



MEDIZINISCHE
UNIVERSITÄT

INNSBRUCK

RESEARCH.TEACHING.HEALING



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Rector's Preface

The year 2014 was a special one for the Medical University of Innsbruck, commemorating our ten-year anniversary as an independent university. We celebrated this milestone with the visionaries and makers of this success at our recent summer festival. I was delighted that many guests attended who were originally sceptical about the establishment of the independent Medical university. Within these ten years, we have developed a strong sense of togetherness and today the Medical University of Innsbruck is perceived as a resilient and confident institution.

One of the key factors of the success is our impressive scientific output. An important measure of the quality of publications is the citation rate, which rose steadily from 57,106 in 2010 to 78,598 in 2014. Another scientific index is third-party funding, which reached the respectable sum of 37.6 million euros in 2014.

The high number of students applying every year is testament to the desirability of the Medical University of Innsbruck as an educational institution. As of 2014, we are the only institution in Austria offering a Master course in Molecular Medicine, beside the traditional disciplines of Human and Dental Medicine. Since its introduction in 2011, this progressive, forward-thinking Bachelor course has remained unique among other Austrian educational institutions.

The Provincial Hospital in Innsbruck is the largest patient care hospital in west Austria, with

1,560 beds in 89 units, 16 of which are intensive care units. The Medical University of Innsbruck provides an important contribution to patient care. Considering this, the completion of a cooperation agreement with hospital management TILAK has no doubt been one of the most significant milestones of recent years. The changes to Austrian law governing the regular working hours of hospital doctors, however, resulted in an urgent call for action concerning the co-use of our scientific staff at the clinical facilities. Through an internal agreement, signed in December 2014, we have paved the way for a consensual solution in 2015.

Strong research performance, future-oriented teaching and patient-orientated cutting-edge medicine are the core tasks of the Medical University of Innsbruck. The main agendas – research, teaching and healing – also make up the annual report you are holding in your hand. On the following pages we have assembled some of the highlights from the past year.

The fact that we can once again look back on a successful year is due to the combined hard work, diligence and competence of all the contributors. I therefore extend my most heartfelt gratitude to all of you, all boards and committees, university staff, and partners alike.

Helga Fritsch
Rector



Members of the University Council since March 2013



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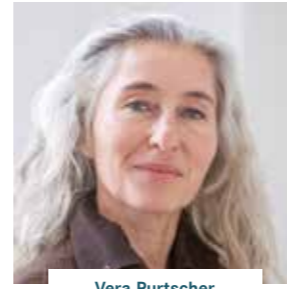
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Members of the Rectorate since October 2013



Helga Fritsch
Rector



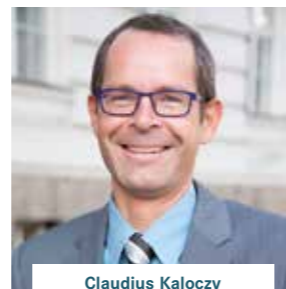
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RESEARCH

The Medical University of Innsbruck focuses on the fields of neuroscience, oncology, genetics, epigenetics and genomics as well as infectiology, immunology, and organ and tissue replacement. Our goal is to quickly translate discoveries made in the lab to the patients who will benefit from them.

On the following pages we present examples of outstanding research projects conducted by faculty members and talented young researchers in 2014.

RESEARCH FOR EVERYONE

Applied research at the Medical University of Innsbruck benefits the general population, as these projects demonstrate.

Research on schizophrenia and bipolar disorder

Under the direction of Tyrolean researchers, a long-term study on schizophrenia and a comparative study on Emotional Intelligence in patients suffering from schizophrenia or bipolar disorder are being conducted.



Study coordinators Alex Hofer and Wolfgang Fleischhacker, Director of the University Hospital of Biological Psychiatry, examine therapy processes and Emotional Intelligence of schizophrenics.

Currently, about five million people in Europe are affected by schizophrenia. In Austria, 80,000 people suffer from the disorder that is one of the most debilitating illnesses, according to the WHO. Wolfgang Fleischhacker (Director of the University Hospital of Biological Psychiatry at the Medical University of Innsbruck) manages the pan-European research project "European Long-acting Antipsychotics in Schizophrenia Trial (EULAST)" which compares all cause discontinuation rates in patients with schizophrenia randomised to either one of two depot medications with patients randomised to either one of the two oral formulations of the same medication over an 18-month follow-up period. The study is expected to be completed in 2018.

The second study, led by Alex Hofer, investigates Emotional Intelligence in patients suffering from schizophrenia or bipolar disorder, their siblings, and

healthy control subjects. It is assumed that the task performance of relatives lies between that of patients and control subjects. The confirmation of this assumption would verify the trait marker hypothesis and could be a next step to identify an inheritable endophenotype for schizophrenia and bipolar disorder. This research project is sponsored by the Austrian Science Fund (Österreichischer Wissenschaftsfonds, FWF).

E-health in cancer management

Specifically for cancer patients, one additional FWF-funded project was launched at the University Hospital of Biological Psychiatry in 2014: in collaboration with the European Organisation for Research and Treatment of Cancer (EORTC), a team headed by Bernhard Holzner is developing computer-adaptive questionnaires for a detailed subjective assessment of the health status of cancer patients. ■

New centre for healthy ageing

The new VASCage Research Center of Excellence in Vascular Ageing was launched in October 2014. It brings together both international and Tyrolean players.

With the establishment of the VASCage Research Center, the Medical University of Innsbruck, the University of Innsbruck, ten mostly North and South Tyrolean companies, and Kings College London are joining forces in the fight against vascular diseases. "With the new Tyrolean K-Project VASCage, the Medical University of Innsbruck was able to add another promising, clinically oriented research focus. International connections and the high specialist expertise of the Medical University of Innsbruck in the field of vascular diseases provide ideal conditions for the realisation of the research project," says Rector Helga Fritsch.

For example, the scientists will be looking at early changes of the vessel walls in youths or the causes of extreme longevity. Other key topics are a healthy diet as well as current issues, such as the influence of intestinal bacteria or thrombocytes on vascular ageing. One further long-term objective of VASCage is for the projects and prevention programmes to benefit both the local population and patient care in general. Vascular diseases are the leading cause of death in Austria and also the most common cause for disability and care dependency. Thanks to the cooperation between Tyrolean enterprises and academia new products may be on the

Pioneering facts in MSA research

Gregor Wenning and Alessandra Fanciulli published the world's first textbook on MSA. The translational MSA research programme at the Innsbruck University Hospital for Neurology (Director: Werner Poewe) is internationally recognised.

MSA (multi-system atrophy), like Parkinson's and Alzheimer's, belongs to the category of neurodegenerative diseases. At the same time, with only 2,000 patients in Austria, it is considered a so-called rare disease. The latter fact, as well as some symptomatic overlapping with other disease patterns, impedes diagnosis and an awareness of the quickly progressing and ultimately lethal disease. "The new

published MSA textbook, by presenting the current knowledge in all its possible facets, will be able to counteract these deficits and fill a market niche," editor Gregor Wenning emphasises. Apart from a specialist readership, the textbook will also hopefully help sufferers and caretakers. The head of the division for Neurobiology at the Innsbruck University Hospital for Neurology, his team of twenty, and international

partners have been researching MSA for two decades. In 2014, Wenning's outstanding expertise in this field was honoured with the Belgian JP Schoupe Award. The highly renowned New England Journal of Medicine (NEJM) also accorded recognition by publishing two scientific research letters written by Gregor Wenning and his European MSA Study Group (EMSA), and inviting the scientist for a review. ■



VASCage kick-off meeting (from left to right): Stefan Kiechl, Patrizia Zoller-Frischauf (Tyrolean Economy Minister), Rector Helga Fritsch, Johann Willeit, and Bernhard Tilg (Tyrolean Health Minister).

market soon. The project is sponsored by the Austrian Research Promotion Agency (FFG) with funds from the Ministry of Transport, Innovation and Technology (BMVIT), the Ministry of Science, Research and Economy (BMW-FW), the Vienna Business Agency, and the Standortagentur Tirol - Agency for Innovation and Technology. ■

Preventing heart attack and stroke

Researchers in Innsbruck have gained new insights into the mechanism of acetylsalicylic acid and function of cholesterol metabolism. Their results are paving the way for innovative therapies for the prevention of cardiovascular disease.

It is a well-known fact that lowering plasma LDL cholesterol, also called bad cholesterol, with a simultaneous increase in HDL cholesterol critically contributes to the prevention of secondary diseases of atherosclerosis, such as heart attack or stroke. Ivan Tancevski and his team of researchers at the University Hospital for Internal Medicine VI discovered that the enzyme 5-lipoxygenase plays a crucial role, explaining how omega-6 fatty acids have a positive influence on cholesterol metabolism.

The research findings have been published in the prestigious professional journal Cell Metabolism and also provide new insights into the acting mechanisms of acetylsalicylic acid, the active agent e.g. in Aspirin. The scientists in Innsbruck were able to prove that acetylsalicylic acid stimulates the functionality of HDL particles in so-called good chole-



Paving the way for therapies for cardiovascular disease: study authors Ivan Tancevski (left) and Günter Weiss.

sterol by inducing the generation of lipoxins and leukotrienes in liver cells. Surplus cholesterol is thus transported back to the intestine via the liver, and excreted. "Our findings may help the development of new therapies to treat cardiovascular disease," says Günter Weiss, Director of the Innsbruck University Hospital for Internal Medicine VI. Numerous research projects are currently following up the results. ■

Kick-off for excellent KLIF projects

In 2014, four of the five clinical research projects approved by the Austrian Research Fund (FWF) in 2013 were successfully launched.

The third KLIF (clinical research) call of the Austrian Research Fund in 2013 resulted in a very positive outcome for the Medical University of Innsbruck. Five out of the 15 research projects

submitted by the Medical University of Innsbruck scientists were approved. The nation-wide funding for excellent projects in the field of clinical research amounts to 2.7 million euros.

APPROVED
RESEARCH
PROJECTS:

CARDIAC MAGNETIC RESONANCE SPECTROSCOPY WITH PARKINSON'S DISEASE

Project leader: Gregor K. Wenning (University Hospital for Neurology)

Project timescale: 1 Sept. 2014 to 30 Nov. 2016
The project aims to collect, with the help of cardiac magnetic response spectroscopy, disease-specific profiles in patients suffering from Parkinson's disease or multiple system atrophy, as well as healthy test persons, and to compare these with the current gold standard (MIBG scan).

CELLULAR MICROPARTICLES AS NEW BIOMARKERS FOR DELAYED CEREBRAL ISCHEMIA AFTER ANEURYSMAL SUBARACHNOID BLEEDING

Study leader: Ronny Beer (University Hospital for Neurology)

Study timescale: 1 Apr. 2014 to 31 Mar. 2017
A prospective observation study involving at least 70 patients suffering from spontaneous subarachnoid bleeding and 32 control subjects examines the hypothesis that cellular microparticles could be a reliable indicator of delayed cerebral ischemia.

EMOTIONAL INTELLIGENCE WITH SCHIZOPHRENIA AND BIPOLAR DISORDER (PAGE 8)

Study leader: Alex Hofer (University Hospital for Biological Psychiatry)

Project timescale: 1 Dec. 2013 to 30 Nov. 2016
With the help of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), an instrument

that focuses on the ascertainment of emotional components of social cognition, the project aims to examine and compare the Emotional Intelligence of patients suffering from schizophrenic or bipolar affective disorders, their siblings, and healthy control subjects.

LONG-TERM EFFECTS OF WEIGHT LOSS ON ATHEROSCLEROSIS

Study leader: Christoph Ebenbichler (University Hospital for Internal Medicine I)

Project timescale: 28 Mar. 2014 to 27 Mar. 2016
The project examines the long-term effects after bariatric or metabolic surgery. The goal is to carry out a ten-year long-term observation with 250 patients and to recruit a control group. Besides the expected results in relation to the main target parameter atherosclerosis, the project also aims to examine the medical conditions of around 250 patients as well as control persons.

CARDIOPULMONARY FUNCTION AFTER OPERATION OF CHEST DEFORMITIES

Project leader: Barbara Del Frari (University Hospital for Plastic, Reconstructive and Aesthetic Surgery)

Project timescale: 1 Jan. 2014 to 31 Dec. 2016
The objective of this prospective study is to evaluate whether pectus excavatum (PE) and carinatum (PC) patients show a cardiopulmonary impairment before undergoing an operation and whether the cardiopulmonary function improves or deteriorates after the surgical correction.



Study authors Klaus Seppi and Christoph Müller from the University Hospital for Neurology.

High-Field MRI in neurodegenerative parkinsonism

A team of researchers examined the diagnostic value of 3.0 Tesla (T) brain magnetic resonance imaging (MRI) in the differential diagnosis of neurodegenerative parkinsonism.

The clinical differential diagnosis of neurodegenerative parkinsonism such as Parkinson's disease (PD), multiple system atrophy (MSA), and progressive supranuclear palsy (PSP) remains a real challenge, even for experts in the field of movement disorders. For over 15 years, research groups led by Klaus Seppi (Department of Neurology) and Michael Schocke (Department of Radiology) have been dealing with the identification of new diagnostic markers using different imaging techniques. Brain MRI at 1.5T has been revealed as a useful tool in the diagnostic work-up of parkinsonism. Although high-field MRI at 3.0T has increasingly been incorporated into the clinical setting and is experiencing more widespread use following its approval, there is a lack of studies on the use of high-field MRI in the discrimination of neurodegenerative parkinsonian disorders. The three-year pilot study "Brain Magnetic Imaging at 3.0 Tesla in neurodegenerative parkinsonism" coordinated by Klaus Seppi and Christoph Müller at the Department of Neurology (Director: Werner Poewe), and carried out in cooperation with the Neuroimaging Research Core Facility (Elke Gizewski), set out to assess the diagnostic value of detecting structural changes in basal ganglia and

infratentorial structures using routine MR sequences at 1.5 and 3.0T. One of the main findings is that visual assessment of atrophy patterns using routine MR-sequences at 1.5T and 3.0T reveals a similar diagnostic accuracy in the differentiation of neurodegenerative parkinsonian disorders.

New marker identified

Interestingly, the assessment of the substantia nigra – a specific region in the brainstem responsible for the development of parkinsonian symptoms due to neurodegeneration – using high-field MRI has shown an absence of a dorsolateral hyperintensity in the majority of patients with neurodegenerative parkinsonism compared to healthy controls, where the presence of this signal is a normal finding. "The absence of the dorsolateral nigral hyperintensity seems to be sensitive to the presence of neurodegenerative parkinsonism as compared to healthy controls," says Klaus Seppi. Future studies are warranted to identify whether this new imaging tool provides a robust diagnostic marker in the clinical workup of patients with uncertain movement disorders, in which there is initial diagnostic uncertainty between degenerative parkinsonism and other disorders. ■

Specific modulators decoded

The targeted regeneration of neurons is the subject of intensive research. In 2014, a research group at the Department of Physiology succeeded in explaining the role of a protein which could be of particular significance.

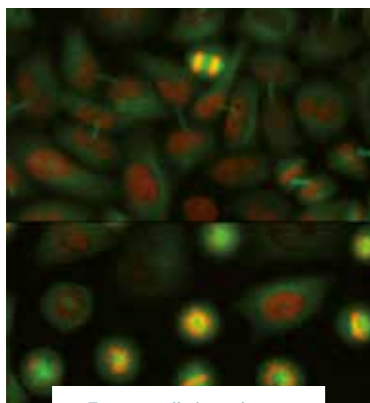
The glycoprotein gp130 is a receptor protein that transmits the signals of certain cytokines to target cells and takes on important functions within the immune system. It has been known for quite some time that some cytokines absorbing gp130, e.g. interleukin-6 or the growth factor CNTF, are crucial for the survival and the growth of nerve fibres in the gestation period. In adults, cytokines that activate the gp130 receptor are produced and released by the neurons themselves, but also by immune cells. A research paper, published in 2014 by Michaela Kress, Georg Dechant, Christine Bandtlow, and Serena Quarta, used models to take a closer look at the gp130 receptors.

Important gp130 receptor

One of the many things the results of the study showed is that gp130 receptors are important for the regeneration of peripheral nerves after injuries. Moreover, the scientists found that the gp130 receptor in this case cooperates with protein messengers that stimulate nerve growth. These so-called neurotrophins are no longer able to stimulate nerve regeneration if the gp130 receptor is genetically switched off in the nerve cells. "What is interesting here is that there must be an interface between the pathway of neurotrophins and the pathway of cytokines. Obviously, the neurotrophins can only work if the JAK/STAT signal is activated e.g. through cytokines," says study coordinator Michaela Kress. These findings could contribute to the development of new treatment options for nerve lesions. ■

Tri-national cancer research (D-A-CH)

In 2014, a three-year tri-national research project involving scientists from Innsbruck was launched focusing on a group of signal molecules causing cell death. A better understanding of their function may contribute to the development of innovative therapies for cancer and autoimmune diseases.



Tumour cells in various stages of cell division: untreated (above), cell death after Taxol treatment (below).

Cell death by apoptosis may prevent the emergence of tumours, which is why the triggering of this “suicide

programme” is part of the strategy of cancer therapies. Apoptosis is also of great significance for the development and function of the immune system. The researchers at the Developmental Immunology Division are interested in the members of the B-cell lymphoma 2 family which regulate apoptotic cell death. “This is a group of signal molecules with opposing characteristics. Depending on which family members dominate, cell death, or apoptosis, is either triggered or prevented,” Head Andreas Villunger explains.

Optimising treatment strategies

The highly experienced scientist and his project group are involved in the D-A-CH project “New insights into the Bcl-2 family interactions: From biophysics to function” (the acronym D-A-CH,

which spells the German word for “roof,” refers to the three countries involved, i.e. Germany, Austria, and Switzerland). The findings will hopefully either lead to the development of new treatment strategies or the improvement of already existing ones, as BCL2-inhibitors are currently tested in clinical studies. The research project, supported by the German Research Foundation (DFG), the Austrian Science Fund (FWF), and the Swiss National Science Foundation (SNSF), is funded with three million euros for the first three years. First findings of the research group were recently published in the scientific journal *Nature Communications*.

For further information go to <https://dx.doi.org/10.1038/ncomms7891>

Hope for a particular form of leukaemia

A new research project harbours potential for the treatment of myeloproliferative neoplasia, a particular form of leukaemia. The findings from Innsbruck were published in the journal *Nature Communications* and are already being applied internationally in cancer treatment.

The transmission of signals in cells plays a crucial role in tumour development and the process of immune response. The decisive factor here is the so-called LAMTOR complex, which controls the two signalling pathways MAPK and mTOR. A research team headed by Lukas A. Huber, Head of the Cell Biology Division at the Biocenter Innsbruck, and supported by the research laboratory of Nikolaus Romani and Patrizia Stoitzner of the University Hospital for Dermatology and Venereology as well as the Austrian Drug Screening Institute (ADSI), has revealed new, surprising findings: The blocking of one of the two signalling pathways could help improve the treatment of myeloproliferative neoplasia, a form of leukaemia.

New application for established drug

The researchers found that the blocking of LAMTOR2 caused a sort of leukaemia in an animal model, namely a so-called myeloproliferative syndrome, even though the MAPK signalling pathway (usually hyperactive in the development of cancer) was blocked. Through the blocking of LAMTOR2, totally unexpectedly, the other cancer signalling pathway mTOR was not inhibited but rather extremely stimulated. The team then succeeded in exploring the correlations and subsequently healing the animal by using the immunosuppressor rapamycin against mTOR along with the drug AC220, used in clinical practice with other forms of leukaemia. The research project, published in the highly respected

journal *Nature Communications*, could form the basis of new treatment options using tried-and-tested drugs in the case of certain patients suffering from myeloproliferative neoplasia, to the effect of a personalised cancer therapy.



Successful cooperation (from left to right): front row: Nikolaus Romani, Alexandra Humenberger, Lukas Huber; back row: Johanna Blitz, Julia Scheffler, Patrizia Stoitzner.

Cause of rare disease explained

Hope for a cure of a hitherto non-treatable hereditary disease comes from a research project conducted at the Biocenter of the Medical University of Innsbruck.

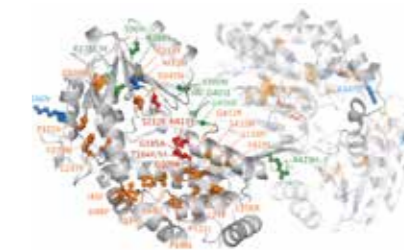
Sjögren-Larsson syndrome (SLS) is a rare disease caused by a disruption of the fat metabolism, namely when the activity of the enzyme fatty aldehyde dehydrogenase (FALDH) is suppressed due to genetic changes. Findings at the Biological Chemistry Division of the Biocenter at the Medical University of Innsbruck, which were published in the journal *Nature Communications*, have shed new light on the functioning of the disease-specific FALDH enzyme involved in fat metabolism.

Basis for new therapy

“Thanks to mutational studies, we were able to show that in the case of the Sjögren-Larsson syndrome an important

gatekeeping function may be disrupted. FALDH has a surprising structural characteristic, namely an additional part that covers up the entrance to the enzyme’s interior. This part of FALDH functions like a gatekeeper. It decides who may or may not enter, and it prefers long-chain fatty aldehydes,” says Markus A. Keller from the team led by Ernst Werner (Biocenter Innsbruck). Further research shall attempt to clarify the structural basis of the effect of FALDH stabilisers and to develop causal therapies. The research project was carried out in cooperation with colleagues from the University of Innsbruck, the European Molecular Biology Laboratory in Grenoble, and the University of Cambridge.

Rare disease SLS explained: the structure of the FALDH enzyme reveals where amino acid exchanges caused by mutations take place.



For further information go to <https://dx.doi.org/10.1038/ncomms5439>

The role of the immune regulator Cbl-b in tumor resistance

New findings on the relevance of the Cbl-b E3 ubiquitin ligase in cancer immune defence and their clinical-pharmacological application are giving cancer immunotherapy new impulses.



The challenge of engineering host protective cancer immunity: Gottfried Baier and his team made progress towards cancer immunotherapy in 2014.

The biggest challenge in the course of cancer therapy today is metastasis. A research group in Innsbruck, headed by Gottfried Baier, found that the E3 ubiquitin protein ligase Cbl-b

plays a key role in the inhibition of the anti-metastasising function of immune cells. In the course of an international study, whose findings were published in the journal *Nature*, researchers moreover identified further important players along the Cbl-b signalling pathway: the TAM receptor tyrosine kinases TYRO3, AXL, and MER. The selective pharmacological inhibition of Cbl-b response of these TAM receptors could help strengthen the immune system’s response to metastasising cancer. In animal models, by way of inhibiting the Cbl-b/TAM signalling pathway, it has already been shown that immune cells reject the primary tumour as well as its metastases efficiently and on their own.

Potential for cancer immunotherapy

Now scientists taking part in the interdisciplinary programme BRIDGE, initiated by the Austrian Research Promotion Agency (FFG), are developing a small molecule drug that should selectively enable the immune system in patients to ward off tumours. In the process, working closely with the SME partner Apeiron Biologics in Vienna, they aim to synergise basic research findings from the fields of immunology and pharmacology as well as clinical experience. Gottfried Baier, as project coordinator, assures optimal coherence and cooperation in this innovative translational research effort.

Uncovered: antilipemics inhibit bacterial sepsis

Examinations of the research laboratory for infectiology and immunology at the University Hospital for Internal Medicine VI in 2014 verified a totally new link: fibrates also have a therapeutic effect on bacterial sepsis, a life-threatening infection.

Bacterial sepsis – an organism's complex, excessive inflammatory response to an infection – goes hand in hand with a high mortality rate. New therapies for the control of infections are therefore urgently needed. In Innsbruck, a research group led by Günter Weiss made a big step closer toward this goal in 2014. Ivan Tancevski and his colleagues of the Research Laboratory for Infectiology and Immunology at the University Hospital for Internal Medicine VI found that fibrates have the ability to improve the outcome in cases of bacterial sepsis.

Promising therapy option

The scientists succeeded in proving that the administration of fibrates has

a positive effect on the immigration of neutrophil granulocytes – specialised immune cells that are capable of absorbing bacteria and eliminating them – at the site of an infection and that, through the quick removal of the bacteria, an excessive systemic inflammatory response can be suppressed. "Our findings shed light on a new function of fibrates in innate immunity and in the host defence against infections, so that fibrates could prove to be promising supplementary therapy in an early or even a later stage of bacterial sepsis," Günter Weiss and Ivan Tancevski point out. The research findings were published in the journal *EMBO Molecular Medicine* and were awarded the "Österreichischer Infektionsspreis" (Austrian Infection Prize).



On the trail of bacterial sepsis (from left to right): Ivan Tancevski, Günter Weiss, Andrea Schroll, Kristina Auer, Manfred Nairz, Egon Demetz, and Christina Heim.

Study from Innsbruck on Langerhans cells makes the cover

The results of an innovative study carried out at the University Hospital for Dermatology and Venereology and the Biocenter Innsbruck were published in the prestigious journal *Blood* and commented on in an article entitled "Inside Blood." A photograph of a Langerhans cell by lead author Florian Sparber made the cover.

The role played by dendritic cells has long been a focus of research at the University Hospital for Dermatology and Venereology. Important findings, especially on the highly specialised Langerhans cells, are owed to the work of Patrizia Stoitzner and Nikolaus Romani. In a joint project with a team led by Lukas Huber from the Biocenter Innsbruck, new insights into the homeostasis of Langerhans cells were published last year in the journal *Blood*. The study aimed for a better understanding of the regulation of the life cycle and function of epidermal Langerhans cells.

"Ultimately, it is conceivable that the findings will contribute to a therapeutic use of Langerhans cells. This could be significant in reference to immunological tumour therapies, although further research will be needed in this direction. Nevertheless, the indications in literature and from our own work are growing stronger that Langerhans cells are especially suited for stimulating cytotoxic T lymphocytes and that they constitute a promising path towards immunisation via the skin," says Nikolaus Romani concerning the results of his study.

Valuable synergies

This project merges findings from cytological research on signal transmission in cells, carried out at the Biocenter, with the immunological-dermatological expertise of the University Hospital. Thus, it could be proven some years ago that the absence of LAMTOR2 leads to disorder in cells. Important agents in the transmission of signals are thus no longer in the right place at the right time, which results in a complex disruption of the immune system. And this, as has been shown by the project, can even lead to the loss of an entire cell population.

Science Day

The first Science Day at the Medical University of Innsbruck took place in November 2014. It puts the spotlight on young talents.

The first Science Day was held at the Medical University of Innsbruck on 27 November 2014. On this occasion the university officially celebrated its postdoctoral fellows. "Science Day is more than an academic celebration, it is



Science Day gives postdoctoral fellows centre stage.

an initiation and welcoming ceremony," Rector Helga Fritsch said, addressing the new postdoctoral fellows. Since the foundation of the Medical University of Innsbruck, exactly 329 women and men have submitted their habilitation

thesis. The university currently employs 324 postdoctoral fellows. This "permission to lecture" (*venia legendi*) has been granted since the Middle Ages. In future, Science Day is to be an annual feature.

Liechtenstein Award presented

Three scientists from Innsbruck received the Liechtenstein Award for Scientific Research in Vaduz.

Each of the three winners received prize money of 2,500 euros. Eleonora Ottina from the Medical University of Innsbruck earned the award for her research paper "Targeting antiapoptotic A1/Bfl-1 by in vivo RNAi reveals multiple roles in leukocyte development in mice." The antiapoptotic, i.e. cell-death-preventing protein A1 (also known as Bfl-1) is important for the development and

survival of immune cells. In her decorated paper, Ottina came to this conclusion, which is of great relevance for the therapy of certain autoimmune diseases and leukaemia.

The other two recipients, both from the University of Innsbruck, were law student Simon Laimer, and Steffen Zimmermann for his work on "IT Sourcing Portfolio Management."

Highly deserved recognition: the winners with Rector Helga Fritsch, Rector Tilmann Märk, and Minister Aurelia Frick.



Outstanding young talents: the award winners with Executive Director Sabine Radl and Rector Helga Fritsch.



Sanofi Award for junior scientists

The Sanofi Award, bestowed since 1964, aims to motivate young scientists on their way to further research activities.

On 18 September 2014, on its 50th anniversary, the Sanofi Foundation presented its award for 2014 at the Vienna Stock Exchange in the course of a festive ceremony. The award went to Anamika Dayal (Biochemical Pharmacology Division), Judith Hagenbuchner (University Hospital for Paediatrics II), and Florian Sparber (University

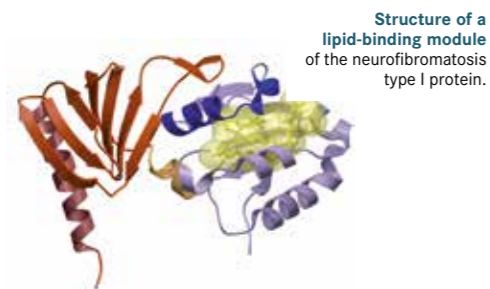
Hospital for Dermatology and Venereology), three junior researchers at the Medical University of Innsbruck. Since 1964, the Medical Universities of Graz, Innsbruck, and Vienna (and from 2010 on, Salzburg) have received substantial contributions from the Sanofi Foundation as a reward for outstanding research.

Forensics in Innsbruck lead the field

New methods of DNA sequencing could revolutionise forensics. In 2014, know-how from Innsbruck was passed on both during the Summer School and the 34th “Spurenworkshop.”

The Institute of Legal Medicine (Director: Richard Scheithauer) at the Medical University of Innsbruck is one of the principal partners in the validation of the results on a new method of genome sequencing by way of the Personal Genome Machine (PGM). In July 2014, Walther Parson and his team presented their knowledge to international experts on the occasion of the well-attended Summer School for the first time.

Earlier still, in February, the Institute of Forensic Medicine hosted an international symposium. During the 34th “Spurenworkshop” (lit. traces workshop), welcoming some 400 participants, the results of the 46th and 47th GEDNAP lecture series were discussed. GEDNAP proficiency tests are the most widely recognised test instruments for quality control of forensic DNA laboratories in Europe. ■



Structure of a lipid-binding module of the neurofibromatosis type 1 protein.

Crystallography Symposium in Innsbruck

At the beginning of the 20th century, crystallography revolutionised medicine. A congress highlighted this highly rated science.

Crystallography enables us to examine structures on a molecular and atomic level in detail. The birth of modern crystallography was exactly one hundred years ago, when it was discovered that solid bodies could be explored without being destroyed, with the help of X-rays. The discipline of crystallography has been awarded no less than 29 Nobel Prizes so far. It is applied in the field of molecular biology, for example, in order to better understand the structure and texture of substances and their possible effects. In 2014, the International Year of Crystallography, the IYCr2014 Symposium took place at the Biocenter Innsbruck (Center for Chemistry and Biomedicine). The main focus of the event, which welcomed internationally renowned speakers, was on structural biology. ■

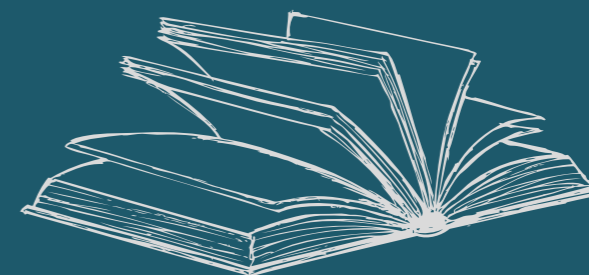
Research from Innsbruck on JCB cover

Scientists from the Medical University of Innsbruck are shedding light on the process of metastasis.



Endosomes with the LAMTOR complex (green), adhesive tendrils (red), and cytoskeleton (blue) on the JCB cover.

According to the latest findings of researchers at the Medical University of Innsbruck, the interaction between endosomes – intracellular transport vehicles – and the protein complex p14-MP1 plays a crucial role in cell migration and thus in metastasis. The team, led by Lukas Huber from the Biocenter Innsbruck, took a closer look at this process through live-cell observations with special microscopes and biochemical examinations. The findings could ultimately help improve therapy outcomes in cases of metastasising forms of cancer. In 2014, they were published in The Journal of Cell Biology, which dedicated both cover and editorial to the subject. ■



TEACHING

Prospective physicians and medical researchers can find excellent training facilities of international standards in the Tyrolean capital. The wide spectrum of options includes diplomas in Human and Dental Medicine, the new Bachelor and Master studies in Molecular Medicine, nine PhD programmes, an in-house Clinical PhD course, and numerous professional training opportunities.

An overview of the 2014 highlights from the field of training and studies at the Medical University of Innsbruck is provided in the following chapter.

KPJ – practical training for the physicians of tomorrow

In the course of their studies in Human Medicine, the students undergo a clinical elective (“Klinisch-Praktisches Jahr,” KPJ), which focuses on clinical training. New training departments and teaching hospitals were accredited in 2014.



Putting knowledge into practice is what the KPJ aims for.

Students can do their KPJ at the Provincial Hospital and University Hospitals in Innsbruck, one of the accredited training departments, the teaching hospitals of the Medical University of Innsbruck, as well as at other hospitals in Austria and Germany, a cantonal hospital in Switzerland, or at a university hospital anywhere else in the world. The objective is to make students acquainted with disease-related, diagnostic and therapeutic procedures, as well as to provide them with experience in patient care and patient management – from admission to discharge.

130 training departments in Austria

In order to provide sufficient opportunities for students to do their KPJ, new training departments and teaching hospitals have been accredited for the Medical University of Innsbruck. In

2014, 27 departments at 13 hospitals were added. This means that by the end of the year, 130 training facilities at 27 hospitals in Austria will have signed co-operation agreements to give students the opportunity to do their elective. In addition, there are agreements with seven training facilities at three South Tyrolean hospitals and one training facility at a hospital in Germany.

KPJ pilot scheme in rural areas

A special focus of the clinical elective is on general medicine. Due to an impending shortage of doctors, especially in rural areas, the pilot scheme “KPJ am Land” (KPJ in rural areas) was initiated in cooperation with the Tyrolean Association of Local Authorities as early as 2012. As a consequence, students interested in the KPJ are able, in the context of a special “General Medicine” track, to

spend eight weeks at a geographically remote GP practice where they can learn that the role of country GPs is a “caring” one. “Students should experience how important a doctor in a rural area is, without the back-up of a local hospital: not just as someone providing treatment, but also as confidant number one, acting on behalf of their patients,” explains Peter Loidl, Vice Rector for Teaching and Study-Related Affairs at the Medical University of Innsbruck.

The project was extended in 2014; in the county of Reutte, students are now able to complete a combination of four weeks of the compulsory module “General Medicine” with a general practitioner and four weeks of the Elective Subject II of “General Medicine and Integrated Primary Care” at the outpatient department for Internal Medicine at Reutte County Hospital. ■



Gender-specific medicine

Having come into being only a year ago, the professorship of Gender Medicine may still be in its infancy. Yet even in this short time, much has already been achieved.

In 2007, the Medical University of Innsbruck included the subject of Gender Medicine as a compulsory subject in its curriculum, and in 2014 it was given its own professorship. Since then, the chair has been held by Margarethe Hochleitner, an internationally respected expert in the field. In the first year, Hochleitner succeeded in integrating Gender Medicine into the new Master course in Molecular Medicine. “For this purpose, a new module had to be developed that is focused not so much on pure knowledge transfer, but rather is meant to equip students with tools, guidelines, checklists in order to build Gender Medicine, and gender aspects in general into their scientific work and their projects,” Hochleitner explains. Besides the passing on of knowledge, a particular emphasis is to give participants an understanding of gender medicine and gender mainstreaming – especially in the Master course in Molecular Medicine, the Clinical PhD, and in Standardisation, Orientation and Specialisation (S.O.S.) in teaching. “To do just that, we are currently develop-

ing guidelines to prepare our students and young scientists for the increasing demand for these subjects,” says Hochleitner.

Increasing consciousness

Since the winter semester of 2006/07, the Medical University of Innsbruck has offered the lecture series on Gender Medicine either as an elective course for medical students and students of the University of Innsbruck or as a training

“Awareness is one of the most important aspects of gender medicine.”

MARGARETHE HOCHLEITNER

programme accredited by the Austrian Academy of Physicians, also open to the general public. In the summer semester of 2014, clinicians and research scientists spoke on the subject of oncology, in the winter semester of 2014/15

on the subject of neuroscience from the perspective of gender medicine. “Awareness is one of the most important aspects of Gender Medicine,” says Hochleitner, “which is why a large audience from all walks of life is desirable.” Gender Medicine proves very popular with students. With around 300 enrolled, it is the most popular elective course at the Medical University of Innsbruck.

Innsbruck as an example

The Innsbruck model – the inclusion of Gender Medicine in the compulsory curriculum of Human, Dental and Molecular Medicine, the Clinical PhD course, as well as the preparation course for prospective fellows – was presented last year at numerous international congresses. A special honour was an invitation to Brussels, where Margarethe Hochleitner submitted the Innsbruck example as a best practice model in the context of the EU-project EUGenMed. “Due to this, our model will also be the basis for future recommendations,” says Hochleitner, pleased with the outcome. ■

Scientific preparation

The Human Brain Project School (HBP) in Alpbach prepared neuroscientists for a big task.

The HBP is an EU flagship project, funded with 1.9 billion euros, and involves research institutions throughout Europe and around the world. Its objective is to recreate the human brain on supercomputers in order to arrive at a new understanding of the organ and its diseases. The first HBP school took place in Alpbach from 8 to 14 September 2014 to prepare young scientists for transdisciplinary work in the HBP. Around 30 students and junior scientists were given an insight into the project's core tasks. The event was organised by the HBP Education Team, which is led by Alois Saria from the Medical University of Innsbruck. ■



An Austrian premiere: the first graduates of the Bachelor course in Molecular Medicine.

Molecular Medicine: graduates

For the first time, the title of Bachelor in Molecular Medicine was bestowed at the Medical University of Innsbruck in 2014.

In 2011, the Bachelor course in Molecular Medicine was introduced, exclusively in Austria, at the Medical University of Innsbruck, and thirteen students were the first to successfully conclude it at an Austrian university in the autumn of 2014. The goal of molecular medicine is the uncovering of molecular foundations of health and illness. During the course,

therefore, it is not only medical knowledge as such that takes centre stage, what also matters is the acquisition of insights in life sciences like molecular biology, genomics, or bioinformatics. Molecular physicians are sought-after specialists whose professional future at universities, labs, and pharmaceutical firms takes place. ■

Open Labs Days Molecular Medicine

Open Labs Days Molecular Medicine took place for the second time in 2014. For two days, some 200 students from Tyrolean schools visited the labs of the Biocenter of the Medical University of Innsbruck.

At the labs, they not only watched experiments with bacteria, fungi, cells, and DNA; the programme also included selected subject areas such as “molecular forensics in legal medicine,” “the threats and benefits of microorganisms,” or “cancer causes and cures.” This event is an excellent opportunity for prospective students to get informed about on the Bachelor course in Molecular Medicine. Interest in this line of study is growing steadily, leading to great demand for information. This demand is satisfied by the Medical University of Innsbruck with events like the Open Labs Days. ■



An exciting glimpse through the microscope.



Top conditions for young scientists doing their research.

Talent pools for highly qualified junior academics

The province Tyrol received special recognition as a life science location in 2014.

In November 2014, the Austrian Science Fund (FWF) decided to extend the special research area “Cellular signaling pathways in chronic diseases of the central nervous system” (SFB-F44, coordinated by Jörg Striessnig, University of Innsbruck) by another four years. Similarly, after the third positive evaluation, it was decided to support the doctoral college in “Molecular cell biology and oncology” (MCBO, spokesperson: Bernhard Flucher, Medical University of Innsbruck) for another three years. Together, both excellence programmes receive overall funding in the amount of seven million euros and substantial extra funding from both the Innsbruck universities and the Province of Tyrol.

SFB-F44: Nine research groups cooperating
Four years ago, seven scientists from the two

Innsbruck universities, as well as one working group each from the Paracelsus Medical University Salzburg and the University of Ulm, joined forces and formed the research network “Cellular signaling pathways in chronic diseases of the central nervous system.” They aim to explore the molecular development mechanisms that potentially lead to neurodegenerative diseases such as Morbus Parkinson, Alzheimer's, and anxiety disorders.

MCBO: Training in a biomedical key subject
The MCBO doctoral college was installed ten years ago as the first of now three FWF-funded graduate colleges at the Medical University of Innsbruck. Its main focus is on mechanisms of cellular signal transduction and the molecular relationships potentially leading to cancer. ■

HOROS successfully launched

Seven highly qualified PhD students took up their research training at the new doctoral college HOROS (Host Response in Opportunistic Infections) in 2014.

HOROS (Host Response in Opportunistic Infections) was set up at the Medical University of Innsbruck in early March 2014. The multidisciplinary doctoral programme, in accordance with the criteria of academic excellence, builds on an existing research focus on infectiology and immunology and forms a translational bridge between research and clinical application. Over thirty candidates responded to the international

call in spring 2014, twelve of them were then invited to a hearing, and seven lucky ones were granted a training position in the end. The PhD students can look forward to an interactive and practice-oriented training curriculum, research stays abroad, and the HOROS Annual Retreat. The doctoral programme is funded with 2.2 million euros (1.8 million provided by the FWF) over four years. ■

Basic research and clinical application are given equal attention in HOROS.



**DOCTORAL PROGRAMMES
CURRENTLY OFFERED AT THE MEDICAL
UNIVERSITY OF INNSBRUCK:**

- Neuroscience
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- Molecular Oncology
-
- Genetics and Genomics
-
- Molecular Cell Biology
-
- Musculoskeletal Sciences
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- Infectious diseases: molecular mechanisms
-
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- The Aging of Biological Communication Systems
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For further information go to:
https://www.i-med.ac.at/clinical_phd/



HEALING

High-quality patient care is one of the three core tasks of the Medical University of Innsbruck and is accomplished in cooperation with the Tiroler Landeskrankenanstalten (Tyrolean Provincial Hospital, TILAK). The continuous improvement of first-class medicine is the top priority. For this reason, a number of measures were undertaken in 2014, such as the foundation of an Excellence Center or the organisation of international congresses.

The highlights of 2014 from the field of patient care are the subject of the following chapter.



United we stand: physicians from various specialist fields cooperate for the benefit of patients with rare diseases.

For more openness in Child and Adolescent Psychiatry

Since November 2013, Kathrin Sevecke is Head of the new University Hospital for Child and Adolescent Psychiatry. Important measures have already been implemented.

A centre for the “orphans” of medicine

In November 2014, a Center for Rare Diseases was formally established with the aim to connect and pool expert know-how. This network is a further step towards the advancement of interdisciplinary research and patient care.

Around six to eight per cent of the Austrian population is affected by a so-called rare disease, which amounts to some 400,000 people. It may well be the case that one of these diseases comes up only once in the country. Due to the rarity of the conditions, diagnosis and the development of treatment methods often prove a real challenge. This is why interdisciplinary cooperation is particularly important: “Rare diseases frequently affect several specialist areas and the patients often require special therapies,” explains Johannes Zschocke, Director of the Human Genetics Division at the Medical University of Innsbruck. A network of specialist physicians is needed in order to link expertise from different specialist fields and to safeguard optimal management for those affected. As the diseases are often hard to categorise, they are also sometimes referred to as the “orphans” of medicine.

Important hub

The activities of the new centre include a regular exchange of knowledge, further training courses, as well as an improvement in the provision of care for patients with multi-organ problems. The network in Innsbruck came about thanks to the initiative of several experts, mainly from the fields of human genetics, paediatrics (Daniela Karall, Gerhard Gaedicke) and dermatology (Matthias Schmuth), who also are among the founding members of a charity called “Forum Seltene Krankheiten” (Forum for Rare Diseases). The new

centre is part of a national and European development programme for centres for rare diseases.

Largest medical congress in Tyrol

The Innsbruck University Hospitals are an important centre for the treatment and research of rare diseases. The genetic causes of numerous diseases, such as the Smith-Lemli-Opitz syndrome or the Kohlschütter-Tönz syndrome, were

“Rare diseases frequently affect several specialist fields and the patients often require special therapies.”

JOHANNES ZSCHOCKE

discovered in Tyrol. And in September 2014, the largest annual international congress on inherited metabolic diseases – which make up a significant proportion of the rare diseases – took place in Innsbruck. More than 2,000 participants attended the annual Symposium of the Society for the Study of Inborn Errors of Metabolism (SSIEM). “The largest medical congress in Tyrol in the year 2014 was a tremendous success for our medical society and for Innsbruck itself,” says Johannes Zschocke. ■

Concerning human resources, Sevecke, an expert in child and adolescent psychiatry, has succeeded in staffing additional positions. As a consequence, the service spectrum at the hospital has been extended in numerous fields. Thus, for example, the preliminary work for a new specialised walk-in clinic for autistic disorders was completed in cooperation with the Department for Neuropaediatrics. Moreover, the number of specialist surgeries was increased. “I want a state-of-the-art, multimodal treatment for children and adolescents with psychological problems including both medical treatment according to the latest scientific standards and psychotherapy, as well as

“The objective of such projects, like the one with the Higher Technical Institute, is to make a contribution to the destigmatisation of people with psychological problems.”

KATHRIN SEVECKE

additive specialised therapies, such as occupational, sport, or art therapies,” Sevecke explains.

Furthermore, the facilities at the hospital were adapted so that children and adolescents can feel comfortable there. The patient rooms, for example, were furnished age-appropriately. Walls were painted in bright colours. Thanks to

Toys and things for young patients: Kathrin Sevecke has made a very successful start.



pictures created by art therapy patients, the stairwell has become a very popular eye catcher. In addition, students from the Higher Technical Institute in Innsbruck (HTL) participated in a project. The works emerging from this cooperation will serve to further embellish the staircases leading to the University Hospital for Child and Adolescent Psychiatry. “The objective of such projects, like the one with the Higher Technical Institute, is to make a contribution to the destigmatisation of people with psychological problems,” says Kathrin Sevecke. Another significant step was the foundation of a charity for the promotion of child and adolescent psychiatry in Tyrol.

Achievements in teaching and research

In the fields of teaching and research the subject of child and adolescent psychiatry has also been given a boost. Students now have the opportunity to take part in a new elective clinical-practical course in child and adolescent psychiatry or to undergo the KPJ (clinical

elective, see page 18) at the University Hospital for Child and Adolescent Psychiatry. “This is important in order to recruit young doctors and give them a chance to train towards becoming a consultant in child and adolescent psychiatry,” says Sevecke. One of the goals of the Director of the University Hospital is to optimise the training of prospective doctors. To guarantee first-class training and create transparency, she wrote a logbook for the residency in her specialist field.

Great emphasis is also put on the investigation of psychological diseases in children and adolescents. Six research projects were approved in 2014, dealing with eating disorders, personality development in adolescents, and cyber mobbing, among other things. In addition, several national and international research cooperation projects have been established. Since last year, Kathrin Sevecke also heads the Austrian working group for forensics, with the objective of initiating a further training curriculum in that field. ■



How shockwaves work is what Michael Graber, Elke Kirchmair, Michael Grimm, Johannes Holfeld, and Can Tepeköylü (from left to right) have been looking into.

A decade in the fight against tumours

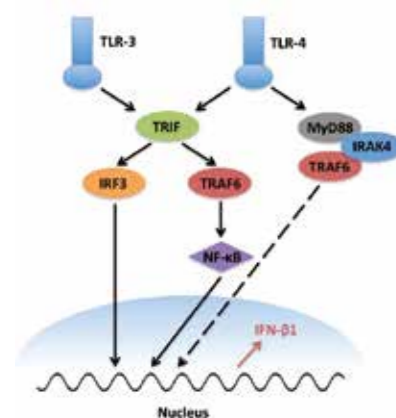
Since 2004, radioactivity is used for the benefit of patients at the Nuclear Medicine Therapy Ward of the Innsbruck University Hospitals.

Healing tumours from the inside is one of the goals of University Hospital Director Irene Virgolini and her team.



Effects of shockwaves explained

How shockwaves contribute to a better regeneration after heart attacks has been shown by a study carried out in Innsbruck. The findings pave the way for new therapeutic options.



Regeneration methods examined so far, like gene or stem cell therapy, were not able to achieve wide clinical application. This, has to do with the complexity of the methods and the side effect profile, among other things. Hope for new regeneration therapies now comes from a research project by Johannes Holfeld and his colleagues from the University Hospital for Cardiac Surgery (Director: Michael Grimm). In 2014, the research team succeeded in decoding the molecular mechanisms that are responsible for the regenerative effects of shockwaves.

Decorated research

Johannes Holfeld and his work group were able to prove that shockwaves activate a very specific receptor of the innate immune system, namely the toll-like receptor 3. "As soon as it is activated, all known effects of the shockwave therapy are stimulated via its signalling

pathways, among them especially angiogenesis and inflammatory modulation in the ischemic muscle," Holfeld explains. The study was presented in October 2014 at the annual congress of the European Society of Cardiology on acute cardiovascular care in Geneva. It was decorated on the spot with the Young Investigators Award.

Fundamental discovery

Shockwaves have been used in medicine for over thirty years in the destruction of renal stones. In the eighties it was discovered that shockwaves also stimulate regeneration. Nowadays, shockwaves are routinely used at low energies in the treatment of wound healing deficits, pseudoarthroses and diseases of the enthesis. The highly promising findings of Innsbruck's research lab now bring shockwave therapy for cardiac muscle regeneration one step closer to a routine clinical application. ■

As a service institute in the interdisciplinary fight against tumour diseases, the Nuclear Medicine Therapy Ward at the Innsbruck University Hospital for Nuclear Medicine reopened its doors in October 2004. Ever since, it has been headed by Irene Virgolini, who in the same year was appointed Head of the University Hospital for Nuclear Medicine as a whole. In October 2014, on the occasion of the ninth Tyrolean Nuclear Medicine Congress in Innsbruck, she was honoured for her commitment.

Healing with radiation

The primary endeavour of the hospital Director and her team, today and ten years ago, is the healing of tumours without surgical intervention. Indeed, there is a wide field of application for radioactive substances in the therapeutic domain. For one thing, tumour diseases are actively treated by way of targeted, precisely dosed radiation. But also when it comes to the detection of lesions, radioactivity is a valuable tool that is used in many imaging methods.

Finger on the pulse of time

Since its foundation ten years ago, the therapy ward has been successively extended and equipped with the latest technology. Therefore, for example, patients are now able to reap the benefits of a 68Ga-PSMA PET scan for the diagnosis of prostate cancer, first introduced

in 2014. This technology enables the specialists to detect even small lesions caused by the cancer as well as bone metastases.

Manifold applications

The wide spectrum of conventional nuclear medicine comprises all organs. In the past year alone, around 5,700

patients were examined. The walk-in thyroid clinic dealt with some 9,000 patients, carrying out around 14,500 treatments. Around 76,500 blood samples were analysed at the nuclear medicine lab. The PET center carried out some 4,000 PET/CT examinations. And finally, around 1,000 patients are admitted to the nuclear medicine ward every year. ■



Hot on the trail of RLS: the sleep lab at the University Hospital for Neurology carries out extensive research on the neurological disorder.

With this accolade from the American Willes-Ebkom Disease Foundation, the sleep lab joined the group of the most renowned establishments of its kind. It is the first international WED/RLS Quality Care Center alongside three well-known American university hospitals. In justification of this recognition, the Head of the Willis-Ebkom Disease Foundation, Karla Dzienkowski, pointed out that sufferers often have to overcome major hurdles in order to find sufficient specialised facilities that provide correct diagnoses and treatment.

Successful RLS research

The sleep lab at the University Hospital for Neurology, established in 1995, is one such facility and was recently updated further. It is one of the most modern facilities in Europe and specialises in the treatment of all sleep-related diseases. Birgit Högl, head of the sleep lab, and her team have been dealing with RLS from a clinical and scientific point of view for many years. "The award signifies tremendous appreciation for our entire team," says Högl. ■

Recognition for sleep lab

The sleep lab at the Innsbruck University Hospitals does world-class research, e.g. in relation to the restless legs syndrome (RLS). It was the first centre outside the United States to be certified as a Quality Care Center (QCC).

Happiness conference in Innsbruck

The subject of well-being in the context of health care was the focus of the 28th European Health Psychology Society conference in Innsbruck. From 26 to 30 August 2014, psychologists and other consultants discussed new findings.

Around 1,000 participants from no less than 61 countries attended the 28th European Health Psychology Society conference in Innsbruck. In the course of the event, whose guiding theme was "Beyond prevention and intervention: increasing well-being," experts presented the latest research findings and discussed new prevention strategies. However, it was not prevention and care as such that were the main focus, but physical, emotional, and social well-being. The consensus was that people should be supported in keeping up health-promoting behaviours even in difficult situations.

Eminent keynote speakers

Among the distinguished keynote speakers of the international conference were Ruut Veenhoven (Rotterdam, NL), Suzanne Skevington (Manchester, UK), Adrian H. Taylor (Plymouth, UK), and Karen Rook (California, US). The happiness researcher and social psychologist Ruut Veenhoven made a name for himself internationally, particularly through the foundation of the World Database of Happiness. Moreover, the now-retired professor is the editor of the Journal of Happiness Studies. Happiness, in the sense of a personal enjoyment of life, is Veenhoven's principal field of research. ■



International guests (from left to right) like Falko Sniehotta (Newcastle) and Christel Salewski (Hagen) took part in the conference organised by Stefan Höfer (Innsbruck). ■

New LINAC supports radiotherapy

With a fifth electron linear accelerator, short LINAC, Innsbruck now boasts one of the most modern facilities for tumour treatment in the world.



The world's most modern LINAC for the treatment of tumour patients.

Every fourth Tyrolean has to undergo radiotherapy in the course of his or her life – and demand is increasing. Therefore, facilities for radiological treatment are becoming increasingly important. With the installation of a fifth linear accelerator in January 2014, the Innsbruck University Hospital for Radiotherapy and Radiation Oncology (Director: Peter Lukas) has become the best-suited facility in Austria to satisfy this demand. Overall, some 3.6 million euros were invested in the purchase of the 16-ton apparatus and radiation protection measures. The new linear accelerator is not only a big help in the treatment of additional patients; it is also the most modern in Austria and one of the first of its kind in the world. The LINAC's dynamic radiation allows for more efficient treatment of complex tumours. Also, more precise radiation in shorter time helps protect the tissue surrounding the tumour. ■

A new home for Internal Medicine

In 2014, the new building for the University Hospital for Internal Medicine was opened. It provides space for modern treatment and research facilities, and should strengthen interdisciplinary cooperation.



View of the new east front: Construction is scheduled to be completed by 2017.

The southern part of the University Hospital for Internal Medicine, on the grounds of the Innsbruck Provincial University Hospitals, was erected between 1949 and 1953. As the buildings were no longer in keeping with requirements, the decision was made to build a new hospital, for patients' benefit. Among other things, the new facility will house a cancer centre, a walk-in clinic, and research

areas. "We are creating a new, highly modern facility in Tyrol, in which the link between patient-oriented research and treatment will be part of everyday life," Tyrolean Health Minister Bernhard Tilg explains. The new building will be a true centre bringing together various interdisciplinary teams. The total costs of 79 million euros are shared equally between the Province of Tyrol and the State of Austria. ■

Up-to-date emergency medicine

Not just medical subjects as such, but also new technologies and social media were discussed at the Symposium on Emergency Medicine in Hall in Tirol in December 2014.

Around 850 participants – among them (emergency) doctors, paramedics, nursing staff, and interested students – accepted the invitation of the Innsbruck University Hospital for Anaesthesia and Intensive Care (Director: Karl Lindner) and took part in the Symposium on Emergency Medicine. Two days were packed with 72 talks and 56 practical workshops. In the course of the event, experts presented and discussed various aspects of emergen-

cy medicine, and were also primed to think outside the box. The spectrum of topics included, among many other things, disaster medicine, communication strategies for emergency services, and new technologies already being applied in emergency medicine. However, negative developments were dealt with in the course of the event, such as the increasing use of mobile phone cameras and problems thus resulting from privacy issues. ■



The "Long Night of Research" 2014 attracted a large number of visitors.



UniLife

Over the last year, a whole series of festivities and events took place at the Medical University of Innsbruck, such as the sixth Big Honours Day, ten-year anniversary summer party, or the reunion of the Alumni Association. Moreover, the Medical University got the go-ahead for its new training and study building.

These and other highlights from the year 2014 are dealt with in the following chapter.

Event highlights 2014

The autumn of 2014 was a very eventful season for the Medical University of Innsbruck. First, the sixth Big Honours Day took place in October. Then, in November, the prestigious Ilse and Helmut Wachter Award was presented.



Big Honours Day took place in the main auditorium of the university building.



Ilse and Helmut Wachter Award

The Ilse and Helmut Wachter Award for outstanding achievements in the field of medical research was presented for the eighth time at the Medical University of Innsbruck. The 2014 recipient, Alexander Levitzki, is a world-renown cancer researcher. The findings of the Israeli biochemist have contributed to the development of new and efficient drugs against cancer. Levitzki, who teaches and carries out research at the Hebrew University of Jerusalem, has designed a form of therapy that makes it possible to selectively switch off mutated tyrokinases that potentially cause cancer. ■

The title of Honorary Professor went to C. Decristoforo, M. Kofler and H. Weiss (middle, from left to right).



The two Honorary Doctors K. Schenck-Gustafsson (left) and V. Regitz-Zagrosek have had close connections with Innsbruck for many years.

Sixth Big Honours Day

In October 2014, the Medical University of Innsbruck celebrated its sixth Big Honours Day. In the presence of numerous high-ranking guests from the fields of politics and higher education, the Medical University presented the title of Honorary Senator to Hertha Tuba and honorary professorships to Clemens Decristoforo, Markus Kofler, and Helmut G. Weiss. Honorary doctorates were conferred to the cardiologists and pioneers in the field of gender medicine, Vera Regitz-Zagrosek of Berlin Charité and Karin Schenck-Gustafsson of the Karolinska Institute in Sweden. ■

New appointments

In 2014, the Medical University of Innsbruck was able to attract internationally renowned scientists once more.



MARGARETHE HOCHLEITNER

The consultant in internal medicine was appointed to the field of Gender Medicine. Hochleitner is the Director of the Women's Health Center at the Innsbruck University Hospitals and Head of the Coordination Office for Equality, the Advancement of Women, and Gender Research at the Medical University of Innsbruck.



IRENE ESPOSITO

In November 2014, Italian-born Irene Esposito took charge as Head of the Innsbruck Department of Pathology. The diagnostician with expertise in molecular pathology transferred to Innsbruck from the Technische Universität München (TUM).



CHRISTOPH SCHERFLER

The consultant at the Innsbruck University Hospital for Neurology (Director: Werner Poewe) was appointed University Professor for Computational Neuroscience. The Austrian is an expert in computer-assisted image analysis techniques with neurodegenerative diseases.

Creative solutions for making ideas become reality

In 2014, ALUMN-I-MED's dream of a class reunion became reality.



The ALUMN-I-MED class reunion was a chance to see some familiar faces.

Ideally, ideas turn into projects. And projects turn into successful events. Which sounds just like the Alumni Association of the Medical University and its proactive president Raimund Margreiter. The latter started into his second term in 2014 as president of the alumni network ALUMN-I-MED and was able to realise a long-held

dream, namely that of a class reunion for physicians. For two days in October, graduates of classes from 1969 to 1972 came together for an informative and sociable gathering that kicked off at the historical anatomy building and came to an end at the premises of the ultra-modern Biocenter. ■

Annual event programme

Year after year, the Alumni Association organises a varied programme of events.

The first event of the year, organised by the Alumni-Association, is traditionally the "new year reception." In 2014, it took place in cooperation with the Medical University of Innsbruck for the first time. This was followed by a panel discussion on "Safety in the operating room – what can medicine learn from aviation?" in March, and another, in autumn, "From plague to Ebola – does today's medicine have answers to the

threats of tomorrow?" With both events, the Alumni Association had its finger on the pulse of the time and attracted large audiences. A full auditorium at the Hypo Tirol Center, like on 4 November, naturally also pleased the sponsor, the Hypo Tirol Bank. Among the established events were the application seminar, various academic festivities, and the orientation lecture for soon-to-be first-semester students. Overall, the Alumni Association



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was solely responsible for seven events. The association is welcome at academic functions. ■

Inside the Association

In 2014, the Alumni Association voted in a new board.



During its general assembly, annually held in May, the association voted in a new board. It is made up as follows (picture, from left to right): Cashier Christoph Neuner, Auditor Reinhard Gastl, Secretary Ronald Bacher, Vice President (and founding Rector) Hans H. Grunicke, President Raimund Margreiter (standing

next to Rector Helga Fritsch), Vice President Markus Gramann, Auditor Elisabeth Zanon, and Vice President Christoph Brezinka (not pictured). The association's principal agendas are the acquisition of new members and looking after existing members (i.e. some 200 full members plus students and graduates). ■



ALUMN-I-MED

ALUMN-I-MED ASSOCIATION

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MON TO FRI, 9 A.M. TO 1 P.M.

Awards and honours

Every year, the researchers of the Medical University of Innsbruck receive numerous awards and honours for their scientific achievements. The following list represents a mere selection:

- **Angelus, Mihaela:** Award for young researchers for basic, translational and clinical abstracts at the Cancer Bio-Immunotherapy Meeting in Siena
- **Brenner, Christoph:** Hans-Blömer-Young Investigator Award for Clinical Cardiovascular Research
- **Coraca-Huber, Debora Cristina:** Themistocles-Gluck Award 2014
- **Crismani, Adriano:** Scientific Advancement Award of the Austrian Society for Orthodontics (ÖGKFO)
- **Culig, Zoran:** Prostate Cancer Research Award of the European Association of Urology (EAU)
- **Hagenbuchner, Judith:** Sanofi Science Award
- **Hofer, Sabine:** Scientific Advancement Award of the Austrian Working Group for Paediatric Endocrinology and Diabetology (APEDÖ)
- **Högl, Birgit:** Willis-Ebkom Disease Foundation, Quality Care Center for Willis-Ebkom Disease
- **Holfeld, Johannes:** ESC Acute Cardiovascular Care – Young Investigators Award, Geneva, Switzerland
- **Holfeld, Johannes:** Best of Biotech Award of the Austria Wirtschaftsservice (AWS) International Biotech and Medtech Businessplan Competition for the HearT Team – Heart Regeneration Technologies (Holfeld et al.)
- **Irschick, Regina:** Young Investigator Award at the 109th Annual Meeting of the Salzburg Anatomical Society
- **Kumnig, Martin:** Dr. Otto Seibert Award for Research on the Promotion of the Socially Disadvantaged
- **Lackner, Peter:** Otto Kraupp Award for the best habilitation thesis 2013
- **Mahlknecht, Philipp:** F1000 Award for the best study recommendations in 2013 in the category Neurological Disorders
- **Mahlknecht, Philipp:** Science Award of the Austrian Parkinson's Society (ÖPG)
- **Matosevic, Benjamin:** Science Award of the Austrian Society for Stroke Research (ÖGSF)
- **Müller, Thomas:** Science Award of the Austrian Society for Paediatrics (ÖGK) for the best experimental project
- **Oberacher, Herbert:** Top 40 Under 40 – The Analytical Scientist Power List 2014
- **Oberhuber, Rupert:** Young Investigator Award of the Austrian Society for Surgical Research
- **Pfeiffenberger, Elisabeth:** Excellence Grant of the Carinthian Industrialists' Association
- **Quarta, Serena:** Wilhelm Auerswald Award – award for the best dissertation at a medical university in Austria
- **Sonnweber, Thomas:** Paracelsus Award of the Austrian Society for Internal Medicine
- **Watschinger, Katrin:** Heribert Konzett Award of the Austrian Pharmacological Society (APHAR)
- **Yalcin-Siedentopf, Nursen:** Schizophrenia Award of the Austrian Society for Neuropsychopharmacology and Biological Psychiatry (ÖGPB)

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MEDIZINISCHE
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INNSBRUCK



efficient research



customised medicine



innovative training