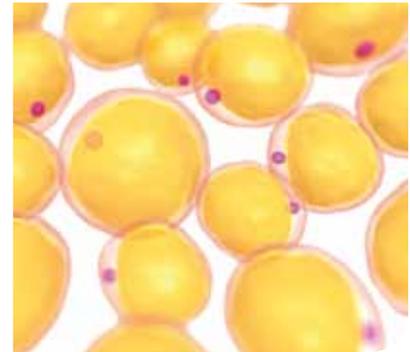
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Medical University of Vienna



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The future starts now

This Annual Report aims to provide an overview of an eventful year for the University – one that was defined by outstanding achievements in research, education and patient care. 2012 also saw a number of groundbreaking measures put in place that will impact the future of Austrian universities and the future of the Medical University of Vienna in particular.

One of our major priorities in 2012 was the negotiation of the University's performance agreement with the Federal Ministry of Science and Research for the period 2013 to 2015. In comparison with other universities, MedUni Vienna achieved a very positive outcome to these negotiations. However, it should not be forgotten that governments must continue to bear the responsibility for the future of higher education in Austria, and provide adequate funding for universities. The universities are in turn committed to ensuring that the funds provided are efficiently invested in research and teaching.

An important step in this direction is the Universitätsmedizin Wien 2020 project, initiated jointly by MedUni Vienna and Vienna General Hospital in 2012. The aim of this project is optimise cooperation between the country's largest medical university and its largest hospital, to exploit synergies between the two, and to prepare both institutions for the regional and international challenges of the future, so that Vienna's university hospital can continue – within the limits of the available finances – to operate at the forefront of research, teaching and patient care.

Today, MedUni Vienna and Vienna General Hospital are among Europe's top scientific and health care institutions. The University Medicine Vienna 2020 project will set both of them on a sure path, so that the success they have enjoyed so far will continue in future.

This success is reflected in the many publications of work by MedUni Vienna researchers in prominent journals, and in Vienna's popularity as a conference destination. To name just two events, Europe's foremost

Foreword

oncologists gathered in the Austrian capital for the eighth European Breast Cancer Conference and for ESMO 2012 (the Congress of the European Society for Medical Oncology). Staff from MedUni Vienna were heavily involved in the organisation of both.

Compared with the attention given to breakthroughs in research, achievements in teaching often receive far too little recognition. Our teaching expertise forms the third pillar of the University's activities, alongside research and patient care, and enables us to provide a world-class education for the scientists and doctors of tomorrow. In 2002 we introduced a revised curriculum, certified by the World Federation for Medical Education and centred on integrated specialist knowledge. The University is set to take another step forward in supporting the development of students' individual strengths with the introduction of a final year of clinical practice for medical students starting in 2014/15. This is an important element of our efforts to ensure that our present success continues into the future, as will the common admissions process worked out by all three of Austria's medical universities in 2012, which makes its debut in July 2013.



Wolfgang Schütz
Rector, Medical University of Vienna



Bidding farewell after a special year

As Chair of the Senate of the Medical University of Vienna, I am pleased to be able to look back on a busy 2012. The Senate met ten times during the year, and dealt with a large number of challenging issues, always managing to find a balance between the different interests represented by its members.

Two key matters were the implementation of the common admissions process developed by Austria's three medical universities and the introduction of a final year of clinical practice starting with the 2014/15 academic year. Both of these were adopted following extensive discussions in the respective working groups. The Senate also focused intensively on the range of continuing education offered by the University, and two pioneering new postgraduate courses were introduced, in Psychotherapy Research and in Transcultural Medicine and Diversity Care.

The University's strategic direction, as outlined in the development and organisational plan, was also a major theme. The Senate drew up clear position statements, including a recommendation to proceed with the formation of interdisciplinary centres.

The two new members of the University Council nominated by the Senate were installed in 2012 – the scientist Veronika Sexl, and Walter Dorner, former President of the Austrian Medical Chamber. These two highly experienced personalities will work diligently to promote the interests of Vienna as a research location, as well as those of the staff of Med-Uni Vienna.

I would like to extend my heartfelt thanks to the other members of the Senate for what we have accomplished over the last ten years since the establishment of MedUni Vienna as an autonomous university. It has been a great pleasure for me to chair the Senate during these formative years.

A handwritten signature in black ink, appearing to read 'A. Pollak', written in a cursive style.

Arnold Pollak
Chair of the Senate

The University Council of the Medical University of Vienna

Members:

Chair:

Erhard Busek
(Former Vice Chancellor and former Minister
for Science and Research of the Republic of Austria,
Chair of the Institute for the Danube Region and
Central Europe)

Elisabeth Hagen

(Managing Director of the Vienna Institute
for International Economic Studies)

Rudolf Klausnitzer

(media executive)

Deputy Chair:

Johannes Strohmayer
(investment banker)

Professor Robert Schwarcz

(Professor and neuroscientist at the University
of Maryland, Baltimore, USA)



From left to right: Robert Schwarcz, Rudolf Klausnitzer, Elisabeth Hagen, Johannes Strohmayer, Erhard Busek



From left to right: Franz Wurm, Christiane Druml, Wolfgang Schütz, Karin Gutiérrez-Lobos und Markus Müller

The Rectorate manages the University's activities and draws up strategic guidelines. These are defined in the development plan, and by the performance agreements with the Federal Government and the aims agreed with organisational units. The Rectorate team comprises the Rector and the four vice rectors (for Finance, Research, Clinical Affairs, and Education, Gender and Diversity).

Wolfgang Schütz **Rector**

Professor Wolfgang Schütz has been Rector of the Medical University of Vienna since 2004, the year in which it became an autonomous university. A pharmacologist by training, he was previously Dean of the Medical Faculty of the University of Vienna (from 1996), and between 1995 and 1999 he served as Director of the Institute of Pharmacology at the University of Vienna. His responsibilities as Rector include human resources, qualification agreements, process and quality management, internal audit, public relations and the coordination of legal matters.

Karin Gutiérrez-Lobos **Vice Rector for Education, Gender and Diversity**

Karin Gutiérrez-Lobos has been Vice Rector for Education, Gender and Diversity and Deputy to Rector Wolfgang Schütz since 1 October 2011. She also served as a Vice Rector prior to this appointment, with responsibility for human resources development and women's advancement. She is a Professor of Psychiatry, specialising in social psychiatry, forensic psychiatry and gender-specific aspects of psychiatric illnesses.

Rectorate

Christiane Druml

Vice Rector for Clinical Affairs

Christiane Druml has been a member of the MedUni Vienna Rectorate team since 1 October 2011. She is responsible for all clinical matters, good scientific practice, sponsorship and fundraising, and the medical collections in the Josephinum. Dr. Druml is also Chair of the Austrian Bioethics Committee within the Federal Chancellery, and a Member of UNESCO's International Bioethics Committee.

Markus Müller

Vice Rector for Research

Markus Müller has been Vice Rector for Research since 1 October 2011, and has been Head of the Department of Clinical Pharmacology at MedUni Vienna since 2002. His responsibilities include promoting research at the University, evaluation and quality management of research activities, strategic planning for research, patent management and licen-

sing, and international relations and partnerships in research and clinical practice. Professor Müller specialises in internal medicine, and gained post-doctoral lecturing qualifications for clinical pharmacology in 1998 and for internal medicine in 2001.

Franz Wurm

Vice Rector for Finance

Franz Wurm has been Vice Rector for Finance at MedUni Vienna since 1 October 2011. As well as being responsible for all financial matters, he is in charge of facility management and IT services. He was Vice Rector for Finance and Resource Management at Johannes Kepler University, Linz from 2003, and prior to that held senior positions in the Austrian and international chemical industry, at Chemie Linz and Borealis. A member of the management board at Borealis, his responsibilities included finance, accounting and controlling.





Medical University of Vienna

In keeping with MedUni Vienna's national and international profile, the University's activities are highly diverse. An educational institution in the heart of Europe, MedUni Vienna offers students a wide range of courses, from its innovative degree programmes in medicine and dentistry, to continuing education courses and PhD and doctoral research programmes. Research activities are focused in five interdisciplinary clusters, and their output results in the development of new and personalised treatments for patients. Forming centres of clinical expertise, the research clusters are set to pave the way for a new renowned Vienna School of Medicine, continuing the old traditions.



World-class medicine in the heart of Europe

Vienna has historically been one of Europe's most important centres of science and research, and medicine has played an important role in establishing this reputation. The medical faculty of the University of Vienna was founded roughly 650 years ago, and researchers at what is now MedUni Vienna have over the years been responsible for a large number of major medical breakthroughs and discoveries – an achievement responsible for the fame of the Vienna School of Medicine.

International centre of scientific activity

The international prominence of academic staff at MedUni Vienna, both in research and teaching, has in turn enhanced the Austrian capital's standing as a research hub. The city was also recently chosen as the world's most popular conference location for the sixth time in a row by the International Congress and Convention Association. Like almost no other city in the world, Vienna has taken a grand tradition and transformed itself into a modern, highly attractive centre of scientific activity. This is due mainly to the large number of major medical congresses that take place in Vienna, as well as the international attention attracted by the work of researchers at MedUni Vienna.

All of this underlines the achievements of the University's scientists as researchers and teachers, for which they have gained international recognition. MedUni Vienna is one of Central Europe's largest



The work of scientists at MedUni Vienna has boosted Vienna's attractiveness as a centre of research.

research organisations and the largest medical education establishment in the German-speaking world, as well as Austria's leading health care services provider through Vienna General Hospital. The resulting critical mass of medical knowledge and expertise makes Vienna a magnet for teachers, researchers and students from Austria and all over the world.

MedUni Vienna will in future play an even more important role internationally, as a centre of excellence. This will result from even closer cooperation with Vienna General Hospital, as is already happening at the Comprehensive Cancer Center Vienna (CCC), and in the joint project initiated in 2012, University Medicine Wien 2020. Targeted support for highly talented researchers, performance-based career models for

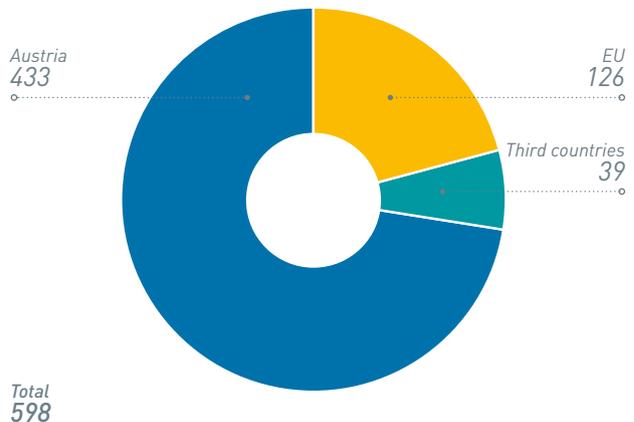
physicians, participation in international networks and extramural cooperations will also contribute.

Collaborative agreements and third-party funding on the increase

MedUni Vienna and the University of Vienna pool resources for molecular biology research at Max F. Perutz Laboratories, a joint venture between the two institutions. Interdisciplinary collaboration with the University of Vienna institutes also takes place in combined research groups. A cooperation with both the Vienna University of Veterinary Medicine and the University of Vienna was successful in bringing the Messerli Research Institute to Vienna. These are just three examples of MedUni Vienna's many working links with other institutions in Austria, which also include Ludwig Boltzmann Institutes and Clusters focusing on a wide range of research areas, as well as the coordination of a number of Austrian Science Fund special research programmes. This culture of collaboration with other universities is to be expanded yet further in future.

MedUni Vienna's scientists benefit from research links with other world class institutions, in particular in the fields of allergies, immunology and infectious diseases, cancer research, neuroscience, cardiovascular medicine, and imaging. Various international research consortia and multicentre clinical trials are coordinated by the University's researchers in these five focus areas, which also form MedUni Vienna's

Cooperations



Collaborative agreements with 598 different partner institutions mean that the University is part of a highly diversified research network.

research clusters. Projects with funding from the EU Commission play a key role, and during 2012 the University was involved in 95 ongoing EU projects, 17 of which were coordinated here in Vienna. In addition, MedUni Vienna's strategy for the medium term includes establishing collaborative partnerships with at least one top-rank American university and one university in Asia.

Cooperation between research and industry is mainly focused on the Christian Doppler Laboratories (CDLs). Currently, MedUni Vienna operates 11 CDLs – more than any other Austrian university – where researchers work closely with private sector partners to develop innovative solutions for commercial purposes.

As public budgets get tighter, the importance of extramural collaboration and external funding for universities continues to increase. MedUni Vienna's success in this area is noteworthy: funding acquired from outside sources has almost doubled since 2004. Currently, it represents roughly a fifth of all funding

for research and teaching activities. With a view to further increasing external finance, the University has set up an academic-private partnership to actively pursue the patenting and commercialisation of research discoveries.

An innovative curriculum for 7,500 students

Medical education at MedUni Vienna has built up a strong reputation in recent years, thanks to an innovative curriculum which focuses on small group learning and clinical practice and allows students to acquire integrated expertise. In 2012, the practical component of the Medicine degree programme was enhanced with the addition of a clinical practice year. Interpersonal skills are part of the curriculum from the first semester onwards, and innovative course elements such as exercises with patient actors help students develop an appropriate professional manner. A new, uniform aptitude test for applicants was developed in 2012 together with the medical universities of Graz and Innsbruck, and will be used for the first time in 2013.

7,500 students from Austria and abroad are currently enrolled in courses at MedUni Vienna. In addition to degree programmes in medicine and dentistry, the University offers an attractive range of specialist and continuing education for prospective and established medical professionals and students from other scientific disciplines. This includes doctoral research and PhD programmes, a master's programme in

medical informatics and a number of postgraduate continuing education courses. Two new courses of this kind, in Psychotherapy Research and in Trans-cultural Medicine and Diversity Care, were created in 2012, as well as a new master's degree for clinical trial assistants.

More than 1,000 postgraduate researchers are enrolled in the PhD and doctoral research programmes, which have grown rapidly in the short time since they were introduced. Many are completing their doctoral studies as employees of the University. MedUni



The Medicine degree programme centres on small group learning and clinical practice.

Vienna also has a successful student exchange programme, which includes study abroad scholarships, visiting researcher programmes and partnerships with other universities, and which is being expanded with the aim of building on the University's international spirit.

New professorships and social objectives

As part of fulfilling its social objectives, MedUni Vienna pursues gender mainstreaming programmes, with two specific measures already in place – a programme entitled 'The family-friendly university: coaching for women applying for professorships', and a mentoring programme". Research in gender medicine, begun under a newly created professorship in 2010, is set to become a more integrated part of the curriculum.

Another example of socially relevant research is a project to investigate whether research conducted between the end of the Second World War and the establishment of the Ethics Committee conformed to ethical principles and the conventional standards of research practice at the time. MedUni Vienna set up an expert panel in early 2012 tasked with achieving clarity and transparency on this issue; it will report in 2014.

Three new chairs in increasingly important specialised fields were added to the existing professorships at the University in 2012. A Professor of Transplan-

tation Immunology will tackle the problem of immune responses following organ transplantation, while the new Professor of Infection Biology will focus on research into how the innate immune system reacts to bacterial infections. The University's first Professor of Geriatric Medicine is expected to help create a shift in the way this discipline is approached, so that geriatrics can be seen as not just playing a caring role but rather as providing specialist acute medical care for older people.



Translational research: creating the shortest link from lab to patient

A combined total of around 3,500 researchers and doctors worked at MedUni Vienna in 2012, many of whom come from countries other than Austria. Their scientific achievements benefit patients directly, since the University closely integrates basic research with clinical practice at Vienna General Hospital – new research outcomes yielded by clinical studies are integrated into patient care for the close to 700,000 patients treated in the 26 clinical departments and five clinical institutes every year.

Due to the considerable medical benefits, this translational approach to research and medical treatment forms the core of the cooperation between Vienna General Hospital and MedUni Vienna. MedUni Vienna concentrates on work in the five research clusters which have been established to pursue clinical research and promote its integration with basic medical research (see page 66).

Clinical centres to cement the reputation of the new Vienna School of Medicine

Bringing together expertise from different medical disciplines opens up possibilities for much more effective patient diagnosis and treatment, particularly for cancer patients. The Vienna Comprehensive Cancer Center (CCC) was established in 2010 with this aim. The CCC integrates patient care, teaching and research ‘under one roof’, in close collaboration with self-help programmes and neighbouring ins-



Patients benefit directly from the latest scientific advances.

titutions, such as the Ludwig Boltzmann Institutes, IMBA, Max F. Perutz Laboratories (a joint venture with the University of Vienna), IMP and CeMM. This unique approach allows efforts in the fight against cancer to be coordinated and focused in a new way.

In light of its success, the CCC is a model for further interdisciplinary centres of this kind at the University, with plans for a neurology centre and a cardiovascular centre already in place. Since 2012, planning and implementation of new clinical centres has been supervised by the Scientific Advisory Board, made up of international experts. The creation of these centres is intended to help achieve MedUni Vienna’s goal of establishing a new Vienna School of Medicine that represents both a holistic and a personalised approach to medicine.





Highlights

Cutting edge research, academic teaching and everyday clinical practice form a closely interwoven whole at MedUni Vienna, Austria's leading medical university – providing a guarantee of outstanding performance. These highlights offer an overview of the University's activities in 2012, and the wide range of the services it provides.

The topics covered include continued development of the medical curriculum, the introduction of new courses and new entrance tests, the appointment of new professors and the establishment of new institutes and chairs, as well as medical research and constant improvements in medical treatment.

Chronic pain: opioids erase memory traces

A team of researchers at MedUni Vienna's Department of Neurophysiology has discovered that opioids not only temporarily relieve pain, but can also erase the memory traces responsible for chronic pain.

A team led by Ruth Drdla-Schutting and Jürgen Sandkühler recreated a surgical procedure in vivo in which pain fibres were stimulated under controlled conditions. As Sandkühler explained, "Although deep anaesthesia prevents any sensations of pain, we were able to observe long-term synaptic potentiation in the spinal cord. Despite anaesthesia, there was a memory trace for pain, and a pain amplifier was activated." With high doses of intravenous opioids over the

course of an hour the memory trace was removed again and the pain amplifier was switched off.

A project sponsored by the Vienna Science and Technology Fund (WWTF) is currently investigating how this discovery can be put to use in clinical practice. Test subjects and patients are being given a high dose of an opioid over a period of 60 minutes. "If our approach turns out to be effective under clinical conditions, it will herald a

paradigm shift in pain management. We shall be moving from the temporary treatment of just the symptoms of pain to the permanent removal of the cause of pain," said Drdla-Schutting.

Major publications every month

Publications in peer-reviewed journals increased again in 2012. Articles and contributions by staff of MedUni Vienna appeared in leading scientific journals such as Science, The Lancet and Nature on a regular basis. Further evidence for the high reputation enjoyed by the University's scientists is their increasing presence on the editorial boards of the learned journals – Jürgen Sandkühler, who heads the Center for Brain Research and the Department of Neurophysiology, is a member of Science's editorial board.



○ 'GOOD' HDL CHOLESTEROL CAN ALSO BE DANGEROUS

The results of a recent study at MedUni Vienna's Third Department of Internal Medicine could upset how HDL cholesterol is seen: researchers at the Clinical Section for Nephrology have discovered that HDL cholesterol, which has until now been considered "good" cholesterol, can in fact be harmful and may even exacerbate inflammation.

New medical degree course with clinical practice year to start in 2014/15

The University Senate of MedUni Vienna has approved a further improvement to the medical curriculum. The sixth and last year of the Medicine degree programme will be a clinical practice year, allowing students to consolidate the knowledge and skills they have acquired up to that point.



“In their practical year, students will put their theoretical training to use as they gain all-round practical experience at the bedside, taking part in clinical ward rounds and learning to become part of the permanent team,” explains Karin Gutiérrez-Lobos, MedUni Vienna’s Vice Rector for Education. The clinical practice year represents a further quality improvement in the Viennese medical curriculum, and is also a successful step in the process of establishing common standards for all of Austria’s medical universities.

The year is divided into three 16-week parts, devoted respectively to internal medicine, surgical and peri-operative topics, and optional courses. The fifth year of the degree programme will be adapted correspondingly, with the curriculum including elements from emergency medicine, neurology, psychiatry, paediatrics,

otolaryngology, ophthalmology, diagnostic skills and interdisciplinary patient management. The fourth year of study will in future concentrate on

acquiring basic knowledge in internal medicine, surgery and dermatology. More specialised issues, such as the social compatibility aspect of medicine, will be explored in working groups.

Linked, practice-oriented thematic blocks: the new medical curriculum

In line with current approaches internationally, the new medical curriculum at MedUni Vienna has been developed to incorporate problem-solving skills, methods-based examination and integration of specialisations, and to allow for accurate calculation of educational capacity, as well as quality control and assessment.

Teaching in phase one and phase two of the programme is organised into thematic blocks. The block courses are accompanied by courses that extend over the whole semester. These line elements – small group seminars and practical classes – illustrate the practical clinical applications of knowledge acquired, and include training in the necessary clinical skills. The fifth and sixth years of study focus on clinical practice, with teaching taking place in the Vienna General Hospital university clinical departments and at other training hospitals.

MECHANISM FOR MORE EFFECTIVE CANCER THERAPY DECODED

A research team at MedUni Vienna’s Institute for Cancer Research has decoded a previously unknown mechanism of the substance Imiquimod that acts to prevent tumours. The team successfully demonstrated that Imiquimod stimulates plasmacytoid dendritic cells (pDCs) to become tumour-killer cells that function independently of other immune cells. This discovery could be a major step towards more effective treatments for cancer.

Permanently powered up – how does serotonin affect the resting state in humans?

Researchers at MedUni Vienna have been investigating the importance of the serotonin system to the default mode network in the human brain. The results show that in people with depression, the inhibitory effect of the serotonin 1A receptor is reduced.

According to Siegfried Kasper, Head of the Department for Psychiatry and Psychotherapy, recent research results show that sufferers of depression “practically never enjoy a restful state.”

The brain regions of the default mode network – also known as the

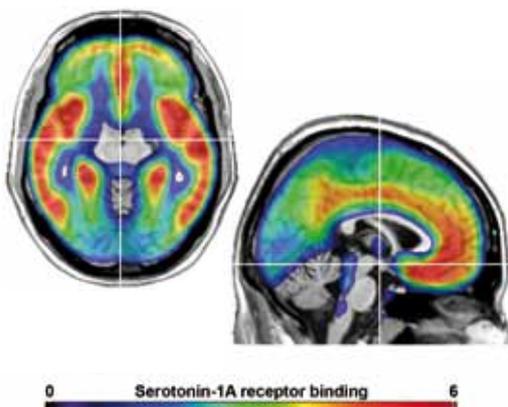
network of the resting brain – are active when we are doing nothing, when our thoughts are wandering and we are outwardly at rest. The activity of this network is modulated by serotonin 1A receptors. In people with depression, the regulatory system is affected. As Professor Kasper explains, “It’s as if these patients are permanently powered up.”

“This discovery paves the way for research into psychological disorders like depression at the molecular level, as well as new treatment approaches” says Kasper. Research could provide the basis for the development of more effective drugs to help stimulate adequate levels of activity in serotonin 1A receptors.

The study carried out by Andreas Hahn and Rupert Lanzenberger at the Department for Psychiatry and



Psychotherapy has been published in the Proceedings of the National Academy of Sciences (PNAS). Other MedUni researchers including Wolfgang Wadsak and Markus Mitterhauer from the Department for Nuclear Medicine and Christian Windischberger from the Center for Medical Physics and Biomedical Engineering also participated in the study.



NEW PROCEDURE FOR EARLY DETECTION OF METABOLIC DISORDERS IN NEWBORNS

A team of researchers at MedUni Vienna using an innovative biochemical procedure has discovered an unexpectedly high incidence of a certain group of metabolic diseases – lysosomal storage disorders – in newborn infants. As part of neonatal screening carried out at MedUni Vienna for the whole of Austria, over a period of year blood from all newborns was tested for four such disorders. The results of the world’s first study of this kind have been published in *The Lancet*, and show that one in every 2,300 newborns may be affected.

Expert panel reviews treatment practices between 1945 and 1978

A panel of independent experts has been established and to investigate, in particular, cases of malaria therapy at Klinik Hoff to determine whether treatment practices were in accordance with scientific standards of the times.

“This move to place university practices under independent scrutiny is a proactive attempt to achieve transparency and a clear understanding of the period following the end of the Second World War,” explained Christiane Druml, MedUni Vienna’s Vice Rector for Clinical Affairs and Chair of the Austrian Bioethics Commission. “We are living in times of intense ethical debate on medical issues, and it is our responsibility as scientists to review the events of the past 70 years with open minds and to throw light on any wrongdoing. This period of our history

must be integrated into what we teach our students.”

Historian Gernot Heiss heads the expert panel, whose members include Konrad Brustbauer, Patient Advocate for Vienna, and historian Oliver Rathkolb. They will focus in particular on the position of psychiatric patients in the Medical Faculty of the University of Vienna in the years after 1945, in order to establish whether treatment they underwent was in accordance with ethical guidelines. MedUni Vienna has set up a telephone hotline for

anyone affected, staffed by a trained crisis team from the Department for Psychiatry and Psychotherapy. The team can answer questions and provide immediate support.

Ethics Committee guarantees integrity and transparency of research

MedUni Vienna’s Ethics Committee was set up in 1978. It plays a major role in ensuring that ethical standards are maintained in scientific studies, and has made a significant contribution to the integrity of medical research. All clinical research projects must be submitted to the Ethics Committee before going ahead, to ensure that the rights of patients and healthy volunteers participating in the study are protected. Since 2004 the Ethics Committee has also maintained Austria’s first public register of clinical studies.



NEW METHODS TO IDENTIFY ACHILLES TENDON INJURIES

Two biochemical imaging methods – sodium imaging and T2* mapping – developed by the High Field Magnetic Resonance Centre of Excellence at MedUni Vienna have enabled Achilles tendon injuries to be made visible in their early stages.

DEVELAGE project studies brain development and ageing

An EU project coordinated by MedUni Vienna aims to identify early pathological phenomena related to the development of Alzheimer's disease and to improve diagnosis and treatment of Alzheimer's.

Alzheimer's disease and other neurodegenerative diseases are



characterised by the formation of abnormal protein deposits in the brain. The DEVELAGE project, which is funded by EU grants totalling 2.99 million euro, aims to identify the physiological functions that normal variants of these proteins perform in brain development, and how the relevant physiological signalling pathways are affected by the brain's normal ageing process. The researchers are also looking for protection and risk factors in the

human genome that might be responsible for people developing or failing to develop Alzheimer's disease.

Under the leadership of Gabor G. Kovacs from the Clinical Institute of Neurology at MedUni Vienna, eight partner centres from six European countries (Austria, France, Germany, Italy, Netherlands and Spain) are working together on this multicentre project. "The factors that were decisive in our project proposal being accepted were the neuropathological and neurobiological expertise at the Clinical Institute of Neurology, access to adequate samples through the MedUni Vienna Bbiobank and our technical infrastructure," commented Kovacs. The project will run for three years.

16 new EU projects get under way

Work on 16 new EU projects started at MedUni Vienna in 2012, of which six are being coordinated by the University. MedUni Vienna is participating as a partner in the other projects.

Currently, a total of 95 EU-funded projects are running at MedUni Vienna, with the University

coordinating 17 of them. This corresponds to 16 million euro in research funding for EU projects in 2012. The new projects and their coordinators are:

- OCTIPS (Dan Cacsire Castillo-Tong)
- DEVELAGE (Gabor Geza Kovacs)
- FAMOS (Wolfgang Drexler)
- LASAGNE (Stefan Thurner)
- NATURIMMUN (Erhard Hofer)
- LOAD Profile (Maria Zellner)

○ IMPROVED ORGAN TRANSPLANT TOLERANCE

A working group led by Thomas Wekerle from MedUni Vienna's clinical section for transplantation has succeeded in reducing the preparatory treatment required for bone marrow transplantation in an organ transplant recipient, while at the same time improving transplant acceptance by the immune system. Thanks to a course of cell therapy, in which regulatory T-cells from the patient are transplanted together with the donor's bone marrow and the transplant organ, for the first time transplant recipients can undergo the operation without needing radiation therapy. The results of the study were published in Nature Medicine.

Let's talk – Health Talks prove popular

The idea behind the Health Talks initiated by the MedUni Vienna and the Kurier daily newspaper is to bring patients and experts together so that they can share experience.



Dr. Miriam Strauss is the President of Europa Donna Austria, the Austrian branch of the European Breast Cancer Coalition. As someone who was

diagnosed with breast cancer herself, she shared her own experience with the large number of participants who attended the first Health Talk. Michael Gnant, Deputy Head of the Department of Surgery and Wolfgang Bonitz, Medical Director at Novartis also spoke at the event, which took place in the University's Rectorate Hall. The discussion was moderated by Martina Salomon, Deputy Editor of the Kurier.

Strauss emphasised the importance of dealing with the issue of breast cancer openly – in both her private life and her professional life. She also talked frankly about the various forms of treatment, including chemotherapy and radiotherapy as well as changes in diet and traditional Chinese medicine (TCM). "When my TCM doctor recommended papaya juice for my dry mouth, some people just laughed at me," one patient recalled. Breast cancer specialist Gnant emphasised that the patient did exactly the right thing by exploring all the avenues.

Other Health Talks in 2012 covered multiple sclerosis, pain and chronic

obstructive pulmonary disease (COPD). More than 120 participants attended each of the discussions.

Cancer School offers introductory information on cancer and its prevention.

The Comprehensive Cancer Center (CCC) has created a Cancer School for people interested in learning about cancer screening, cancer treatment and how to live with the disease. It is aimed at patients and their families as well as people who deal with cancer or cancer sufferers in their work. After attending the introductory course, participants can go on to deepen their understanding with follow-up evening courses covering specific forms of the disease.

www.cancerschool.at

MIRROR THERAPY REDUCES CHRONIC PHANTOM LIMB PAIN

A research team from the Department of Neurology has discovered that mirror therapy helps reduce patients' phantom limb pain after amputation, and has shown how it works. The therapy stimulates a motor network in the brain, which takes over from the original motor centre.

20 FEBRUARY 2012

2012 INNOVATION AWARD GOES TO CENTER FOR MEDICAL PHYSICS AND BIOMEDICAL ENGINEERING

The Center for Medical Physics and Biomedical Engineering, headed by Wolfgang Drexler, received MedUni Vienna's 2012 Innovation Award. The Center boasts a total of 32 inventions that were successfully taken up for wider application between 2004 and 2011. This put it just ahead of the Center for Pathophysiology, Infectiology and Immunology and the Department of Surgery, each of which produced 28 successful inventions in the same period.

20 FEBRUARY 2012

HPV vaccination lowers risk of illness even after infection

A study headed up by Elmar Joura of the Department of Gynaecology has shown that HPV vaccination is not only effective preventively, as was previously thought.

In Austria up to 500 women contract invasive cervical cancer every year, and in more than 90% of these cases, human papilloma viruses (HPV) are responsible. According to Statistics Austria, between 150 and 180 patients die from this form of cancer annually. Additionally, approximately 6,000 women a year are hospitalised for removal of cervical carcinoma precursor lesions. And according to Professor Joura, around 30,000 Pap smears each year show the presence of suspicious cells, and 15,000 people suffer from HPV-induced genital warts – which also affect men. Two out of three people come into contact with HPV over the course of their lives.

In a recent study of 17,000 women between the ages of 16 and 26, researchers discovered that the HPV vaccination is also effective in people who are already infected. “We were able to establish that the risk of the illness flaring up again is reduced by two thirds after vaccination,” said Joura.

Consequently, vaccination is advisable not just for young people, but for everyone up to the age of 45. Joura believes that the vaccination should not only be recommended in the Austrian vaccination programme, but should be included in the childhood vaccination programme, so that it is publicly funded. In 2007 the National Health Council made a recommendation to this effect, and a consensus



decision was made by the Federal Ministry of Health in October 2012.

Vaccination programme at MedUni Vienna for employees and students

The clinical departments and institutes of MedUni Vienna are considered global leaders in the diagnosis and treatment of HPV. A quadrivalent vaccine that protects against the most dangerous oncogenic HPV strains has been

available since 2006, and in 2011 MedUni Vienna launched an HPV awareness day, along with subsidised vaccinations for staff and students.

MedUni Vienna has numerous other vaccination programmes for employees and students, including tick-borne encephalitis (TBE), meningococcal, diphtheria-tetanus-polio, measles-mumps-rubella, and influenza vaccinations.

○ ONE YEAR MASTER'S PROGRAMME IN INSURANCE MEDICINE

The postgraduate master's course in insurance medicine has now been running successfully for a year. In this innovative continuing education programme, students develop expertise in handling medical and interdisciplinary problems relevant to insurers, insurance experts and health authorities. Insurance medicine is becoming an increasingly important discipline, meaning there is a rising demand for medical and legal professionals and other experts in this field.

● 22 FEBRUARY 2012

○ EUROPE'S LARGEST TRAINING AND RESEARCH NETWORK FOR PERITONEAL DIALYSIS

Researchers at MedUni Vienna have founded European Training and Research in Peritoneal Dialysis (EuTRIPD), Europe's largest training and research network for peritoneal dialysis. The project has been provided with EUR 3.2 million in funding by Marie Curie Actions as a Marie Curie Initial Training Network, and brings together academics, physicians and medical enterprises.

● 23 FEBRUARY 2012

Institute for research into human-animal interactions opens

High-ranking personalities from politics, science and society were in attendance at a grand ceremony to mark the official opening of the Messerli Research Institute, a collaboration between MedUni Vienna, the University of Vienna and Vetmeduni Vienna.



From left to right: Ludwig Huber, Chair of the Messerli Institute; Heinz W. Engl, Rector of the University of Vienna; Heinz Schweizer, President of the Messerli Foundation; Karlheinz Töchterle, Federal Minister of Science and Research; Sonja Hammerschmid, Rector of the University of Veterinary Medicine, Vienna; Wolfgang Schütz, Rector of the Medical University of Vienna

The purpose of the Messerli Institute is to investigate the relationship between humans and animals and the underlying issues of ethics and comparative medicine. This includes research into animal cognition and behaviour. A broad interdisciplinary approach brings together academics from the fields of biology, medicine, veterinary medicine, philosophy,

psychology and law. The Institute puts a strong emphasis on its international orientation.

“The work that will be undertaken at the Messerli Research Institute is highly socially relevant. Though many of us might not be aware of it, animals play a very important role in society and we have a corresponding responsibility,” said Karlheinz Töchterle, Federal Minister for Science and Research. The aim is to generate research outcomes that are scientifically sound and will contribute to consistent improvement in the way we interact with animals.

Wolfgang Schütz, Rector of the Medical University of Vienna, underlined the benefits for the partners collaborating at the Institute: “The Messerli Institute will allow us to identify common mechanisms of diseases affecting people and animals more quickly, leading to new therapies. The collaboration facilitates knowledge-sharing between the disciplines of medicine and veterinary medicine, resulting in gains for research at both MedUni Vienna and Vetmeduni Vienna.”

MFPL's Bohrgasse site celebrates 20th anniversary

The Max F. Perutz Laboratories (MFPL) are a joint research and teaching centre of MedUni Vienna and the University of Vienna, based at the Vienna Biocenter Campus, which in 2012 celebrated its twentieth anniversary.

Around 400 scientists began work at two institutes when the campus was first set up in the St. Marx area of Vienna.

Today, more than 1,700 researchers are active at the Biocenter, specialising in molecular biology, computational biology, genetics, microbiology, immunology, neurobiology, structural biology, epigenetics, developmental biology, stem cell research, biochemistry and plant biology.

EXPANSION OF THE PERINATAL CENTRE AT VIENNA GENERAL HOSPITAL

The perinatal centre at Vienna General Hospital is one of the largest departments of its kind in Europe. It now contains an additional unit of maternity beds and a new ward with 12 extra neonatal intermediate care beds. This has improved care available for infants born prematurely and made it easier for mothers to have direct contact with their babies.

New professors at MedUni Vienna

2012 saw yet more well-known experts being appointed as professors at MedUni Vienna – including to the newly created chair for geriatric medicine



Thomas Wekerle is first Professor of Transplantation Immunology

Following an organ transplant, the immune system reacts to the foreign, transplanted tissue. Current research is looking at models in which bone marrow from the organ donor is also transplanted, to mitigate this reaction. Up to now, patients have needed to take immunosuppressant drugs on a permanent basis in order to combat the problem. Thomas Wekerle, born in Vienna in 1968, was appointed as MedUni Vienna's first Professor of Transplantation Immunology on 1 April 2012. Wekerle worked in various functions in the University Department of Surgery from 1994, and has also studied abroad, including a stint at the Transplantation Biology Research Center in Boston, USA.



Wolfgang Stephan Holter new Professor of Paediatric Oncology from 1 March 2012

On becoming Professor, Wolfgang Holter also took up the post of Medical Director at the renowned St. Anna Children's Hospital. The appointment means that Holter has returned to

Vienna after 11 years at Friedrich-Alexander-Universität Erlangen-Nürnberg, where he headed the Department for Paediatric Haematology and Oncology.

A leading physician in his field, Holter was born in Wels in 1959, and was awarded his post-doctoral lecturing qualification by the University of Vienna in 1990. He completed his specialist training in paediatrics, with a subspecialism in paediatric haematology and oncology, at St. Anna Children's Hospital. Besides paediatric haematology and oncology, Holter's research work focuses on stem cell transplantation, tumour immunology and immune deficiency.

St. Anna Children's Hospital

Since 2010, St. Anna Children's Hospital has been part of the University Department of Paediatrics and Adolescent Medicine. The Hospital is national centre of expertise

in haematology and oncology, and a centre for many national cancer treatment clinical studies, as well as international studies – currently for the European SIOP Neuroblastoma Group, the ALL BFM SCT transplantation trial and the Langerhans Cell Histiocytosis (LCH) IV study.

WHY COLDS KEEP COMING BACK

A MedUni Vienna research team has found out why people don't become immune to colds and instead keep catching them. The study, conducted by the University's Department of Pathophysiology and Allergy Research and published in The FASEB Journal, shows that the immune defence that fights human rhinoviruses, which are responsible for the common cold, is manipulated by the virus.

Sylvia Knapp Professor of Infection Biology from 1 September 2012



Professor Knapp conducts research into the innate immune system's response to bacterial infections. One objective of this new professorial appointment is to intensify cooperation with Max F. Perutz Laboratories (MFPL), where MedUni Vienna and the University of Vienna pool resources for research into molecular biology. Sylvia Knapp was born in Innsbruck in 1968 and studied internal medicine in Vienna and Berlin. In 2006, she became head of the research lab in MedUni Vienna's clinical section for infectious diseases and tropical medicine. Knapp has coordinated the MedUni Vienna and University of Vienna infection and immunity combined research group.

Martin Posch appointed Professor of Medical Statistics on 1 September 2012



Prior to this appointment, Martin Posch was engaged as a statistics expert at the European Medicines Agency (EMA) in London. He brings a wealth of valuable experience to his position as the new Head of the Institute for Medical Statistics, in particular in relation to clinical trials aimed at regulatory approval. Born in Vienna in 1969, Posch completed his doctoral research degree in mathematics at the University of Vienna in 1997. From 1996 to 2004, he was an assistant professor at the University of Vienna's Institute for Medical Statistics, and he sat on ethics committees in Vienna between 2004 and 2010.

Marcus Köller – MedUni Vienna's first Professor of Geriatric Medicine



Marcus Köller is Medical Director at the Sophienspital (a geriatric hospital in Vienna) and was appointed a Professor at MedUni Vienna as of 1 October 2012. His work will include the evaluation of different therapies and the development of new treatment strategies. Professor Köller will also focus on the issues of mobility, musculoskeletal disorders, osteoporosis and changes in the immune system in old age. He believes it is particularly important that geriatric medicine is

perceived as not just playing a caring role, but rather as providing specialist acute medical care for older people. Marcus Köller was born in Vienna in 1965 and completed his medical training at the University Department of Internal Medicine. He has been department head at the Sophienspital since 2009, with a focus on acute geriatric care and mobility rehabilitation. A specialist for internal medicine, rheumatology and geriatrics, he also holds diplomas as a clinical investigator and in palliative medicine.

Heinz Kölbl, Professor of Gynaecology and Gynaecological Oncology



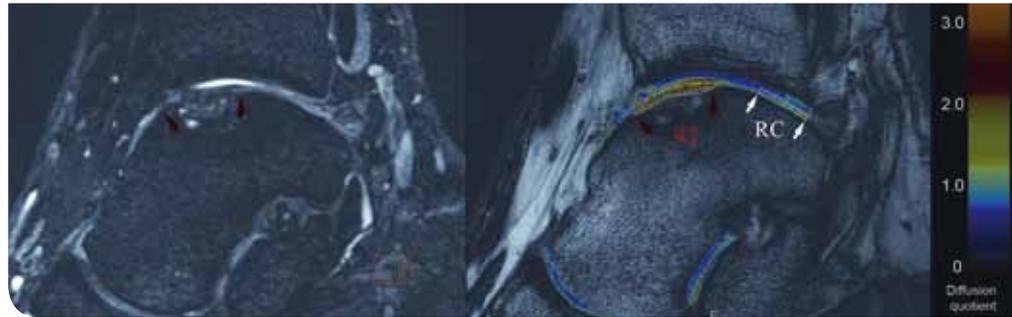
Heinz Kölbl, born in 1957, graduated as a doctor of medicine in 1981. Following guest professorships in the USA, Kölbl, a native of Vienna, became director of the university department and polyclinic for gynaecology at Martin Luther University in Halle an der Saale, Germany, and from 2001 he was a director of the Halle-Wittenberg medical faculty. From 2003 to 2012, Kölbl was director of the clinic and polyclinic for obstetrics and gynaecological disorders in Mainz, Germany. Professor Kölbl has received many international awards and has more than 400 publications to his name.

EARLY DIAGNOSIS OF BREAST CANCER: AUSTRIA LEADS THE WAY

Austria's national breast cancer early diagnosis programme, developed with support from experts at MedUni Vienna's Comprehensive Cancer Center, will start in 2013. The programme is pioneering as, unlike in other European countries, in addition to mammography screening it includes ultrasound screening for women with dense breasts.

New technique allows evaluation of cartilage tissue without surgery

An interdisciplinary team of diagnostic radiographers and orthopaedic specialists have developed a method for evaluating cartilage tissue using a 3 tesla MRI scanner.



The long-term success of procedures to repair damaged cartilage can only be determined by assessing the quality of the repair tissue. Usually, a biopsy – requiring invasive surgery – is necessary for the evaluation. The High Field Magnetic Resonance Centre of Excellence, headed by Siegfried Trattnig, has spent years developing alternative, non-invasive methods of determining the quality of cartilage tissue.

High field magnetic resonance imaging (HF-MRI) has now been used to evaluate the success of the two most common types of operation to repair damaged cartilage in the ankle. These are cell-based repairs, where healthy cartilage cells are extracted from the patient, cultured in vitro and then applied to the damaged area in a second surgical procedure, and marrow stimulation techniques, involving drilling

small holes through to the underlying bone. The resulting blood clot develops into cartilage tissue.

Using diffusion MRI, the researchers were able to show that repair tissue resulting from the more elaborate cell-based technique was closer

to normal, healthy cartilage than tissue that developed after using the marrow stimulation method. A further possible application of the imaging technique is in preventive investigation of joint damage, meaning it could play an important role in the treatment of osteoarthritis in future.

High Field MR Centre of Excellence chosen as reference centre

Siemens, a market leader in medical equipment, has named the Vienna HF-MRI Centre a reference centre for clinical applications of its 7 tesla technology. “This is important, because while there are seven institutions using 7 tesla MRI in Germany, ours is the only such

equipment in Austria,” commented Siegfried Trattnig, Head of the High Field Magnetic Resonance Centre of Excellence at MedUni Vienna. The clinical studies being carried out in Vienna using 7 Tesla MRI were the main reason behind Siemens’ selection of the Centre. MedUni Vienna is a world leader in this field. The techniques used to examine 590 patients over the last three and a half years will soon become routine clinical practice.

COMBINATION THERAPY IMPROVES BONE HEALTH IN OLDER BREAST CANCER PATIENTS

Older women with breast cancer have an increased risk of bone metastasis and osteoporosis. Experts from MedUni Vienna’s Comprehensive Cancer Center participated in an international study which showed that using two cancer medications in combination, everolimus and exemestane, improves bone hardness and reduces the risk of cancer spreading to the skeleton.

23 MARCH 2013

11TH CHRISTIAN DOPPLER LABORATORY OPENS AT MEDUNI VIENNA

Courses of radiotherapy lasting several weeks can change not only the volume and position of tumours, but also their biology. Research at the new Christian Doppler Laboratory for Medical Radiation Research for Radiation Oncology, headed by Dietmar Georg, will focus on ways to reveal these changes so that radiation treatment can be better tailored to the needs of each patient.

26 MARCH 2012

New marker for early diagnosis of lung damage discovered

Around 600,000 people in Austria suffer from chronic obstructive pulmonary disease (COPD). Researchers in Vienna have now discovered a biomarker that provides evidence for the onset of COPD – even before a lung function test will demonstrate a reduction in airflow.

Up to now, early diagnosis of COPD and identification of related problems such as air trapping (where air cannot be fully exhaled) and emphysema has been a very difficult process. A research team led by Hendrik Jan Ankersmit (of the University Department of Surgery and the Christian Doppler Laboratory for Cardiac and Thoracic Diagnosis and Regeneration) was able

to show that the protein HSP27 can serve as a marker in the blood to identify the early stages of COPD – even in people who feel healthy and whose lung function tests return healthy results.

94 apparently healthy smokers examined in the study voluntarily underwent a high-resolution computer

tomography scan. Air trapping or emphysema and air trapping were detected in 57.45% of the subjects – even though their lung function tests showed normal values.

“Where the concentration of HSP27 is higher and risk factors are present – such as smoking – this indicates possible lung damage and the onset of COPD,” explained Ankersmit. Ankersmit’s vision is that the HSP27 value will be used as a screening marker for lung disease in the future as part of health check-ups. Currently, COPD is usually diagnosed at a point when patients can only take lifestyle steps (e.g. giving up smoking) that have a limited influence on the course of the disease.



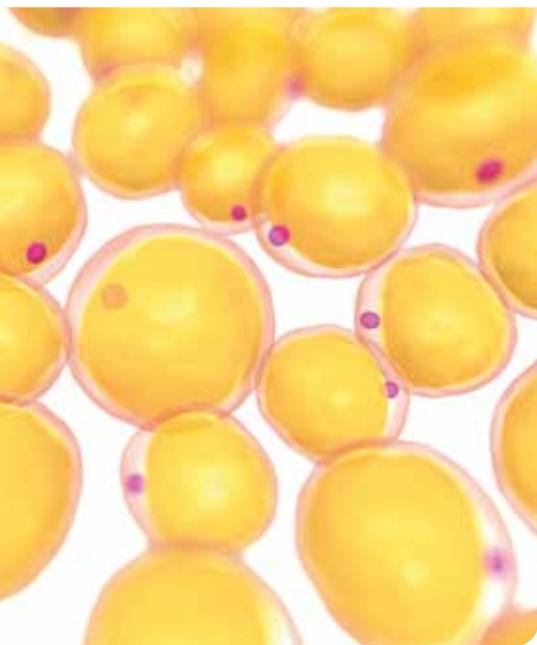
FOUNDATIONS LAID FOR DEVELOPMENT OF NEW MEDICATION AGAINST PAIN AND ANXIETY

Sleep disorders, anxiety and epilepsy are all often treated using benzodiazepines such as Valium, which can have unwanted side effects. An international research project led by Margot Ernst from the Center for Brain Research at MedUni Vienna used thousands of 3D computer models to show, for the first time, the structure of receptor sites that Valium binds to. This could provide a basis for the development of new drugs with more targeted effects, resulting in fewer side effects.

Turning “bad” white fat into “good” brown fat

In the developed world and in newly industrialised countries, tackling the problem of obesity is one of the foremost health care challenges. The discovery of an enzyme that regulates metabolic processes in white fat cells has opened up a promising new avenue for treatment approaches.

White fat – classified as a bad fat – stores calories; brown fat – a type of good fat – burns calories to generate heat. “Fat tissue in people who are overweight is mainly white fat,”



explained Florian Kiefer from the University’s clinical section for endocrinology and metabolism. Kiefer and a team of other scientists have discovered a way to make white fat take on the characteristics of brown fat. They found that the enzyme retinaldehyde dehydrogenase 1, abundant in abdominal fat and significantly higher in patients with obesity, plays a decisive role.

Three distinct isoforms of this enzyme – responsible for metabolism of vitamin A – have been identified. The researchers showed that when they inhibited expression of the gene responsible for the ‘fattening’ form of the enzyme in mice, the test subjects had reduced weight gain – despite being fed a calorie-rich diet which contained essential sources of vitamin A. Initial therapy approaches have now been tested in humans, producing the same changes in fat cells. Treatment based on the discoveries could enable the energy-storing process in white fat tissue to be converted into an energy-burning process.

MedUni Vienna a leading centre of laboratory medicine

A list of Europe’s 50 most-cited researchers in clinical chemistry and laboratory medicine published by Labourjournal, a German journal, features seven scientists from MedUni Vienna: Oswald Wagner, Markus Exner, Christine Mannhalter, Thomas Szekeres, Georg Endler, Peter Quehenberger and Susanne Spitzauer. Laboratory medicine at MedUni Vienna serves as an interface between basic research and clinical practice, and has a special focus on arteriosclerosis, metabolic disorders and cancer research. This bridging function has proved successful, as shown by the numerous publications in journals such as Nature, Cell and The New England Journal of Medicine.

○ FIRST CHILD WORLDWIDE TO BENEFIT FROM INNOVATIVE EAR IMPLANT

An 11-year-old from Vienna has become the first child in the world to receive a bone conduction implant, at MedUni Vienna’s Department for Ear, Nose and Throat Diseases in Vienna General Hospital. The implant has made a real difference in the life of the young patient, who was born without auricles (the external part of the ear) and previously had to depend on an external bone conduction device fastened with a headband in order to hear.

Improved mobility thanks to individualised prosthetic control

High-tech prosthetics can now optimally replicate the function of a lost limb. And now linear control is set to be further improved on thanks to pattern recognition.

“Pattern Recognition is the very latest development in bionic reconstruction,” explained Oskar Aszmann from the clinical section for plastic and reconstructive surgery, who is also head of the Christian Doppler Laboratory for Recovery of Extremity Functions which opened in 2012.

A computer program developed in collaboration with Ottobock, a prosthetics technology company, saves the prosthetic user’s individual movement patterns, recognises when they wish to carry out a specific movement and performs it for them. But before it can do this, the computer has to be fed with data. This is achieved by connecting the user to the computer via electrodes attached to the skin. They are then asked to perform certain movements using the missing extremity. The different patterns of activity are saved and can later be replicated by the high-tech prosthesis.

Aszmann’s most famous patient, Patrick Mayerhofer, is also assisting the research project. He was fitted with a high-tech prosthetic device of this type in 2011. A few months later the United Kingdom’s Ministry of Defence approached Aszmann’s team to acquire a bionic prosthesis for a soldier who had lost an arm in the war in Afghanistan.



11 Christian Doppler Laboratories at MedUni Vienna

- CD Laboratory for Allergy Research
Headed by: Rudolf Valenta
- CD Laboratory for the Development of Allergen Chips
Headed by: Susanne Vrtala
- CD Laboratory for Immunomodulation
Headed by: Barbara Bohle
- CD Laboratory for Infection Biology – FunPath
Headed by: Karl Kuchler (until 2012)
- CD Laboratory for Molecular Cancer Chemoprevention
Headed by: Christoph Gasche
- CD Laboratory for Cardiac and Thoracic Diagnosis and Regeneration
Headed by: Hendrik Jan Leonard Ankersmit
- CD Laboratory for Laser Applications in Medical Technology
Headed by: Wolfgang Drexler
- CD Laboratory for Cardio-Metabolic Immunotherapy
Headed by: Thomas Stulnig
- CD Laboratory for Recovery of Extremity Functions
Headed by: Oscar Aszmann
- CD Laboratory for Medical Radiation Research for Radiation Oncology
Headed by: Dietmar Georg
- CD Laboratory for Ophthalmic Image Analysis (OPTIMA)
Headed by: Ursula Schmidt-Erfurth (from 2013)

LEAD TO THE DEVELOPMENT OF LEUKAEMIA DISCOVERED

Up to now the triggers for the development of chronic lymphocytic leukaemia, the most common form of the disease in Europe, have been entirely unknown. At this point the condition is still incurable, but a research group from the University Department of Internal Medicine I has uncovered a sign of its development.

Coveted START Prize for Kaan Boztug

Kaan Boztug is Principal Investigator at CeMM and a Professor at the Department of Paediatrics and Adolescent Medicine.



Kaan Boztug

With an allocation of anything up to 1.2 million euros, this Austrian Science Fund (FWF) research grant is the most coveted – and most valuable – award available to young researchers in Austria.

The START Prize will enable Kaan Boztug to conduct an extensive research project to decode genetic and functional causes of rare diseases. His focus is on deficiencies of the

immune system, known as primary immune defects.

The aim of the research project is to facilitate the development of targeted therapies such as gene therapy and pharmacological treatments that directly intervene in signal transduction.

Kaan Boztug has led a research group at the CeMM Research Center for Molecular Medicine since 2011,

and works at the MedUni Vienna Department of Paediatrics and Adolescent Medicine. His achievements to date include the University of Freiburg's Ludwig-Heilmeyer Prize, a Merit Award from the American Society of Hematology and the Kind-Philipp Prize for leukaemia research. In 2011 he was awarded the Eva Luise and Hörst Köhler Research Prize for Rare Diseases, and the Paul-Martini Prize.

CeMM intensifies collaboration between MedUni Vienna and Vienna General Hospital

The Austrian Academy of Sciences' Research Center for Molecular Medicine (CeMM) is located on the MedUni Vienna campus, with the aim of facilitating collaboration between various groups working at MedUni Vienna and Vienna General

Hospital. To maximise potential synergies, MedUni Vienna professors Sylvia Knapp and Christoph Binder have been appointed Principal Investigators at CeMM where they head up their own research groups. German START Prize winner Kaan Boztug is also a CeMM Principal Investigator and visiting lecturer at the Medical University of Vienna. CeMM and MedUni Vienna jointly operate a Deep Sequencing facility at the Core Facilities in the Anna Spiegel research building.



RHEUMATOID ARTHRITIS: "WATCHING" CELLS IN INFLAMED JOINTS

A research team from MedUni Vienna's Department of Internal Medicine III headed by rheumatologist Clemens Scheinecker has demonstrated in a study that it is possible to "watch" inflamed cells in a joint affected by rheumatoid arthritis, using two-photon microscopy – in vivo, without surgical intervention and in real-time. To achieve this, "optical incisions" are made into the tissue, which are then reconstructed using 3D modelling before being converted into films. This new technology will allow specialists to assess the effectiveness of various therapeutic options at an early stage.

Clinical Trials Assistant course launched at MedUni Vienna

Clinical trials assistants act as an important interface between patients, doctors and sponsors. And now MedUni Vienna has set up a continuing education course to ensure they are trained to the requisite levels.



The Clinical Trials Coordination Center has set new standards for this particular discipline with a new postgraduate programme. For the first time, clinical trial assistants will receive training that is academically certified, in a course that awards ECTS credits. Thanks to a strong

practical focus, graduates of the course can start working as clinical trials assistants immediately – providing professional, high-quality support to investigators.

In Austria, clinical trials assistants – also known as clinical research coordinators or study nurses – work in accordance with the Good Clinical Practice (GCP) guidelines as well as regulations in the Austrian Pharmaceuticals Act (AMG) and the Austrian Medical Products Act (MPG). It is essential that people in this profession have a basic medical education and continue to build on their professional knowledge and skills on a regular basis. The new continuing education course is aimed at people working in clinics, doctor's surgeries, clinical research organisations and industry as well as other healthcare and medical professionals.

The course got off to a strong start, with 24 participants in its first intake. A second intake will begin in the winter semester of 2013 to keep pace with the demand for the qualification.

Continuing education courses at MedUni Vienna

- Clinical Research
- Gender Medicine
- Health Care Management
- Interdisciplinary Pain Medicine
- Clinical Trials Assistant
- Medical Hypnosis
- Medical Physics
- Periodontology
- Patient Safety and Health Care Quality
- Prosthodontics
- Psychotherapy Research (starting 2013)
- Public Health
- Traditional Chinese Medicine (TCM)
- Toxicology
- Transcultural Medicine and Diversity Care (starting 2013)
- Medical Hypnosis for Dental Care

INTESTINAL CANCER: THE SEARCH FOR THE OPTIMAL INTERVENTION BLUEPRINT

In Austria intestinal cancer is the second most common form of cancer and the third most common in men – which is why treating it is such a high priority. Leading medical and healthcare experts are collaborating on a joint project by the Medical University's Department of Internal Medicine I, the Comprehensive Cancer Center (CCC) and the University of Vienna to identify the optimal treatment plan for sufferers with a view to significantly enhancing their quality of life.

20 APRIL 2012

BREAST CANCER VACCINE TRIALS

A new immunotherapy approach for the treatment of mammary carcinoma is being tested by the Austrian Breast & Colorectal Cancer Study Group (ABCSCG) in a global first. Following an international selection process, the Impfstudie 34 vaccination trial has begun at the Departments of Surgery, Gynaecology, and Internal Medicine at MedUni Vienna, the University Department of Gynaecology in Innsbruck and the Department of Surgery and Internal Medicine at Feldkirch hospital. The initial results are scheduled for publication at the end of 2014.

9 MAY 2012

Lung transplants: improving the measurability of CMV risk

Researchers at the MedUni Vienna's Department of Virology and the clinical section of thoracic surgery have developed a blood test that helps to determine the risk of cytomegalovirus (CMV) infection following lung transplants.

It is estimated that around 50 to 70 percent of people are infected with CMV, which is part of the herpes family of viruses. The pathogen stays in the body for life, usually remaining undetected and causing no serious problems. However, when

the immune system is weakened, the virus becomes active, in some cases triggering serious infections.

This risk is higher following lung transplants. Immediately after the transplant, a course of anti-viral prophylactic therapy is used to inhibit the proliferation of the virus. However, this can give rise to side effects such as renal toxicity, and patients may also become resistant to treatment.

In addition, stopping the anti-viral prophylactic therapy can lead to viraemia, meaning that the viruses are present in the bloodstream and can cause disease later on. Previously no tests were available to help doctors predict the onset of viraemia. But researchers at MedUni Vienna have overcome this problem using a standardised blood test. The key to a successful prognosis is the measurement of the T-cell immune response shortly before the end of the anti-viral prophylactic therapy. "If we find evidence

of a T-cell response to the virus at that stage, the risk of developing a cytomegalovirus infection is small. But if there is no sign of a response, the risk of infection is higher," explained Lukas Weseslindtner of the Department of Virology.

A leading centre for transplants

Transplantation medicine is a stand-out feature of the University's broad portfolio of outstanding medical achievements. Vienna is one of world's top heart and lung transplant centres in terms of frequency and success rates. The Clinical Section of Thoracic Surgery at Vienna General Hospital performs more than 100 lung transplants every year.

MedUni Vienna's University Department of Ear, Nose and Throat Diseases is a leader in the development and introduction of cochlear implants, while the Clinical Section for Plastic and Reconstructive Surgery has a strong reputation in the bionic reconstruction of limbs.



AUSTRIAN FIRST: CLINIC OF DENTISTRY LEADS THE WAY WITH DIGITAL DENTAL PROSTHESES

MedUni Vienna's Bernhard Gottlieb University Clinic of Dentistry has become Austria's first dental clinic to introduce digital casting techniques for implants and replacement of individual teeth. The procedure is significantly more comfortable for patients than using a conventional impression tray.

4 JUNE 2012

ON COURSE – 3,000 BIOMEDICINE COURSES JUST A MOUSE CLICK AWAY

The on-course website (www.on-course.eu), part of the Europe-wide Emtrain project managed by the University Department of Clinical Pharmacology, provides details of master's and PhD programmes as well as continuing education courses in 60 scientific and therapeutic subjects in the life sciences. The listing covers a total of 39 European countries. on-course allows prospective students to select courses tailored to their personal requirements from across the continent.

5 JUNE 2012

Diabetes and the difference between the sexes

Two studies headed by gender medicine expert Alexandra Kautzky-Willer illustrate the importance of gender-specific approaches and personalised treatment for men and women.

One of the studies showed that women who are yet to reach menopause are better protected against diabetes than men, and that female diabetics are more likely to suffer from hypoglycaemia (low blood sugar), a particularly dangerous condition. It was also found that low blood sugar impairs the

quality of life of women with diabetes more frequently than that of men. This is due to the necessary fall in the key haemoglobin A1C value (a marker for the average blood sugar level over the previous few months) being less pronounced in women. In addition, the ratio of insulin to body weight is higher for females than for males. As Alexandra Kautzky-Willer explains: "This led us to the conclusion that women require more targeted doses of insulin that are better adapted to their personal circumstances, with a view to improving blood sugar control while at the same time minimising the risk of dangerous hypoglycaemic attacks."

The second study showed that pre-menopausal women are better protected against diabetes than men. However, women face a significantly elevated risk of developing the condition after reaching menopause, as before that point they are more sensitive to insulin, and also release insulin more effectively in response to a high glycaemic load. Women's sugar and lipid metabolism and blood pressure deteriorate much more markedly after completion of menopause than men's. This finding could explain why younger men develop diabetes more frequently than their female counterparts.



Gender medicine: Vienna sets the tone

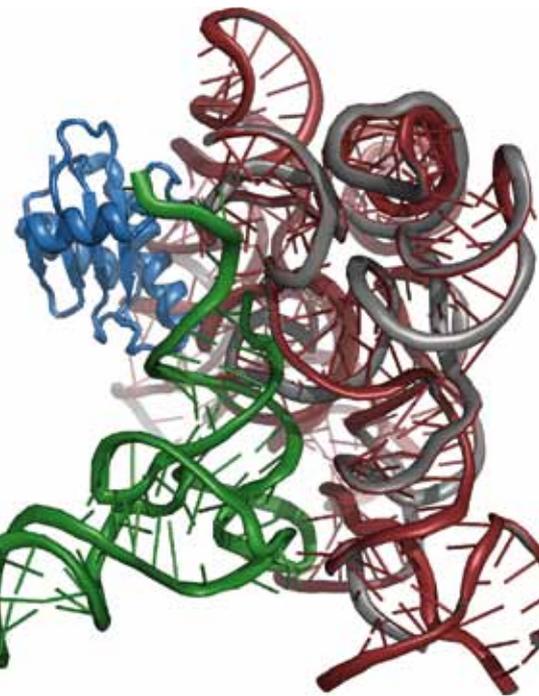
Alexandra Kautzky-Willer of the MedUni Vienna's Department of Internal Medicine III, an expert in endocrinology and metabolism, was appointed Austria's first – and up

until now only – professor of gender medicine in 2010. Since then she has headed the newly established Gender Medicine Unit, and in 2011 took over as director of the Medical University of Vienna continuing education course in gender medicine, the only programme of its kind in Europe.

SUGAR METABOLISM DETERMINES IMMUNE CELL FUNCTIONING

A research team from Clinical Institute of Laboratory Medicine has discovered that cellular sugar metabolism has a decisive impact on the functioning of immune cells, or macrophages. The findings have generated a number of fundamental new insights in the field of immunology. It was shown that the interplay between the metabolism for hexose sugars (such as glucose and fructose) and heptose sugars is essential for triggering appropriate immune responses.

Cell research: enzyme casts doubt on evolutionary principle



Enzymes control and accelerate the majority of biochemical reactions. Their significance led a team of researchers headed by Walter Rossmann from the MedUni Vienna's Centre for Anatomy & Cell Biology, working in collaboration with researchers from the University of Marburg, Germany and Vienna's Max F. Perutz Laboratories, to put the evolution of enzymes under the microscope.

When it comes to evolution, simplicity trumps complexity. But not always, as a research team studying the essential ribonuclease P enzyme found out.

Ribonuclease P was used to investigate the importance of molecular complexity as opposed to simplicity in finding solutions to the same problem. More specifically, the researchers set out to discover why certain enzymes consist of only one component, while others are made up of many.

The teams identified an organism containing a ribonuclease P enzyme built from a single protein: *Trypanosoma brucei*, the pathogen that causes sleeping sickness. In all other

higher cells studied until now, such as baker's yeast and human cells, the enzyme has a more complex structure. Astonishingly, the researchers were able to replace the simple enzyme containing *Trypanosoma brucei* with the complex one found in baker's yeast.

"That actually contradicts the principle of evolutionary economy," said Prof. Rossmann. The findings were published in the leading journal *Cell Reports*.

Research clusters pool skills and know-how

MedUni Vienna's research activities are centred around five research clusters with a focus on clinical research and its links to basic medical research. The clusters are dedicated to the fields of Allergies/Immunology/Infectious Diseases, Cancer Research/Oncology, Neuro-

science, Cardiovascular Medicine, and Imaging.

MedUni Vienna and Vienna General Hospital established the Vienna Comprehensive Cancer Center (CCC) in 2010, with a view to collaborating on cancer research and oncology. This highly effective, integrated approach will serve as a model for establishing further interdisciplinary research centres.

8TH YSA PHD SYMPOSIUM FOR UP-AND-COMING ACADEMICS

The 8th Young Scientists Association (YSA) PhD symposium, which took place on 13-14 June 2012, attracted a record 303 scientific abstracts. The high-profile keynote speakers at the event included Jennifer Whistler (University of California, San Francisco), Anna Teti (University of L'Aquila, Italy), Rashika El Ridi (Cairo University, Egypt) and J. Andrew Pospisilik (Max Planck Institute of Immunobiology and Epigenetics, Freiburg).

FAMOS success for imaging research cluster

The EU is financing FAMOS, a major research project bringing together top European scientists and cutting-edge enterprises in medical imaging, and led by MedUni Vienna.

The funding received from the European Union for the Functional Anatomical Molecular Optical Screening project (FAMOS) marks a key step forward for MedUni Vienna's imaging research cluster. This collaborative project will run for four years, and will make a major contribution to further consolidating the University's status as a respected presence in multimodal optical imaging. The 10.1 million euros of funding for FAMOS will support collaboration and networking

between Europe's foremost scientists and enterprises in the field.

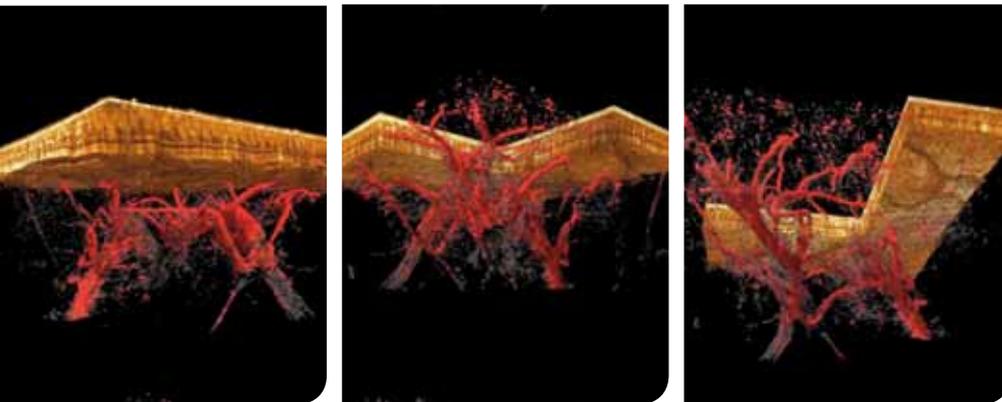
FAMOS is the brainchild of the project's coordinator, Wolfgang Drexler, Professor for Medical Physics and Head of the Center for Medical Physics and Biomedical Engineering. Drexler is especially pleased with the international consortium he has been able to put together for the FAMOS Project: "Our group is truly a dream team. We have managed to recruit the ideal partners

for the Project, and this is even more important for its long-term success than the funding we have been awarded."

In addition to its importance for MedUni Vienna's imaging research cluster, FAMOS is another successful example of research grant acquisition and sponsor collaboration between academic researchers and business.

Imaging research cluster

New molecular and functional imaging techniques are revolutionising prevention, diagnosis and treatment, and MedUni Vienna is playing major role. The University is a world leader in the development of clinical applications for ultra high field MRI technology (UHF MRI) and optical coherence tomography (OCT). With the growing importance of imaging, MedUni Vienna is bundling its activities in this field in a research cluster. Numerous collaborative projects with businesses and research institutions – including Cambridge University – are helping to create a powerful national and international network.

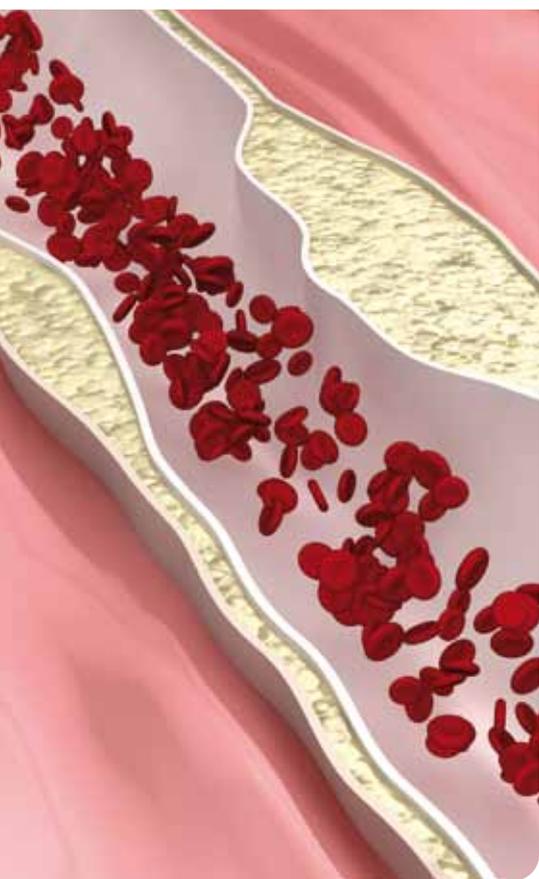


FITNESS PROGRAMME FOR CARDIAC MUSCLE FOLLOWING HEART ATTACKS

Heart attacks frequently result in permanent damage to myocardial muscle. A research team at the Institute of Vascular Biology and Thrombosis Research was responsible for coordinating an EU project that developed a novel therapy based on stem cells to stimulate the regenerative ability of the muscle.

New risk assessment scale helps people with heart disease

Investigators working in vascular research have developed the first risk scale for patients with stable coronary heart disease. This should enable individualised therapy and more reliable prognoses.



Risk scores are already in use for the prevention of coronary heart disease for patients with acute coronary syndromes (unstable angina pectoris, heart attacks), but not for patients with stable coronary artery disease.

Scientists at MedUni Vienna and Klinikum Ludwigshafen were therefore looking for easy-to-use, reliable indicators to determine the long-term risk for people with coronary arteries that have been narrowed by atherosclerosis. The results of the study – led by Georg Golasch from the Department of Internal Medicine II – were published in the *European Heart Journal*, and identified age, pumping efficiency of the left ventricle, concentrations of the enzyme cholinesterase and of creatinine, heart rate, and HbA1c level (average blood sugar level) as the most reliable biomarkers.

Alexander Niessner of the Department's cardiology section commented on the results: "The predictive accuracy for survival over a ten-year period was very high." It scored 77 out of a maximum possible 100 points. Existing

scoring systems had a predictive value of just over 60 points. The new risk scale was given the name Vienna and Ludwigshafen Coronary Artery Disease Risk Score (VILCAD), and a patent application for it has already been filed.

Cardiovascular Medicine research cluster

In addition to cardiovascular disease, the principal objects of investigation in this cluster are imaging and non-imaging diagnosis, together with epidemiological and genetic issues. The cluster is also well known for its fundamental research into vascular biology and thrombosis, and its interdisciplinary work ranging from biomechanics to gene and stem cell therapy. Its scientific reputation is confirmed by numerous publications in top international journals and the increasing impact factors.

LACK OF EDUCATION POSES HEALTH RISK

Researchers at the MedUni Vienna Center for Public Health's Institute of Social Medicine and the section for gender medicine in the Department of Internal Medicine III have been investigating the relationships between education, gender, lifestyle and health risks. They found that women with less education have a significantly higher risk of developing diabetes or hypertension than men, who in turn have a much higher risk of stroke.

Parkinson's disease: new antibodies could make early detection possible



A recently discovered antibody recognises pathological changes in the protein alpha-synuclein. The discovery means that researchers at MedUni Vienna are a big step closer to early detection of Parkinson's disease.

Parkinson's disease is a currently incurable neurodegenerative disorder in which the protein alpha-synuclein undergoes pathological changes. An international team of experts headed by Gabor G. Kovacs from the Clinical Institute of Neurology at MedUni Vienna has now discovered a new antibody which detects the changes in the protein that are associated with the disease.

Developed by researchers at MedUni Vienna working with the German biotech company Roboscreen, the new monoclonal antibody recognises a key part of the protein responsible for the structural changes. "This opens up

new possibilities for the development of a diagnostic test for Parkinson's," says Kovac, explaining the importance of the discovery. A clinical trial is already underway.

According to Kovac, it is still too soon to say that early diagnosis of

Parkinson's from a blood test is possible, but the research is a major step in that direction. An effective antibody test would in theory enable diagnosis of Parkinson's disease five to eight years before symptoms develop. The results of the study were published in *Acta Neuropathologica*.

Neuroscience research cluster

MedUni Vienna has a long and distinguished tradition of research in the neurosciences and the psychiatric and psychosocial disciplines. Its research into Alzheimer's, depression, multiple sclerosis and pain in particular is renowned internationally. Today, nine organisational units are responsible today for this traditional core focus area:

- Center for Brain Research
- Institute of Medical Psychology in the Center for Public Health
- Clinical Institute of Neurology
- Department of Neurology
- Department of Neurosurgery
- Department of Psychiatry and Psychotherapy
- Department of Child and Adolescent Psychiatry
- Department of Psychoanalysis and Psychotherapy
- Department of Paediatrics and Adolescent Medicine

TWO HEARING PROSTHESES COMBINED AND IMPLANTED IN A WORLD FIRST

A 48-year-old patient with a 10-year history of severe hearing difficulties underwent surgery in Vienna General Hospital. The team from the Department for Ear, Nose and Throat Diseases of MedUni Vienna applied a wholly new surgical procedure. The team around Wolfgang Gstöttner, Head of Department, implanted two hearing prostheses in combination.

New head for University Department of Dentistry appointed

In the General Meeting of 17 July 2012, Andreas Moritz was named as the new Head of the Bernhard Gottlieb University Department of Dentistry (BGZMK) by the Rector of MedUni Vienna, Wolfgang Schütz. He succeeds Georg Watzek.



Andreas Moritz

Moritz took on the job of head of BGZMK on 1 August 2012, in addition to his existing responsibilities as head of restorative dentistry and periodontology and head of dental education. Among other appointments, he is also President of SOLA (International Society for Oral Laser Applications) of which he was a founding member in 1999, and President of OEGED (the Austrian Society for Esthetic Dentistry).

Benedikt Wildner continues as the business and administrative head of BGMZK.

Bernhard Gottlieb University Department of Dentistry

The Bernhard Gottlieb University Department of Dentistry was established in 2004. It is one of Europe's largest dental institutions, and one of the most successful academic institutions worldwide in a number of areas of dental research. A close relationship between clinical and scientific work allows specialist treatments based on the latest results of research to be put into practice directly.

In 2012 staff at the Department of Dentistry published 28 studies, scoring 59 impact points – an outstanding value for research publications. Significant progress in digitalisation was also achieved, which enabled capacity utilisation in the dental laboratory to be doubled, and also benefited the students. Specialised clinics were established for esthetic dentistry, endodontics, functional disorders, laser dentistry, hypnosis and periodontal surgery. The sections for periodontology and dental restoration were merged. Over the whole year, 25,317 patients received a total of 103,419 treatments.



APTITUDE TEST FOR MEDICAL STUDIES ATTRACTS 4,352 CANDIDATES

5,419 prospective students registered for the MedUni Vienna aptitude test in 2012. 4,352 candidates actually took the test (introduced in 2006), which was held at the Messe Wien Exhibition & Congress Center. 740 of them received a coveted study place (660 in Medicine and 80 in Dentistry).

What makes us tick – sociable behaviour even without rules

Even without rules and prescriptions, people's behaviour is generally sociable, sympathetic and benevolent, rather than aggressive. This is the result of a study conducted by the University's Institute of Complex Systems under the leadership of Stefan Thurner and Michael Szell.

The study analysed the behaviour of 400,000 players of the internet-based virtual life game, Pardus. The result: only two percent of all actions are aggressive, even though the game permits warlike behaviour. Millions of human interactions were evaluated in the study: communication, the formation and ending of friendships, sleeping and exercise, as well as rivalries, attacks and punishment. As the game has no rules players can make their avatars do whatever they want. But, as Thurner says, "The result is not anarchy. The players organise themselves into benevolent social groups. Almost all their actions are positive."

The interactions were analysed and encoded using letters, "rather like the DNA alphabet used to describe the human genome," said Stefan Thurner. "This produced a model describing how people behave." The potential for aggression is nevertheless high – if somebody is negatively affected by actions of another player, the probability that they will

subsequently also behave aggressively increases more than tenfold, to about 30 percent.

The long-term goal is to use the behaviour patterns discovered in the virtual world to identify social changes early – for example, in order to predict political revolutions and react appropriately in good time.



WEAK HEARTS MAKE FOR WEAK APPETITES

A research team at the clinical section for endocrinology and metabolism has discovered the heart-brain-stomach nexus, which is of vital importance for diabetes and heart failure: the study shows that BNP, the hormone secreted by the heart, acts as an appetite suppressant. The discovery opens up new therapy options for people with chronic heart failure or diabetes.

11 JULY 2012

ESMO 2012 European Cancer Congress in Vienna: statins against cancer

Cholesterol reducers (statins) are used daily by millions of people around the world, and may also be effective against cancer. This research finding was presented by scientists from MedUni Vienna at the 2012 conference of the European Society for Medical Oncology.

“Statins can induce apoptosis, or programmed cell death. Particularly with melanomas, it has been discovered that longer-term exposure to statins makes cancer cells susceptible to apoptosis,” Christoph Minichsdorfer (of the Department for Internal Medicine I) explained as he and his co-authors presented their research their presentation at Europe’s biggest cancer congress, ESMO. The possible anti-cancer effects of cholesterol reducers, the world’s most used drugs, have been recognised for some time. They are assumed to be linked to the drugs’ anti-inflammatory properties.

In their study the Viennese scientists investigated the influence of the immune system messenger substance interleukin 6 (IL-6) on melanoma cells. They found that in melanoma cultures with the characteristics of early stage melanomas, IL-6 increased the susceptibility to apoptosis.

In oncology many drugs aim to damage malignant cells so badly that they die of their own accord, because they are no longer able to repair the genetic damage. Future studies could lead to the use of more powerful statins in cancer therapy, the team of researchers suggested.



Christoph Zielinski

Vienna is the location of choice for medical conferences

In 2012 Vienna hosted the European Society for Medical Oncology (ESMO) Congress. More than 16,000 participants from 120 countries gathered in the Austria Center Vienna. Christoph Zielinski, Head of the Comprehensive Cancer Center (CCC) at MedUni Vienna and Local Officer

for ESMO 2012, pointed out that it was not just Vienna’s contributions to cancer research that made it a favourite choice for conferences with participants from all over the world. Its geographical location at the heart of Europe was also an important factor.

A few months earlier, 20,000 international experts gathered in Vienna for the European Congress of Radiology (ECR).

GOOD SCIENTIFIC PRACTICE FÜR FORSCHUNGSPROJEKTE

MedUni Vienna has adopted the new Good Scientific Practice guidelines. The first mandatory guidelines embodying scientific, ethical and legal principles for scientific research date back to 2001; they have now been updated to reflect the latest international developments. The new guidelines have been incorporated into MedUni Vienna’s statutes and are binding on all University staff.

For a good cause: 3,000 people run in aid of cancer research

Around 3,000 people participated in the sixth cancer research run organised by the Medical University of Vienna Cancer Research Initiative, supporting the cause with donations and showing their solidarity by running around the Altes AKH campus.



Marks, set, go! Olympic finalist and MedUni Vienna student Beate Schrott took part in the cancer research run

The weather was ideal, and runners included Michael Micksche, the original organiser of the run, Sonja Wehsely, Vienna City Councillor for Public Health and Social Affairs, MedUni Vienna's Rector Wolfgang Schütz and Vice Rector for Clinical Affairs, Christiane Druml. Starting in the front row: Beate Schrott, medical student and eighth in the 100 metre hurdles in the 2012 Summer Olympics in London. "I'm happy to be able to support the cancer research run," Schrott enthused.

The entry fee for the run is ten euros, and company teams also add five euros to the pot for each lap completed by their team member. All the money goes directly to cancer research.

The importance of cancer research is underlined by the continually growing number of cancer cases. Every year, more than 37,000 people are diagnosed with cancer in Austria, of which some 19,600 are men and 17,400 are women. Roughly 17,000

patients a year are treated in the University Department of Internal Medicine I at Vienna General Hospital. The Cancer Research Initiative has been organising events such as the cancer research run since 2005 to raise money for cancer research at MedUni Vienna.

Medical student Schrott excels at the Olympics

MedUni Vienna student Beate Schrott created a sensation at the Summer Olympics in London by getting all the way to the final in the 100 metre hurdles. Schrott's eighth place is the best result in Austrian women's track and field athletics since Steffi Graf's silver medal in the 800 metres in Sydney in 2000, and it was the first time an Austrian woman hurdler had reached the Olympic final since 1948. At the Austrian sport gala in 2012, Schrott was named rising sportswoman of the year, and in the vote for sportswoman of the year she came second, after alpine ski racer Marlies Schild.

MULTI-HIT TEST METHOD FOR LUNG CANCER

Researchers at MedUni Vienna have developed a multi-hit test method to help identify the gene mutations that, in combination, lead to malignant tumours. They investigated how mutations in Ras oncogenes affected signal transduction in the cells involved in the development of lung cancer. The new method provides insights into which combinations of various potential oncogenes do in fact result in malignant cancers.

Leader in project proposals for clinical research

Of the 17 top quality clinical research (KLIF) projects across Austria that will be supported by grants totalling 3.3 million euros from the Austrian Science Fund (FWF) over the next three years, 12 will be carried out at the Medical University of Vienna.

"I'm proud of how well we have done," said the Vice Rector for Research, Markus Müller, at a joint press conference with Austrian Federal



Minister for Science and Research, Karlheinz Töchterle, and the President of the Austrian Science Fund, Christoph Kratky. "It inspires us to redouble our efforts to create the best possible environment for high quality clinical research." At the same time, Müller emphasised how important it is for clinical research that MedUni Vienna and Vienna General Hospital are located in close proximity to each other, not only for Austria as a centre of research and technology, but especially for the benefit of the patients.

The KLIF programme finances patient-oriented clinical research, the results of which are of no direct economic interest. The aim is to achieve scientific results that lead to improvements in clinical practice or the optimisation of diagnostic and therapeutic procedures.

Additionally, the Vienna Science and Technology Fund (WWTF) has singled out a further five MedUni Vienna projects for awards as part of its 2012 Life Sciences – Food and Nutrition call for

External funding tops the twenty percent mark

MedUni Vienna's external funding has more than doubled since 2004, and now represents over a fifth of the total funds available to finance research and teaching.

To increase external funding even further, MedUni Vienna is actively pursuing a policy of patenting research outcomes and putting them to commercial use. The Christian Doppler Laboratories at MedUni Vienna are of great importance in this respect.

proposals. Eight projects in all obtained grants, making MedUni Vienna the most successful applicant here too.

HOW CHANCE MUTATIONS LEAD TO MALIGNANT CELL GROWTH

Cancer is rarely the result of a single genetic mutation: as a general rule, mutations accumulate over a longer period – more or less by chance – and the end result is malignant cell growth. A team of scientists around Robert Eferl of the Institute for Cancer Research and the Comprehensive Cancer Center have now used a mouse model to simulate the process.

Allergy to apples: symptom alleviation within touching distance

Food allergies are a frequent accessory syndrome of an allergy to birch pollen. A research group at the Medical University of Vienna has discovered that an apple allergy can be effectively treated with an apple allergen called Mal d 1.

Around 400,000 Austrians suffer from birch pollen allergy. These days, their symptoms can be treated effectively by vaccination. But vaccines have a disadvantage: they are effective against birch pollen allergy, but only rarely against cross allergies.

This is a serious problem, because 70 percent of people with birch pollen allergy also suffer from a food allergy. If they eat apples, for example, or possibly nuts, peaches or kiwis, they complain of itching sensations, redness or swelling in the mouth or throat area. Under the leadership of Barbara Bohle from MedUni Vienna's Department of Pathophysiology and Allergy Research, a very promising new treatment has been developed.

A study published in the *Journal of Allergy and Clinical Immunology* describes how drops of synthetic Mal d 1 molecules were placed under the tongue, effectively imitating the consumption of apples. This activated the

immune system, and the first indications of tolerance could be measured. Bohle commented: "This makes Mal d 1 a very promising substance for the treatment of the apple allergy associated with birch pollen allergy, which could significantly improve sufferers' quality of life in future." The effectiveness of the allergen is now being tested clinically.



Allergies/Immunology/Infectious Diseases research cluster

Widespread conditions such as rheumatoid arthritis, arteriosclerosis, diabetes mellitus, allergies and inflammatory bowel disease are the result of defective immune system responses. Infectious diseases are also a growing problem. The complexity of immunological

disorders calls for a multidisciplinary approach, and this research cluster at the Medical University of Vienna brings together more than 75 research groups from various institutes and departments, all involved in developing new diagnostic and therapeutic approaches.

PROTEIN WNT1 INHIBITS METASTASES IN SKIN CANCER

At a very early stage melanomas encourage the formation of lymphatic vessels (lymphangiogenesis) and hence the formation of metastases. A study by Heide Niederleithner of the Department of Dermatology has shown that the protein Wnt1 inhibits lymphangiogenesis and the formation of metastases cases of melanoma.

New treatment for cancer, diabetes and obesity in sight

Cancer, diabetes and obesity have one thing in common: they alter cell metabolism. Scientists from MedUni Vienna and Max Planck Institute in Freiburg have discovered the reason for this, which opens up completely new treatment options.

In a collaborative study, scientists have found that the hedgehog signalling pathway is crucial to cell metabolism. Substances that activate this signalling pathway could in due course be used in the treatment of obesity and diabetes.

Hedgehog signalling completely alters cell metabolism, including activating calcium-dependent enzymes. "With the help of the signalling pathway, cells – particularly muscle and brown fat cells – can take up enormous quantities of glucose," explained Harald Esterbauer, who conducted the research at the Medical University of Vienna. "Substances that activate only the hedgehog signalling pathway are potential candidates for drugs to combat obesity as well as type 1 and type 2 diabetes." At the same time the inflow of calcium in the muscle cells causes them to contract, resulting in strong cramps – an unpleasant side effect of several approved anti-cancer drugs.

The study, which was published in *Cell*, was able to show that there are definitely hedgehog inhibitors which do not push up calcium and glucose levels and do not cause cramps. "It seems quite possible that drugs with much reduced side effects can be developed," said Esterbauer.



Comprehensive Cancer Center connects cancer research and oncology

Cancer research and oncology are among the most important fields of medicine today. Correspondingly, they are key areas of activity at MedUni Vienna. This is reflected both in the outstanding scientific work done at the University, and in the large number of cancer patients treated at MedUni Vienna and in Vienna General Hospital. In

addition to this, two internationally respected study groups, the Central European Cooperative Oncology Group (CECOG) and the Austrian Breast & Colorectal Cancer Study Group (ABCSCG) are based in Vienna.

The highlight to date in the development of the Cancer Research/Oncology research cluster is the Comprehensive Cancer Center Vienna (CCC), which links all the disciplines engaged in cancer research and cancer therapy at MedUni Vienna.

HEART ATTACK TREATMENT WITH APOSEC: NEW MECHANISMS DECODED

APOSEC is a protein concentrate made of white blood cells. It is prescribed after acute heart attacks, and largely prevents scarring of the cardiac muscle. This was discovered by Hendrik Jan Ankersmit, head of the Christian Doppler Laboratory for Cardiac and Thoracic Diagnosis and Regeneration, in the autumn of 2011. Additional mechanisms of action have now been discovered in a more recent study.

Successful treatment for aggressive lymphoma

Anaplastic large cell lymphoma (ALCL) is a highly malignant form of blood cancer that mostly affects children and young adults, and until now has resisted treatment.

A research group led by Lukas Kenner from MedUni Vienna's Clinical Institute of Pathology has, for the first time, successfully treated a seriously ill ALCL patient with a specific PDGFR inhibitor. "Within just ten days, the 27-year-old patient was tumour-free – and he has led a completely normal life for the 22 months since then," said Kenner. "Without this treatment, the patient would probably have died." This extraordinary result was made possible thanks to an animal model. The disease was mimicked in mice by introducing a genetic modification.

In the course of the research project, the team found a way to target the illness using an existing drug. Patients with this form of lymphoma possess a genetic defect which activates a fusion gene, nucleophosmin-anaplastic lymphoma kinase (NPM-ALK). The study showed that activation



of the gene results in production of a certain protein – platelet derived growth factor receptor B (PDGFRB). The researchers were then able to interfere with PDGFRB signalling using an established treatment compound, called imatinib. In vivo testing

demonstrated that the treatment significantly boosted life expectancy. As Professor Kenner commented, the successful treatment is "a fantastic example of translational medicine, with patients benefiting directly from research in the lab."

CARDIAC ARREST: FASTER EMERGENCY RESPONSE SAVES LIVES

About 3,000 people die as a result of a cardiac arrest each year in Vienna alone. The average age of victims is 66. But a recent study by MedUni Vienna shows that many of these victims could survive if they received treatment in time. The results of the research make it very clear that neither a heart attack nor a cardiac arrest needs to be fatal. The chances of survival are high if the right actions are taken quickly enough by a first aider.

28 AUGUST 2012

HEART-LUNG MACHINE BRINGS CLINICALLY DEAD PATIENTS BACK TO LIFE

Younger patients in particular can be saved by cardiopulmonary bypass in cases of acute heart failure, if a heart-lung machine is used in time. And survival rates could be even higher, as highlighted in a recent study by the University Department of Emergency Medicine. For this reason, the Department will soon have its first mobile heart-lung machine.

6 SEPTEMBER 2012

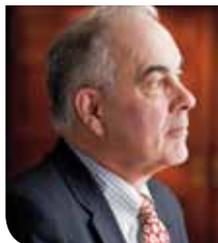
Scientific Advisory Board provides strategic advice



Federica Sallusto



Hedvig Hricak



Joseph Thomas Coyle



Fortunato Ciardello



Thomas Lüscher

MedUni Vienna's newly established external Scientific Advisory Board advises the Rectorate on the strategic aspects of all research-related matters (patient care, human resources, etc.), to ensure that the University pursues an appropriate and successful long-term strategy.

The five members of the Scientific Advisory Board are high-level researchers with international track records and expertise in the areas covered by the University's five research clusters. They are Federica Sallusto of the Institute for Research in Biomedicine,

Bellinzona, Switzerland; Hedvig Hricak, Chair of the Department of Radiology at Memorial Sloan-Kettering Cancer Center in New York City; Joseph Thomas Coyle, Professor of Psychiatry and Neuroscience at Harvard Medical School; Fortunato Ciardello, an expert in medical oncology from the Second University of Naples; and Thomas Lüscher, Professor and Chair

of Cardiology at University Hospital Zurich.

In addition to their advisory function in helping to ensure the success of the University's long-term strategy, the board members will also contribute proposals for improvements, to support the Medical University of Vienna's further development.

Forming centres in clinical medicine

In line with international best practice, MedUni Vienna has a strategic objective to develop clinical centres integrating a variety of clinical disciplines and scientific research activities.

Centres bring different medical disciplines for patient care together,

so that they can collaborate on research, teaching and treatment. The model has already been implemented at the Comprehensive Cancer Center Vienna (CCC), a joint facility of MedUni Vienna and Vienna General Hospital. The CCC will serve as an example of best practice for the further centres that are planned – a neurology centre and a cardiovascular centre are set to be established next.

HOPE FOR THE OVER AND UNDERWEIGHT: HORMONE CURBS AND INCREASES APPETITE

Appetite is regulated by a complex system involving the hypothalamus, the brain stem and the cerebral cortex. Hormones also play an important role. Researchers from the clinical section for endocrinology and metabolism have demonstrated that the hormone ghrelin is regulated differently in people who are underweight and overweight, a contributory factor in deviation from ideal weight.

Innovative processes allow prediction of retinal diseases

With the aid of optical coherence tomography (OCT), retinal diseases such as age-related macular degeneration can be predicted before the onset of symptoms.

OCT was developed in a collaboration between the Center for Medical Physics and Biomedical Engineering and MedUni Vienna's Department of Ophthalmology and Optometry, and researchers are continuing to refine the techniques. Diseases of the retina can now be identified in their earliest stages using this high-resolution imaging method. "OCT allows us to look directly and non-invasively at the layers of the retina and perceive the smallest changes early on," explained department head Ursula Schmidt-Erfurth.

"OCT is an imaging method that – like ultrasound techniques but without physical contact with the patient – generates high-resolution cross sections of biological tissue. It can be seen as an optical biopsy," explained Wolfgang Drexler, Professor of Medical Physics at MedUni Vienna and one of the world's leading OCT experts. In just one or two seconds, three-dimensional representations of the sensitive retinal tissue are created using grid scanning and are combined to produce a reconstruction of the whole of

the central retina, the point at which visual acuity is highest.

About 2.5 million people worldwide are diagnosed with macular degeneration or diabetic retinopathy every year. Before the use of OCT, retinal diseases resulted in blindness in around 20 percent of all patients; today that number is around 2 percent. Each year approximately 30,000 people are examined using OCT at the University Department of Ophthalmology and Optometry, the largest eye clinic in Europe.



Long history and a bright future: 200 years of ophthalmology in Vienna

"Vienna helps the world to see better," said Department Head Ursula Schmidt-Erfurth on the 200th birthday of the Vienna eye clinic – which was the first academic institution of its kind in the world. Today, initiatives such as the Vienna Reading

Center (VRC) underpin the top international position held by the University Department. The VRC currently collaborates with over 1,400 researchers in 280 cities and is the leading centre of its kind outside the USA.

From 2013, a new Christian Doppler Laboratory for Ophthalmic Image Analysis (OPTIMA) will open under the direction of Professor Schmidt-Erfurth.

FOREIGN PROTEINS PLAY A ROLE IN ALZHEIMER'S

Alzheimer's disease, Parkinson's disease and other neurodegenerative disorders are characterised by the loss of neurons and the formation of abnormal protein deposits in the brain. A research group led by Gabor G. Kovacs of the Clinical Institute of Neurology at MedUni Vienna has shown that in cases of Alzheimer's, not only the proteins associated with that disease are involved. A mixture of proteins related to a variety of neurodegenerative diseases can contribute. For this reason, the disorder should not be treated in isolation.

21 SEPTEMBER 2012

NEW TEST FOR GESTATIONAL DIABETES

Gestational diabetes is becoming more common and, if untreated, can have serious consequences for both mother and child. Timely diagnosis and treatment can prevent these. A new test developed at MedUni Vienna simplifies and reduces the cost of diagnosis.

2 OCTOBER 2012

Applause for the doctors and researchers of tomorrow

350 new doctors and scientists took their academic oath to the applause of their families and friends.

For the first time, the graduation ceremony took place in the Wiener Konzerthaus, which will celebrate its 100th anniversary in October 2013. 7,200 guests attended the event to celebrate with the 350 new graduates of the Medical University of Vienna on the most momentous day of their professional lives so far. After taking the academic oath, the graduands received their degree certificates from

Rector Wolfgang Schütz and Vice Rector for Education, Gender and Diversity, Karin Gutiérrez-Lobos.

The next step for the graduates is specialism training, an internship or a period of scientific study. "Thanks to the combination of scientific and practical training, the course at MedUni Vienna gives young doctors the best possible foundations for

responsible and independent medical practice. With the introduction of the clinical practice year as the final year of the course from the 2014/15 winter semester onwards, the University is set to take yet another step forward in supporting the development of students' individual strengths," Gutiérrez-Lobos said at the ceremony.

Alumni Club for MedUni Vienna graduates

The Alumni Club, established in 2008, provides an open forum for graduates of the University to exchange knowledge and ideas, and also functions as a career platform. A varied programme of events gives members the chance to maintain ties with 'their' university, with seminars, workshops and podium discussions encouraging professional dialogue. Information evenings, networking get-togethers and cultural events help bring the network to life. The Alumni Club also offers career development support to students and young researchers via its mentoring programme.



OVER 1,300 VISITORS TO THE JOSEPHINUM ON THE LONG NIGHT OF MUSEUMS

The 13th annual Long Night of Museums notched up a record 435,000 museum-goers across Austria. Home to MedUni Vienna's historic collections, the Josephinum was inundated with visitors and broke its own record, welcoming 1,300 people in one night. The most popular attractions were the anatomical wax models made in the late 18th century, which were used in medical education at that time.

Zweymüller hip prosthesis developed at MedUni Vienna lasts over 20 years

Researchers at the Department of Orthopaedics have investigated the long-term durability of the Zweymüller implant for the first time, finding that the shaft of the endoprosthesis lasts for at least 20 years.

“These findings show that any anxiety concerning a hip replacement is ungrounded. Better a pain-free life with a prosthetic implant than a life without one, but with pain,” commented Reinhard Windhager, Head of Orthopaedics at MedUni Vienna, on the Department’s 50th anniversary. The Zweymüller prosthesis, developed at the end of the 1970s and named after the University’s Professor of

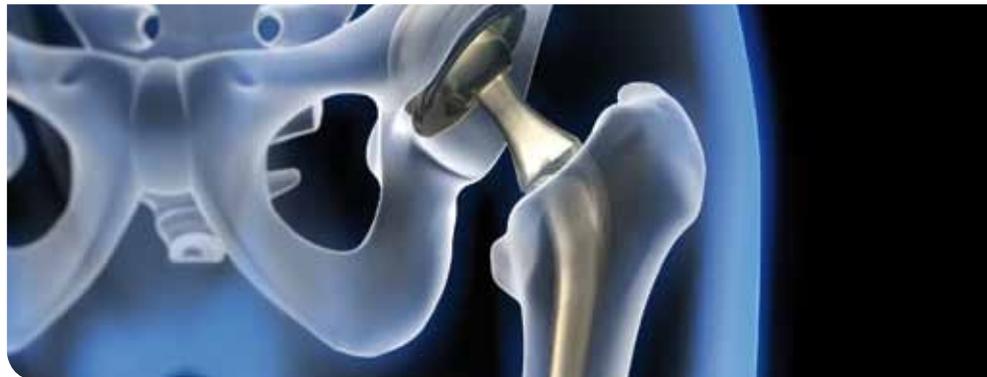
Orthopaedics at that time, was one of the first to be anchored in the bone, without the need for bone cement to fix it in place. Its special geometry and surface guarantee stable anchoring and natural integration into the bone.

The titanium prosthesis has been implanted millions of times since it was first developed, often in a minimally invasive procedure involving an incision approximately ten centimetres long. Today it is implanted in

combination with a ceramic ball and socket. As a secondary result of the study, in 67 percent of the 200 subjects examined the durability of the ball and socket was also confirmed to be over 20 years. At present around 300 hip replacement procedures are carried out at the Department of Orthopaedics each year, half of these using a Zweymüller prosthesis. Alongside its patient care activities, the Department continues to conduct research into new prosthetic implants.

Jubilee year for orthopaedics in Vienna

This branch of medicine has a rich tradition in Vienna, stretching back 125 years to Adolf Lorenz, the father of Austrian orthopaedics. But Lorenz did not live to see the founding of a dedicated orthopaedics clinic in Vienna – this was finally achieved 50 years ago, in 1962, under Karl Chiari.



LYMPHOMA: WOMEN RESPOND BETTER TO ANTIBODY THERAPY

Women respond significantly better than men to treatment of chronic lymphoma with rituximab, a monoclonal antibody against the CD20 protein. This was confirmed by an Austria-wide multicentre study by the Study Group of Medical Tumour Therapy (AGMT), managed by the University Department of Internal Medicine I and led by Professor Ulrich Jäger. The research, which was published in top international journal *Haematologica*, also determined that the number of lymphoma cells plays a decisive role.

10 OCTOBER 2012

SEA SNAIL POISON DISCOVERED IN BUTTERFLIES

Gert Lubec and his team of researchers at MedUni Vienna have discovered a type of poison in a tropical species of butterfly that up to now was only known in sea snails. The protein is present in the wings of the great orange tip butterfly (*Hebomoia glaucippe*) as well as in the skin of its larvae.

16 OCTOBER 2012

Doctorate programmes: 20 new places for allergy researchers



The Austrian Science Fund is sponsoring new PhD programmes at MedUni Vienna in allergy and cell research, further strengthening Vienna's position as an international focus for this discipline.

In addition to providing financial support, these grants are a major recognition of the scientific work being done by our researchers in the allergies, immunology and infectious diseases research cluster.

The newly approved financial support will further enhance the repu-

tation of the research cluster, which pursues basic research as well as applied and clinical research. Included among the 75 research groups currently forming part of this interdisciplinary cluster in Vienna are three specialised Christian Doppler Laboratories that develop commercial applications for research discoveries.

In its last board meeting of 2012, the Austrian Science Fund (FWF) approved two doctoral research programmes at MedUni Vienna. This created 20 new training places on the new PhD programme for Molecular, Cellular and Clinical Allergology (MCCA), coordinator Winfried F. Pickl, Institute of Immunology, Center for Pathophysiology, Infectious Diseases and Immunology), and the existing programme for Cell Communication in Health and Disease (CCHD), coordinator Stefan Böhm, Institute of Neurophysiology and Neuropharmacology, Center for Physiology and Pharmacology). "In

Doctoral programmes: quality control ensures top international standards

A three-person committee is responsible for quality assurance of each doctoral research project, made up of the supervisor and two other academics who review the candidate's work throughout the

process. "Since the introduction of this system, quality has markedly improved," commented Stefan Böhm, Curriculum Director for Doctoral Programmes and Head of the Institute of Neurophysiology and Neuropharmacology. The high level of quality is recognised throughout Europe: MedUni Vienna was selected as a mentor for medical postgraduate studies in Romania as part of an EU programme.

○ FIRST AUDITORY BRAIN STEM IMPLANT IN AUSTRIA

A 23-year-old patient has been provided with an auditory brain stem implant for the first time at MedUni Vienna in the Vienna General Hospital. The interdisciplinary operation was the first of its kind in Austria, and was carried out by Engelbert Knosp, Head of the Department of Neurosurgery and Wolfgang Gstöttner, Head of the Department of Ear, Nose and Throat Diseases.

Honorary doctorate for Carl Djerassi, inventor of the pill

89-year-old Carl Djerassi has been awarded an honorary doctorate by MedUni Vienna, in a gesture that recognised one of the 20th century's most striking personalities.

Carl Djerassi was born in Vienna in 1923 and emigrated to the United States in 1938. As a chemist, his first achievement was his work on a new synthesis of cortisone, and at the age of 28 he synthesised norethisterone – a discovery that changed the world, as it paved the way for a completely new form of contraception. Djerassi is

therefore considered the inventor of the contraceptive pill.

In their speeches at the ceremony, MedUni Vienna Rector Wolfgang Schütz, Senate Chair Arnold Pollak and laudator Carl Aigner, Director of the State Museum of Lower Austria all paid tribute to Djerassi – who celebrated his 89th birthday the same day – as an outstanding scientist and a major personality of the 20th century, who has also been an important art patron and collector and a successful writer.

Wolfgang Schütz said, "In bestowing this honour, the Medical University of Vienna wishes to express its gratitude to Carl Djerassi for his collaboration with its doctors and researchers and his counsel to them."

In his later years the cosmopolitan Djerassi has received Austrian citizenship, made Vienna one of his places of residence again, and donated a large part of his collection of the works of painter Paul Klee (the largest such collection in the world) to the Albertina in Vienna.



Rector Wolfgang Schütz presents Carl Djerassi with the honorary doctorate.

Vienna Nobel laureate seminar with Evans and Blobel

German-American biochemist Günter Blobel received the Nobel Prize in Medicine in 1999 for discovering signal peptides, which direct newly synthesised proteins in cells. British geneticist Martin J. Evans was awarded the same prize in 2007, for his research into embryonic stem cells. Both gave lectures at the Seventh Vienna Nobel Laureate Seminar, held in MedUni Vienna's Jugendstilhōrsaal. Evans also held a seminar at the Institute of Medical Genetics, while Blobel met with young scientists researching nuclear pores, an area he is also working on.



„Nobel laureates Martin J. Evans, Günter Blobel at the MedUni Vienna

DERMATITIS CAN BE SUPPRESSED WHEN IT FIRST APPEARS

An international team of researchers based at MedUni Vienna, MedUni Graz and the Salk Institute in California, and headed by Herbert Strobl, has decoded the mechanism that contributes to suppression of the unwanted autoimmune reactions which cause skin inflammation. This could lead to treatments that would halt the development of common disorders such as chronic allergic dermatitis and psoriasis as soon as they appear.

7 NOVEMBER 2012

CERTIFICATION FOR INTERNATIONAL BREAST HEALTH CENTRE

Austria's largest breast health centre, at Vienna General Hospital and MedUni Vienna, underwent a two-day audit by the Österreichische Zertifizierungskommission. All of the processes for interdisciplinary patient care were subjected to a strict quality assessment, and the health centre team passed with flying colours.

20 NOVEMBER 2012

New entrance tests for undergraduate programmes

Applicants who wish to begin studying for a medicine or dentistry degree in autumn 2013 must first successfully complete a new assessment procedure, Med-AT, which tests knowledge and cognitive abilities. Interpersonal skills are set to play an increasingly important role in the assessment.

For applicants to the Medicine degree programme, subject knowledge will make up 40 percent of the marks in the new entrance test, text comprehension 10 percent and cognitive abilities 22.5 percent. Dentistry degree programme candidates will be set practical tasks to assess their manual skills, instead of the text comprehension test. These will

contribute 22.5 percent of the overall mark. The cognitive abilities test will be shorter for Dentistry applicants, and will count towards 37.5 percent of the assessment.

The aim for the three medical universities (Graz, Innsbruck and Vienna) was to jointly develop an admissions assessment procedure that evaluated

all of the qualities that students need to bring to medical studies. The knowledge part of the test contains questions on biology, chemistry, physics and mathematics at Matura level (the Austrian secondary school leaver's certificate). Cognitive ability tests assess logical reasoning, visual analytical reasoning, visual perception skills, mathematical reasoning and memory.

For the first time, the test specifically links theory and practice. Innovative psychometric technology is used in the creation and administration of the tests. The starting point for the new test design was a Delphi study which identified the characteristics required for medical studies and in the medical profession.

An international advisory board will be responsible for continuous development of the tests. A two-stage test procedure will be introduced from 2014, taking in personality traits, social and emotional competence and communication skills.



○ ANONYMOUS BIRTHS PROTECT NEWBORNS AND MOTHERS IN AUSTRIA

The number of infant deaths resulting from violence has halved in Vienna since 2002. Researchers at MedUni Vienna have shown that this positive development can be attributed to the introduction of anonymous birth in the Austrian legal system in 2001. Between 30 and 40 women in Austria make use of this provision every year.

Training in interpersonal skills to develop professional manner with patients

Personal qualities are becoming increasingly important in the education of doctors. Interpersonal skills training now forms part of the University's medical curriculum.

Right at the start of their studies, in the first semester, all new medical students take the practical course in social competence at the Haus der Barmherzigkeit hospital in Vienna, after completing preparatory theory units. Studies show that direct contact with patients early in their degree programme has a positive effect on medical students' development of interpersonal skills.

The new course allows students to learn about the services provided by a long-term care hospital, and practise basic care skills such as operating a wheelchair. But the main focus is on talking to and dealing with patients appropriately, taking account of the conditions they have been diagnosed with – for example dementia or multiple sclerosis.

Since 2010, medical students at MedUni Vienna have undergone training in patient consultation in a project unique in Austria which uses patient actors. It allows students to practise key consultation situations in a near-real setting, and reflect on their performance.

This training method, which also provides practical exercises to support the compulsory seminar in consultation technique, was awarded the Austrian Communication Prize by the Austrian Academy for Preventive Medicine and Health Communications in 2012.



University Library achieves ISO certification

The MedUni Vienna Library has become the first academic library in Austria to be certified according to ISO 9001. A quality management team, comprising six library staff, has been set up to maintain progress in this area over the long term. The most important measures

implemented were production of a quality management handbook, introduction of document control, establishment of an error and improvement management system, and creation of a training matrix. A new process was developed to evaluate customer satisfaction, as a measurement of quality. Each year, around 1.1 million complete articles are downloaded from journals licensed to the University Library.

CURRENT JOURNALS AVAILABLE ONLY ONLINE FROM BEGINNING OF 2013

Following the increasing trend towards use of online media in recent years, the University has completed migration to the e-Only system – allowing it to guarantee continuous access to medical journals, whether the Library itself is open or not. Use of the University Library's existing online journals service, covering about 4,000 titles, speaks for itself: more than 3,000 complete scientific articles are accessed or printed out by students and researchers every day.

18 DECEMBER 2012

NEW TEST FOR ANALYSING OLFACTORY DYSFUNCTION

A new test is set to make treatment and counselling for people suffering from dysosmia, or olfactory dysfunction, significantly easier. The procedure, which measures the subjective impact of impairments to the sense of smell, was developed at the Department of Neurology.

19 DECEMBER 2012



First-class education and training for medical research and clinical practice

MedUni Vienna offers an attractive range of higher and continuing education courses for prospective and established medical professionals from Austria and abroad. Our degree programmes in medicine and dentistry, and our doctoral research and PhD programmes in 25 subject areas make up the core of our educational offering. The University also offers specialised part-time postgraduate continuing education courses and a master's programme in Medical Informatics.

Degree programmes in Medicine and Dentistry

Students on these programmes benefit from the University's innovative curricula, which focus on small-group learning and clinical practice. The programme of studies was fully revised in 2002, when the University introduced state-of-the-art curricula, certified by the World Federation for Medical Education and based on integrated specialist knowledge.

A new admissions process for the Medicine and Dentistry degree programmes is being introduced from

the 2013-14 academic year. The entrance tests, MedAT-H (for medical degree applicants) and MedAT-Z (for dentistry degree applicants), assess related knowledge, shortened text comprehension and cognitive abilities. MedAT-Z includes practical tasks which test applicants' manual dexterity. The testing procedure is evaluated every year and adjusted to incorporate new requirements where necessary.

Students on the Medicine degree programme acquire the knowledge and understanding, clinical abilities, communication skills, training in professional medical conduct and other competencies they will need to complete their postgraduate training – in most cases as a general practitioner or in a specialism. The degree also provides a solid basis for a research career.

In the first two phases of the programme (covering the first four years), the curriculum is divided into thematic blocks, which are accompanied by small-group courses covering clinical application of the theoretical knowledge students have gained. The

fifth and sixth years of study focus on clinical practice, with teaching taking place in the Vienna General Hospital university departments and at other teaching hospitals.

Dentistry became a degree programme in its own right in 2002, with the introduction of the new medical curriculum. In contrast to the Medicine degree, on completing the Dentistry programme graduates are fully qualified and licensed to begin practising independently.

PhD and other doctoral programmes

More than 1,000 early stage researchers are currently completing PhD or other doctoral studies at MedUni Vienna. Roughly 30 percent of these are international students who value the professional interdisciplinary environment at the University. PhD candidates are fully integrated into research groups and their studies allow them to lay the groundwork for pursuing a research specialisation. On receiving their PhD they already have numerous publications to their name, often in leading journals. Admissions to the doctoral

research programmes (DK) funded by the Austrian Science Fund are subject to a two-stage selection process involving international assessment.

Doctoral candidates at the University learn how to carry out scientific work independently. PhD programmes are geared towards a career in scientific research, while in the applied medical science doctoral programmes doctors learn how to conducting professional scientific research within clinical practice. These postgraduate courses are open to graduates of subjects such as biology and chemistry as well as medical doctors.

Broad spectrum of practical continuing education

The University's portfolio of continuing education courses is growing rapidly. These part-time courses provide training in a range of specialised professional fields. Taught by Austrian and international experts, and conducted in cooperation with other universities and educational institutions, each continuing education course offers high-quality postgraduate training (see also page 35).

PhD programmes

- Molecular Signal Transduction
- Molecular Mechanisms of Cell Biology
- Medical Physics
- Neuroscience
- Malignant Diseases
- Endocrinology and Metabolism
- Vascular Biology
- Immunology
- Medical Informatics, Biostatistics and Complex Systems
- Inflammation and Immunity (IAI) (DK)
- Cell Communication in Health and Disease (CCHD) (DK)
- Molecular Mechanisms of Cell Signaling (DK)
- Structure and Interaction of Biological Macromolecules (DK)
- RNA Biology (DK)
- Molecular Drug Targets (MolTag) (DK)
- Molecular, Cellular and Clinical Allergology (from 2013) (DK)

Applied medical sciences doctoral programmes

The applied medical sciences doctoral programmes provide in-depth training in applied biomedical research in the following areas:

- Clinical Endocrinology, Metabolism and Nutrition
- Biomedical Engineering
- Clinical Neurosciences (CLINS)
- POeT – Program for Organ Failure, Replacement and Transplantation
- Clinical Experimental Oncology
- Preclinical and Clinical Research for Drug Development
- Regeneration of Bones and Joints
- Cardiovascular and Pulmonary Disease
- Mental Health and Behavioural Medicine
- Public Health



Universitätsmedizin Wien 2020 – a collaborative future for MedUni Vienna and Vienna General Hospital

Vienna General Hospital and the Medical University of Vienna have historically always enjoyed very close ties. Some 1,600 physicians from MedUni Vienna work in one of the biggest hospitals in the world, treating hundreds of thousands of patients annually (about 100,000 inpatients and 552,000 outpatients in 2012), as well as conducting world-class medical research.

A major reason behind the success of this partnership is the exemplary combination of research, teaching and patient care at a university hospital, which generates countless benefits both for MedUni Vienna and its researchers, and for the hospital's maintaining body, the City of Vienna. The university departments and clinical institutes stand out for the resources they make available, the number of pati-

ents they treat as well as the first-class medical experts and researchers in other disciplines that they attract.

Balancing research, teaching and patient care

Striking a balance between their responsibilities is a constant challenge for MedUni Vienna academics. The doctors at Vienna General Hospital are all MedUni Vienna staff, and their salaries are ultimately paid by the Federal Government. Nursing and administrative staff are employed by the City of Vienna, which – via the Vienna Hospitals Association – is the maintaining body of the largest hospital in Austria. In practice, this set-up hinders the University's research and teaching activities, since the day-to-day running of the hospital takes up a major portion of doctors' time.

The existing structure is now being improved in a joint MedUni Vienna and Vienna General Hospital project, *Universitätsmedizin Wien 2020*, consisting of three focus areas: a medical masterplan, interdisciplinary centres and operational management.

Medical masterplan

The objective of the medical masterplan is to provide a framework for the development of clinical activities so that the Hospital can continue to provide optimal patient care in the future, and to illustrate the strategic positioning of the University within the range of services on offer. The challenge is to align the research and teaching focus of each department with patient care and the MedUni Vienna development plan.

Interdisciplinary centres

The strategic objective of the centres structure is to position the Medical University of Vienna and Vienna

General Hospital as international leaders in patient care, research and teaching.

Currently, the University's clinical division and the Hospital are largely organised according to medical discipline. But collaboration across a wide range of disciplines and subject areas is becoming increasingly necessary in research and teaching, as well as in patient care. The establishment of centres dedicated to different medical challenges is intended to create new, stable links between existing organisational structures and facilitate effective interdisciplinary cooperation.

The Comprehensive Cancer Center Vienna (CCC) has already illustrated what can be achieved by forming such centres. A joint facility of MedUni Vienna and Vienna General Hospital, the CCC combines expert interdisciplinary patient care together with clinical and basic research, and world-class academic teaching. It has already succeeded in establishing connections between scientists within the University and pooling their efforts in common research topics, as well as creating links with other universities and internationally recognised extramural institutions conducting high-level research in the same areas.

Join operational management of Vienna General Hospital

Operational management of the Hospital presents an administrative challenge, since MedUni Vienna is funded by the Federal Government, and Vienna General Hospital by the City of Vienna. This makes it imperative to establish a new basis for cooperation and joint decision-making with regard to the deployment of funds. This part of the *Universitätsmedizin Wien 2020* project will develop a model for the future of cooperation between the two legal entities. The chief priority is to maintain a balanced relationship between research, teaching and patient care.

The Vienna School of Medicine



The history of the Medical University of Vienna reaches back almost 650 years. As the founding member of the Vienna Alma Mater Rudolphina in 1365, the Faculty of Medicine of the University of Vienna was a widely recognised authority on matters relating to health as early as the Middle Ages.

The First Vienna School of Medicine

Viennese medicine achieved international renown in the 18th century, after Empress Maria Theresa summoned Dutchman Gerard van Swieten to the city, where he laid the foundation for what became known as the First Vienna School of Medicine. Leading physicians of the era who taught and carried out research in the Austrian capital included Anton de Haen, Maximilian Stoll, Lorenz Gasser and Anton von Störck, as well as Leopold Auenbrugger, the inventor of percussion as a diagnostic technique. The teaching model nowadays known as bedside teaching was developed in Vienna during this period and became the dominant method of medical training.

The Second Vienna School of Medicine

The opening of the General Hospital in 1784 gave doctors a new place to work, and the facility evolved to become Vienna's most important centre of medical research. In the course of the 19th century, the work of doctors such as Karl von Rokitansky, Josef Skoda, Ferdinand von Hebra and Ignaz Philipp Sem-

melweis brought about the emergence of the Second Vienna School of Medicine. The application of basic science in medicine expanded and the first skin, eye

The Josephinum

Founded by Emperor Joseph II, the medical and surgical academy opened on Währingerstrasse in Vienna in 1785. One year later, the institution was renamed the Medizinisch-Chirurgische Josepfs-Akademie and granted the right to confer master's and doctoral degrees. For a long time, it was possible to complete medical training at two academic institutions in Vienna – at the Faculty of Medicine or at the Josephinum, as the academy quickly became known.

Today, the Josephinum is part of MedUni Vienna, and is home to the History of Medicine Department and Collections, comprising the Department's administrative offices and the majority of MedUni Vienna's historical collections. The building also houses the Museum in the Josephinum, a number of libraries, and the University of Vienna's Kurt Gödel Research Centre. The modern-day Josephinum is a point of intersection for a variety of disciplines, as well as the historic entrance to the University.



and ear, nose and throat clinics in the world were founded in Vienna as the Austrian capital became the birthplace of medical specialisation.

Vienna: the world capital of medicine

At the start of the 20th century, Viennese Medicine was very much at the top of its international game. Clemens von Pirquet coined the terms “allergy” and “serum sickness”, Ernst Peter Pick conducted important experiments on chemical specificity in immune reactions, and the Vienna School of Dental Medicine (founded by Bernhard Gottlieb) enjoyed a golden age in the 1920s. The four Nobel Prizes awarded to Viennese doctors in the early part of the century (to Robert Bárány, Julius Wagner-Jauregg, Karl Landsteiner and Otto Loewi) are testament to the groundbreaking work that was carried out during this period.

1938, a year of tragedy

With the Anschluss of 13 March 1938, Austria became part of Nazi Germany, and medicine in Vienna entered its darkest period. More than half of the medical university lecturers – the majority of them of Jewish descent – were dismissed. Many highly respected researchers, doctors and students either were forced to emigrate, died in the concentration camps or were killed in other tragic circumstances. A memorial sculpture in the form of an open book at MedUni Vienna honours the memory of the victims of the Nazi era.

Restoration and the new Vienna General Hospital

After 1945, the difficult process of rebuilding medical studies in Vienna began. The reputation of Vienna medicine had, at least for the time being, faded markedly. In 1949, around three quarters of the medical faculty at the University of Vienna had to be removed from their posts due to their National Socialist sympathies, and were replaced by a newly-trained generation of physicians. The impact of these two



turning points in the history of Vienna medicine, coming as they did in the space of just a few years, was still being felt decades later. However, the official opening of the new Vienna General Hospital in 1994 provided new impetus. By 1996, all of the university departments had been brought together and expanded at the General Hospital site. This meant that Vienna's finest medical practitioners were based at a single, state-of-the-art university hospital, providing the ideal framework for clinical research.

A new era

Legal autonomy and the founding of the Medical University of Vienna on 1 January 2004 triggered a period of dynamic development that touched every aspect of the institution. In terms of scientific output, the number of publications rose markedly, as did impact factors. In teaching, a new, modern curriculum was implemented, and a variety of new courses developed. From the financial perspective, external funding increased enormously. The formation of research clusters and interdisciplinary centres has raised MedUni Vienna's international profile in a wide range of fields. By initiating the Universitätsmedizin Wien 2020 project together with Vienna General Hospital, the University has set in motion the establishment of a third Vienna School of Medicine in the 21st century.



Facts and figures

Of the many different indicators of the University's performance, the most eye-catching are the number of students (almost 7,500), the number of patients treated annually (approximately 650,000), the constantly rising impact factors of published research and the growth in external funding income. These and many other achievements are testimony to the dedication of the 5,400 people who work at the University and its subsidiaries.

The University's clinical division is divided into departments and clinical institutes, and the medical science division is largely organised into centres.

All of the clinics, with the exception of the Bernhard Gottlieb Clinic of Dentistry, are located at Vienna General Hospital. Most of the scientific institutes and teaching facilities are located in close proximity to this central clinical establishment, creating an ideal environment for exchange between research, teaching and patient care.

An overview of MedUni Vienna

General

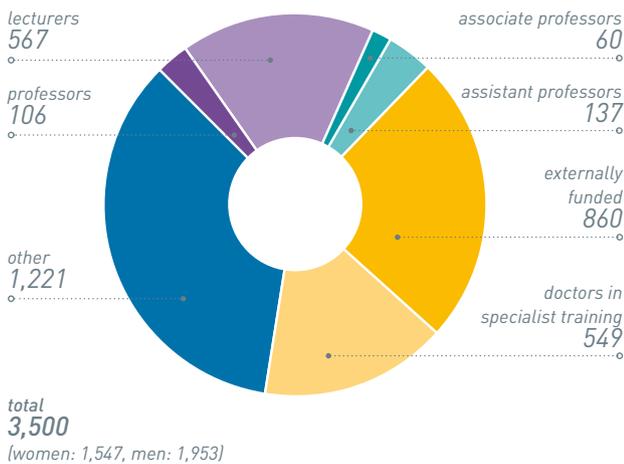
Human resources

With 5,343¹ employees in 2012, MedUni Vienna is one of the largest centres of medical education and research in the German-speaking world.



¹ Full-time equivalent: 4,168.9 (2,281.6 women, 1,887.2 men)

Academic staff



31 university departments and twelve centres of medical theory

The core activities of research, teaching and patient care are organised into 31 university departments/clinical institutes and twelve centres for medical science.

Research

MedUni Vienna's research activities are summarised under the common theme of "Mechanisms, Prevention, Diagnosis and Treatment of Diseases" and are broken down into five designated areas of focus, or research clusters.

Focal areas of research (clusters)

- Allergies/Immunology/Infectious Diseases
- Cancer Research/Oncology (Comprehensive Cancer Center Vienna)
- Neurosciences
- Cardiovascular Medicine
- Imaging

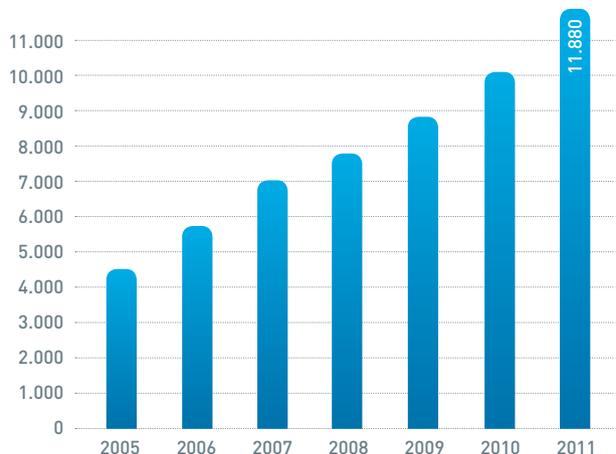
Research infrastructure

MedUni Vienna boasts an extensive research infrastructure that supports the work of individual research groups.

- Core Facility for Flow Cytometry
- Core Facility for Genomics
- Core Facility for Imaging
- Core Facility for Proteomics
- Institute of Medical Genetics
- Center for Medical Statistics, Information Technology and Intelligent Systems
- Clinical Trials Coordination Centre
- Medical Imaging Platform
- MedUni Vienna Biobank
- Preclinical Research for Facility
- University Library
- Centre for Medical Physics and Biomedical Engineering

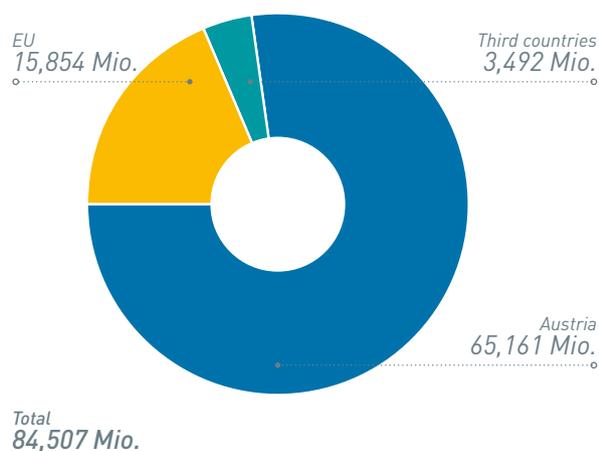
Impact of scientific publications from 2005 – 2011

Scientific output and the quality of research at the MedUni Vienna are constantly rising.



Third-party funding: revenue from R&D projects

External funding for R&D raised by MedUni Vienna pursuant to sections 26 and 27 Universities Act has more than doubled from EUR 41.9 million in 2004 to EUR 84.5 million in 2012.



Research project submissions to the Ethics Committee

- 208 study reviews pursuant to the Austrian Medicines Act
- 106 study reviews pursuant to the Austrian Medical Devices Act
- 802 other study reviews

1,116 approval applications for clinical research projects

Patient care

Clinical data from Vienna General Hospital

- 102,083 inpatients (cases)
- 538,803 outpatients (cases)
- 47,208 surgical procedures
- 1,564 doctors

Clinical data from Bernhard Gottlieb Clinic for Dental Care

- 103,419 patients (cases)
- of which 25,317 were new patients (cases)
- 82.5 patients/weekend (mean)
- 72.0 dentists (FTE)

Education

Courses offered by MedUni Vienna

- Medicine Degree Programme
- Dentistry Degree Programme
- Master's Degree in Medical Information Technology
- PhD programme (15 subject programmes)
- Applied Medical Science Doctoral Programme (10 subject programmes)
- Doctorate in Medical Science (currently being phased out)
- 14 postgraduate training programmes

Practical clinical training is provided in 13 teaching hospitals.

Students (WS 2012)	Female	Male	Total
Studying for a degree qualification	3.401	3.546	6.947
Other students participating	306	215	521
Total	3.707	3.761	7.468

Studierende nach Staatsangehörigkeit	Female	Male	Total
Austria	2.714	2.769	5.483
EU	597	677	1.274
Third countries	396	315	711
Total	3.707	3.761	7.468

Students in exchange programmes (outgoing/incoming)	Female	Male	Total
Host country/origin in the EU	185/96	148/50	333/146
Host country/origin other	95/24	90/11	185/35
Total	280/120	238/61	518/181

Doctoral students (of which students in employment at the University)	Female	Male	Total
Austria	393 (150)	350 (146)	743 (306)
EU	71 (28)	63 (18)	134 (46)
Third countries	107 (25)	82 (13)	189 (38)
Total	571 (213)	495 (177)	1.066 (390)

Facts and figures

I. Balance sheet as at 31 December 2012

Assets

	31 December 2012			31 December 2011		
	EUR			EUR '000		
A. Fixed assets						
I. Intangible assets						
1. Concessions and similar rights, and licences thereto		1,362,101.07		1,483		
<i>of which acquired by purchase</i>	1,362,101.07			1,483		
2. Rights of use		19,700,000.00	21,062,101.07	19,100	20,583	
II. Property, plant and equipment						
1. Land, leasehold rights and buildings including buildings on third-party land		9,283,035.70		7,450		
<i>a) of which land value</i>	587,155.00			593		
<i>b) of which building value</i>	1,182,222.45			1,259		
<i>c) of which investments in third-party buildings and land</i>	7,513,658.25			5,598		
2. Plant and machinery		10,258,663.39		10,559		
3. Scientific literature and other scientific data media		6,844,205.60		6,526		
4. Other fixtures and fittings, operating and business equipment		2,183,833.78		2,242		
5. Advance payments and assets under construction		1,803,086.09	30,372,824.56	4,699	31,476	
III. Financial assets						
1. Investments in subsidiaries and associates		2,808,650.18		2,624		
2. Loans to subsidiaries and associates		985,314.90	3,793,965.08	0	2,624	54,683
B. Current assets						
I. Inventories						
1. Inventories		283,755.87		284		
2. Services rendered to third parties not yet invoiced		80,922,232.20	81,205,988.07	72,942	73,226	
II. Receivables and other assets						
1. Trade receivables		8,851,021.30		9,058		
2. Receivables from associates		1,134,818.24		833		
3. Other receivables and other assets		7,727,717.14	17,713,556.68	15,171	25,062	
III. Securities			6,257,102.70		6,236	
IV. Cash and cash equivalents			96,455,327.73		99,485	204,009
C. Prepaid expenses and deferred charges						
			1,295,047.25			1,329
Total assets			258,155,913.14			260,021

Financial statements

The 2012 financial statements were audited and awarded an unqualified audit certificate by auditors Moore Stephens City Treuhand GmbH.

Liabilities

	31 December 2012				31 December 2011			
	EUR				EUR '000			
A. Negative equity								
1. Equity			-8,334,166.31				-8,334	
2. Net loss			-18,264,678.93	-26,598,845.24			-7,375	-15,709
of which loss/profit brought forward	-7,375,415.78				1,137			
B. Investment grants				29,260,557.53	23,818			
C. Provisions								
1. Provisions for severance payments			10,988,867.00				10,596	
2. Other provisions			92,288,258.54	103,277,125.54			93,769	104,365
D. Liabilities								
1. Bank borrowings			75.02				0	
2. Advances received			123,154,142.77				113,638	
of which deductible from inventories	80,922,232.20				72,942			
3. Trade payables			9,510,067.50				11,335	
4. Payables to associates			112,219.12				5	
5. Other liabilities			14,794,709.45	147,571,213.86			18,169	143,147
E. Deferred income				4,645,861.45	4,400			
Total liabilities				258,155,913.14				260,021
Contingent liabilities				98,749.00				99

Note regarding equity:

The University's negative equity figure results from the separation of the Medical University of Vienna from the University of Vienna in accordance with the Universities Act on 1 January 2004. In respect of Austria's constitutional guarantee for institutions and its incorporation into the Universities Act, the Federal Government's resulting obligation to guarantee the continued existence of Medical University of Vienna and to finance the University means that, in all events, a positive going concern forecast may be given for the Medical University of Vienna. Including also the investment grants, total equity was positive as at 31 December 2012.

II. Profit and loss account 2012

	2012 EUR	2011 EUR '000
1. Revenue		
a) Revenue from Federal Government global budget allocation	343,238,076.00	332,070
b) Revenue from tuition fees	80,079.47	746
c) Revenue from tuition fee compensation by Federal Government	4,730,533.73	4,695
d) Revenue from postgraduate training programmes	913,909.16	953
e) Revenue pursuant to section 27 Universities Act	64,964,297.89	62,828
f) Reimbursements of costs pursuant section 26 Universities Act	13,713,888.90	13,052
g) Other revenue and reimbursements	11,986,195.62	14,228
	439,626,980.77	428,572
2. Change in services rendered to third parties not yet invoiced	7,979,862.12	5,242
3. Other operating income		
a) Income from disposal and revaluation of fixed assets	114.30	619
b) Income from reversal of provisions	1,608,262.90	1,625
c) Other	12,338,370.01	12,359
<i>of which from reversal of investment grants</i>	<i>9,573,466.27</i>	<i>9,270</i>
	13,946,747.21	14,603
4. Expenditure for materials, consumables and purchased services		
a) Expenditure for materials and consumables	-10,396,253.73	-10,477
b) Expenditure for purchased services	-3,545,929.18	-3,639
	-13,942,182.91	-14,116
5. Staff costs		
a) Salaries and wages	-263,216,629.83	-255,544
<i>of which refunds to the Federal Government for officials assigned to the university</i>	<i>76,040,878.85</i>	<i>78,189</i>
b) Expenditure for external teaching staff	-100,234.98	-87
c) Cost of severance payments and payments to employee benefits funds	-3,693,954.32	-3,245
<i>of which refunds to the Federal Government for officials assigned to the university</i>	<i>67,291.78</i>	<i>168</i>
d) Cost of pensions	-6,448,778.43	-4,318
<i>of which refunds to the Federal Government for officials assigned to the university</i>	<i>396,892.15</i>	<i>399</i>
e) Social security contributions and other pay-related contributions	-60,275,797.64	-60,149
<i>of which refunds to the Federal Government for officials assigned to the university</i>	<i>19,498,805.40</i>	<i>20,533</i>
f) Other employee benefits	-2,230,585.64	-2,119
	-335,965,980.84	-325,462

	2012 EUR	2011 EUR '000
6. Depreciation and amortisation	-17,707,941.47	-17,048
7. Other operating expenses		
a) Taxes other than those under item 13	-444,621.93	-434
b) Reimbursements to hospital operator pursuant section 33 Universities Act	-52,153,402.51	-52,842
c) Other	-45,145,256.09	-37,639
	-97,743,280.53	-90,915
8. Subtotal items 1 to 7	-3,805,795.65	876
9. Income from financial resources and investments	2,417,723.63	2,116
a) of which from write-ups	93,523.01	194
b) of which from subsidiaries and associates	500,000	0
10. Expenditure arising from financial resources and equity holdings	-9,161,603.02	-11,425
a) of which from write-downs	21,104.90	12
b) of which expenditure arising from subsidiaries and associates	9,135,916.00	11,413
11. Subtotal items 9 to 10	-6,743,879.39	-9,309
12. Result from ordinary university activity	-10,549,675.04	-8,432
13. Taxes on income and profit	-339,588.11	-80
14. Loss/profit after tax	-10,889,263.15	-8,512
15. Loss/profit brought forward	-7,375,415.78	1,137
16. Net loss	-18,264,678.93	-7,375

Due to the increasing impact of general rises in staff costs, which for the 2010-12 performance agreement period are only partially covered by the global budget allocated by the Federal Government, the University – despite implementing cost savings and receiving additional financial support from the Federal Government – again reported a loss in 2012, of EUR 10,9 million. Cost savings were in line with the targets set, and the negative result also came in broadly as forecast.

In this regard, it should be noted that Vienna General Hospital's entire medical staffing requirements are covered by the Medical University of Vienna due to a contractual obligation of the Federal Government, and that efficiency gains in clinical operations have always been used to provide additional services, maximising the quality of patient care. A joint project involving all partners was initiated in 2012 to create a new long-term structure for cooperation of the University and Vienna General Hospital on research, teaching and hospital operations.

As things currently stand, the University expects to balance its budget in the 2013-15 performance agreement period.

University management

• Rectorate Team

Prof. Wolfgang Schütz, Rector
Prof. Karin Gutiérrez-Lobos,
Vice Rector for Teaching, Gender & Diversity
Dr. Christiane Druml, Vice Rector for Clinical Affairs
Prof. Markus Müller, Vice Rector for Research
Mag. Dr. Franz Wurm, Vice Rector for Finance

• University Council

Dr. Erhard Busek (Chair)
Dr. Elisabeth Hagen
Rudolf Klausnitzer
Dr. Johannes Strohmayer
Prof. Robert Schwarcz

• Senate

Professors:

Prof. Arnold Pollak
(Chair until 14 December 2012)
Prof. Michael Gnant
Prof. Eduard Auff
(Chair from 14 December 2012)
Prof. Anita Rieder*
Prof. Eva Piehslinger
Prof. Hubert Pehamberger
Prof. Ingrid Pabinger
Prof. Wolfgang Gstöttner
Prof. Rudolf Valenta
Prof. Veronika Fialka-Moser
Prof. Ursula Schmidt-Erfurth
Prof. Ursula Wiedermann-Schmidt
Prof. Hans Lassmann
Prof. Erika Jensen-Jarolim

* (Seat not taken due to provisions in respect of incompatibility with the role of Curriculum Director.)

Academic research and teaching staff:

Prof. Ivo Volf (1st deputy)
Prof. Ulrike Willinger
Prof. Stephan Kettner
Prof. Henriette Walter
Prof. Marianne Winkler
Prof. Wolf-Dieter Baumgartner

Students:

Christian Orasche
Philipp Wimmer
Barbara Horninger
Dr.ⁱⁿ Judith Böhm (2nd deputy)
Michael Wagner
Mirijam Müller

General staff:

Gerda Bernhard

Co-opted from the Working Group for Equal Opportunities:

Prof. Alexandra Kautzky-Willer
www.meduniwien.ac.at/senat

Administration

Committees

• Arbitration Committee

Chair: Prof. Herbert Watzke
www.meduniwien.ac.at/schiedskommission

• Ethics Committee

Chair: Prof. Ernst Singer
Deputy Chair: Prof. Michael Wolzt
(until 1 October 2012)
Deputy Chair: Prof. Hildegard Greinix
Deputy Chair: Prof. Jürgen Zezula
(from 2 October 2012)
www.meduniwien.ac.at/ethik

• Works Council for General University Staff (until 18 December 2012)

Chair: Gabriele Waidringer
Deputy Chair: Gerda Bernhard
Deputy Chair: DI Ernst Eigenbauer

• Works Council for General University Staff (from 18 December 2012)

Chair: Gabriele Waidringer
Deputy Chair: Gerda Bernhard
Deputy Chair: Helga Kalser
www.meduniwien.ac.at/br-ap

• Works Council for Academic Staff (until 5 December 2012)

Chair: Prof. Thomas Szekeres
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2nd Deputy Chair: Prof. Wolf-Dieter Baumgartner
3rd Deputy Chair: Prof. Anita Holzinger

• Works Council for Academic Staff (from 5 December 2012)

Chair: Dr. Thomas Perkmann
1st Deputy Chair: Dr. Martin Andreas
2nd Deputy Chair: Prof. Peter Birner
3rd Deputy Chair: Prof. Ingwald Strasser
4th Deputy Chair: Prof. Anita Holzinger, MPH
www.meduniwien.ac.at/br-wp

• Working Group for Equal Opportunities

Chair: Prof. Alexandra Kautzky-Willer
1st Deputy Chair: Prof. Ulrike Willinger
2nd Deputy Chair: Ulrike Stein
www.meduniwien.ac.at/gleichbehandlung

• University Representation of students (ASU)

Chair: Christian Orasche
Deputy Chair: Birgit Ludwig
Deputy Chair: Philipp Wimmer
www.uv-medizin.at

• Advisory Board for People with Disabilities

Chair: Prof. Veronika Fialka-Moser
www.meduniwien.ac.at/behindertenbeirat

• Intramural Data Protection Committee

Chair: Ernst Eigenbauer
Deputy Chair: Dr. Jasmin Gründling
www.meduniwien.ac.at/datenschutzkommission

• **Medicine Curriculum Director**

Prof. Anita Rieder

Deputy: Prof. Franz Kainberger

Deputy: Prof. Werner Horn

Deputy: Prof. Gerhard-Johann Zlabinger

• **Dentistry Curriculum Director**

Prof. Anita Holzinger

Deputy: Prof. DI Reinhard Gruber

Deputy: Prof. Andreas Moritz

• **PhD Programmes Curriculum Director**

Prof. Stefan Böhm

• **Continuing Education Courses Curriculum Director**

Prof. Rudolf Mallinger

Scientific Advisory Board

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Professor of Psychiatry and Neuroscience

Harvard Medical School

Fortunato Ciardiello

Professor for Medical Oncology

Seconda Università di Napoli

Thomas Lüscher

Professor and Chair of Cardiology

at the University Hospital Zurich

Director of CardioVascular Research

at the Institute of Physiology of the University Zurich

University departments and clinical institutes

The MedUni Vienna organisational units performing clinical activities include 26 university departments and 5 clinical institutes. 15 of these departments and clinical institutes are further broken down into clinical sections (pursuant to section 31(4) UG). All departments, institutes and sections have the function of a clinical unit (pursuant to section 7(4) Austrian Hospitals Act, KAKuG).

University Department of Internal Medicine I

Head: Prof. Christoph Zielinski

- Clinical Section for Oncology
- Clinical Section for Hematology and Hemostaseology
- Clinical Section for Infectious Diseases and Tropical Medicine
- Institute of Cancer Research

University Department of Internal Medicine II

Head: Prof. Gerald Maurer

- Clinical Section for Cardiology
- Clinical Section for Angiology
- Clinical Section for Pulmonology
- Institute of Occupational Medicine

University Department of Internal Medicine III

Head: Prof. Josef Smolen

- Clinical Section for Endocrinology and Metabolism
- Clinical Section for Nephrology and Dialysis
- Clinical Section for Rheumatology
- Clinical Section for Gastroenterology and Hepatology

University Department of Surgery

Head: Prof. Ferdinand Mühlbacher

- Clinical Section for General Surgery
- Clinical Section for Cardiac Surgery
- Clinical Section for Thoracic Surgery
- Clinical Section for Vascular Surgery
- Clinical Section for Transplantation
- Clinical Section for Plastic and Reconstructive Surgery
- Clinical Section for Paediatric Surgery

University Department of Obstetrics and Gynaecology

Head: Prof. Peter Wolf Husslein

- Clinical Section for Obstetrics and Fetomaternal Medicine
- Clinical Section for General Gynaecology and Gynaecological Oncology
- Clinical Section for Gynaecological Endocrinology and Reproductive Medicine

University Department of Ear, Nose and Throat Diseases

Head: Prof. Wolfgang Gstöttner

- Clinical Section for General Ear, Nose and Throat Diseases
- Clinical Section for Speech and Language Therapy

University Department of Anaesthesia, Critical Care and Pain Medicine

Head: Prof. Jörg Michael Hiesmayr

- Clinical Section for General Anaesthesia and Intensive Care Medicine
- Clinical Section for Specialist Anaesthesia and Pain Medicine
- Clinical Section for Cardiothoracic and Vascular Anaesthesia and Intensive Care Medicine

University Department of Psychiatry and Psychotherapy

Head: Prof. Siegfried Kasper

- Clinical Section for Biological Psychiatry
- Clinical Section for Social Psychiatry

University Department of Pediatrics and Adolescent Medicine

Head: Prof. Arnold Pollak

- Clinical Section for Neonatology, Intensive Care Medicine and Neuropaediatrics
- Clinical Section for Paediatric Cardiology
- Clinical Section for Paediatric Pulmonology, Allergology and Endocrinology
- Clinical Section for Paediatric Nephrology and Gastroenterology
- Clinical Section for Pediatrics with special focus on Pediatric Haematology-oncology (St. Anna Children's Hospital)

University Department of Dermatology

Head: Prof. Hubert Pehamberger

- Clinical Section for General Dermatology
- Clinical Section for Immunodermatology and Infectious Diseases of the Skin

University Department of Radiology

Head: Prof. Christian Herold

- Clinical Section for General Radiology and Pediatric Radiology
- Clinical Section for Cardiovascular and Interventional Radiology
- Clinical Section for Neuroradiology and Musculoskeletal Radiology

University Department of Radiotherapy

Head: Prof. Richard Pötter

University Department of Trauma Surgery

Deputy Head: Univ. Lecturer Stefan Hajdu

University Department of Orthopedics

Head: Prof. Reinhard Windhager

University Department of Urology

Deputy Head: Prof. Babak Djavan-Amirkhizi;
Prof. Hans Klingler

University Department of Neurosurgery

Head: Prof. Engelbert Knosp

University Department of Oral and Maxillofacial Surgery

Head: Prof. Rolf Ewers (until 30 September 2012)

Deputy Head: Prof. Clemens Klug
(from 1 October 2012)

University Department of Emergency Medicine

Head: Prof. Anton Laggner

University Department of Neurology

Head: Prof. Eduard Auff

University Department of Physical Medicine and Rehabilitation

Head: Prof. Veronika Fialka-Moser

University Department of Child and Adolescent Psychiatry

Head: Prof. Max Friedrich

University Department of Psychoanalysis and Psychotherapy

Head: Prof. Stephan Doering

University Department of Ophthalmology and Optometry

Head: Prof. Ursula Schmidt-Erfurth

University Department of Nuclear Medicine

Head: Prof. Robert Dudczak

(until 30 September 2012)

Deputy Head: Prof. Helmut Sinzinger

(from 1 October 2012)

University Department of Blood Group Serology and Transfusion Medicine

Head: Prof. Wolfgang Mayr (until 30 September 2012)

Deputy Head: Prof. Simon Panzer

(from 1 October 2012)

University Department of Clinical Pharmacology

Head: Prof. Markus Müller

Bernhard Gottlieb University Clinic for Dentistry

Head: Prof. Georg Watzek (until 30 September 2012)

Prof. Andreas Moritz (from 1 October 2012)

Department of Hospital Epidemiology and Infection Control

Head: Prof. Elisabeth Presterl

Clinical Institute of Laboratory Medicine

Head: Prof. Oswald Wagner

- Clinical Section for Medical-Chemical Laboratory Diagnostics

- Clinical Section for Clinical Microbiology
- Clinical Section for Clinical Virology

Clinical Institute of Neurology

Deputy Head: Prof. Johann Hainfellner

Clinical Institute of Pathology

Head: Prof. Dentscho Kerjaschki

Centers of medical theory

The medical science division is organised into centres and departments. While the departments - just like the university departments and clinical institutes - mainly only represent one scientific field, centres are subject to functional grouping in respect of research and teaching and represent a fusion of scientific disciplines in line with international best practice.

Center for Anatomy and Cell Biology

Head: Prof. Margit Pavelka

- General Section for the Centre for Anatomy and Cell Biology
- Section for Applied Anatomy
- Section for Systematic Anatomy
- Section for Cell and Developmental Biology
- Section for Cell Biology and Ultrastructure Research

Center for Physiology and Pharmacology

Head: Prof. Michael Freissmuth

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

Center for Public Health

Head: Prof. Manfred Maier (until 30 September 2012)

Head: Prof. Anita Rieder (from 1 October 2012)

- Section for General and Family Medicine
- Institute of Social Medicine
- Institute of Environmental Hygiene
- Section for Epidemiology
- Institute of Medical Psychology
- Ethics in Medical Research

Center for Brain Research

Head: Prof. Jürgen Sandkühler

- Section for Neuroimmunology
- Section for Neurophysiology
- Section for Biochemistry and Molecular Biology
- Section for Neuronal Cell Biology
- Section for Cognitive Neurobiology
- Section for Pathobiology of the Nervous System

Center for Pathobiochemistry and Genetics

Head: Prof. Markus Hengstschläger

- Medical Genetics
- Institute of Medical Chemistry and Pathobiochemistry

Center for Pathophysiology, Infectiology and Immunology

Head: Prof. DI Hannes Stockinger

- 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. DI Wolfgang Drexler

Center for Medical Statistics, Informatics and Intelligent Systems

Interim Head: Prof. DI Wolfgang Dorda

- General Section for the Centre for Medical Statistics, Information Technology and Intelligent Systems
- Institute of Medical Statistics
- Institute of Clinical Biometrics
- Institute of Biosimulation and Bioinformatics
- Institute of Medical Information Management and Image Processing

- Institute of Medical Expert and Knowledge-Based Systems
- Institute of the Science of Complex Systems
- Institute of Artificial Intelligence

Department of Medical Biochemistry

Deputy Head: Prof. DI Roland Foisner

- Section for Molecular Biology
- Section for Molecular Genetics

Department of Forensic Medicine

Head: Prof. Daniele Risser

- DNA Central Laboratory

Medical Education Department

Interim Head: Prof. Siegfried Meryn

- General Section for Medical Training
- Administration
- Curriculum Coordination
- Medical Media Services
- Methods and Development
- Science and International Relations

Department and Collections of the History of Medicine

Interim Head: Prof. Sonia Horn (until 19 January 2012)

Head: Dr.ⁱⁿ Christiane Druml (from 19 January 2012)

Department of Virology

Head: Prof. Franz Xaver Heinz

- Section for Applied Medical Virology

Service facilities and specialised service units

Rector's office

Studies and Examinations Department

HR Department

Finance Department

ITSC – IT Systems & Communications

Legal Department

Facility Management

University Library

Communication and Public Relations

Technology Transfer

Clinical Studies Coordination Centre

Research Service – National Programmes

Research Service – European Office

Specialised Unit for Controlling

Specialised Unit for Evaluation and Quality Management

Specialised Unit for Gender Mainstreaming

Specialised Unit for Internal Auditing

Specialised Unit for Specialised Development

Specialised Unit for Process Management and Project Development

Subsidiaries

Bernhard Gottlieb Universitätszahnklinik GmbH

Max F. Perutz Laboratories GmbH (mfpl)

60 % University of Vienna, 40 % MedUni Vienna

Medical University of Vienna International GmbH (MUVI)

Forschungsservice und -beteiligungs GmbH

Forensisches DNA-Zentrallabor Wien GmbH

Alumni Club

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