The good life

Interview: Maximilian Burkhart and Nicola Holzapfel

LMU philosophers Christof Rapp and Monika Betzler discuss with economist Martin Kocher what characterizes a morally good life, and confront moral philosophy with behavioral science. For the complete article, see [www.en.lmu.de/news/insightlmu/2015/03_01.pdf](http://www.en.lmu.de/news/insightlmu/2015/03_01.pdf)

Orphans of medicine

by Clemens Grosse

The Care for Rare Foundation, which was set up by LMU pediatrician Professor Christoph Klein, is dedicated to furthering research into the etiology and treatment of rare diseases. continued on page 2

VIU’s multicultural platform in alluringly beautiful setting

by Elizabeth Willoughby

A campus with students from various countries working towards various degrees isn’t unique, but it is if the campus is shared by universities from around the world providing students with programs that cross disciplines. continued on page 3

Feathers in focus

by Anja Burkel

In the lab, LMU biochemist Christian Haass studies Alzheimer’s, but on weekends he goes in search of rare birds. His enthusiasm for ornithology has even taken him beyond the Arctic Circle – in the middle of winter. continued on page 5

More news on LMU Munich at [www.en.lmu.de/news](http://www.en.lmu.de/news)
Orphans of medicine
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The Care for Rare Foundation, which was set up by LMU pediatrician Professor Christoph Klein, is dedicated to furthering research into the etiology and treatment of rare diseases.

Twelve-month-old Knowah takes a lively interest in the world around him, but he has Wiskott-Aldrich Syndrome, a rare form of immunodeficiency that is associated with eczema, episodes of severe bleeding and life-threatening infections. The only effective treatment is a bone-marrow transplant, which requires a genetically compatible donor. Since no suitable unrelated donor was available in his case, Knowah’s parents, who come from the Philippines, stepped into the breach. Following a long series of consultations with doctors there, his parents realized that their son could not be treated in his homeland. An internet search led them to LMU’s Professor Christoph Klein, Director of Dr. von Hauner’s Children’s Hospital in Munich. Not only does his group possess a wealth of experience in bone-marrow transplantation, but he himself has set up a registered charity devoted to providing optimal care for children with rare diseases. Meanwhile, his Care for Rare Foundation has called for contributions to cover the costs of Knowah’s treatment.

As a pediatrician, Klein is often confronted with patients suffering from rare disorders that are essentially incurable because their pathology is poorly understood. Motivated by modern advances in the treatment of pediatric tumors, he decided to do everything he could to remedy this situation: “Children who, only 50 years ago, would not have survived into adulthood now have a very good chance of being cured,” he points out. He hopes to do the same for what he calls orphans of medicine – children afflicted with one or other of some 7,000 rare diseases. A patient from Beirut provided the impetus for Klein’s Care for Rare Foundation, which was set up in 2009 with the aid of law professor Andreas Staudacher and is dedicated to elucidating the causes of, and providing effective care for those affected by uncommon disorders. The Foundation’s first campaign raised 150,000 euros to pay for the Lebanese child’s treatment.

**From discovery to cure**

“Our goal was to establish a foundation based on clinical findings and biomedical research,” Klein explains. The Foundation provides financial aid for individual cases, but its major goal is to stimulate international collaboration between researchers, boost basic research into unusual diseases and train early-career researchers to study them. The Foundation’s goal is expressed by its motto: “From Discovery to Cure”. To this end, the Care for Rare **Alliance** maintains a worldwide network that includes institutions and researchers in the USA, Canada, Israel, India, Thailand, Latin America and elsewhere. “The **Alliance** is a group of clinicians and researchers who are working to ensure that someday all children with rare diseases can be cured – irrespective of their origins and their parents’ financial resources,” says Klein.

By providing short-term fellowships, the Foundation’s **Academy** Program helps physicians learn how to recognize and treat rare diseases, while long-term support is also available for early-career researchers eager to contribute to the field. “Above all, we hope to inspire the upcoming generation of medical professionals to get involved in identifying the causes of rare diseases, and this is best done by giving them the freedom and resources to undertake innovative lines of research,” says Klein. Thanks to the Werner Reichenberger Foundation, Klein’s organization now offers an annual Care for Rare Science Award, worth 50,000 euros, which is intended to support projects submitted by junior researchers.

Klein’s long-term goal is to make the State of Bavaria a pioneer in the fight to save children with rare disorders, while keeping patient welfare firmly in view: “Respect for the child’s personal dignity must be the touchstone of everything we do,” he says. His Foundation therefore places great emphasis on making both physicians and the general public more aware of the plight of these children. The work of the Care for Rare Foundation is dependent on the generosity of voluntary donors, philanthropists and strategic alliances. Since 2009, lots of children have already benefited from its activities – but many more young patients still await effective treatments.

**Translation: Paul Hardy**

[www.care-for-rare.org](http://www.care-for-rare.org)
Taking comparative literature at LMU, Sarah started at VIU in September for similar reasons to Julia’s. “Since problems can’t be resolved any­more on a national or one­dimensional basis,” she says, “fostering international and interdisciplinary approaches be­comes crucial in facing the problems of today’s globalized world.”

First steps

Sarah found the university and the city compelling from the start. Despite chal­lenges such as room sharing (space is limited in Venice) with an Italian (she wanted to learn the language better), she found the atmosphere at VIU friendly and welcoming, and the cultural diversity enriching. She also enjoys the camara­derie.

“Everyone here is new,” she says, “and gathering in the evenings around live music, or sitting outside on the canal makes it easy to get to know people.”

VIU is an opportunity both recommend. Julia’s advice to students of partner uni­versities: “Go to the homepage of VIU and check out the upcoming courses. If you see something that interests you, don’t hesitate to apply. It’s a powerful experience. You will never regret it.”

www.univiu.org
Neurobiology

Sushi and the science of synapses
By Martin Thurau

What is the molecular basis of learning? Here LMU biochemist Michael Kiebler shares his insights into how associative learning is encoded in the brain. For the complete article, see www.en.lmu.de/news/insightlmu/2015/03_02.pdf

Chemistry

Nanostructures for contactless control

LMU chemists have developed photonic crystals from ultrathin nanosheets which are extremely sensitive to moisture. “These photonic nanostructures change color in response to variations in local humidity. This makes them ideal candidates for the development of novel user interfaces for touchless devices such as ticket machines,” says Professor Bettina Lotsch of the Department of Chemistry at LMU and the Max Planck Institute for Solid State Research in Stuttgart. “The humidity around a fingertip is slightly higher than the overall level of moisture in the ambient air,” explains Katalin Szendrei, a member of Prof. Lotsch’s group. “This difference can be detected by our photonic sensor, and causes it to change color – without any contact.”

Biochemistry

Alzheimer’s disease: Overlooked for 30 years – A new kid on the block

Alzheimer’s disease is associated with the appearance of characteristic neurotoxic protein aggregates in various regions in the brain. Chemical analysis reveals that these insoluble deposits are made up of a family of short protein fragments, referred to as beta-amyloid peptides, which are derived from a precursor protein called APP by the sequential action of two enzymes. A team of researchers led by Christian Haass has now made a discovery which has potentially far-reaching implications for our understanding of the condition: “A second mode of APP cleavage exists, which generates an alternative peptide,” says Haass. Its discoverers refer to the newly characterized protein fragment by the Greek letter eta, christening it ‘amyloid-η’. “The processing pathway that produces it has been overlooked for 30 years. This is because investigators including myself have focused their attention on elucidating the origins of the beta-amyloid and on attempts to cure Alzheimer’s by inhibiting production of this peptide.” In collaboration with neurobiologist Dr. Hélène Marie based at the IPMC-CNRS in Valbonne and colleagues from the Technical University of Munich, the LMU researchers have also studied the effects of the eta-amyloid on nerve-cell function in the brain. Beta-amyloid is known to make nerve cells hyperactive, and now it turns out that the eta-amyloid antagonizes this effect. “So here we have two small peptides snipped from the same precursor protein, which have opposite effects on neuronal activity, and whose actions must normally be carefully balanced.” These findings have immediate implications for ongoing clinical trials in humans, all of which are targeted to beta-amyloid. Haass suggests that investigators need to be on the look-out for any signs of unanticipated side-effects.

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Last year Professor Christian Haass went on holiday to Greece, this year he was in Norway – and he didn’t head for the beaches or museums. He was on the lookout for rare birds. “Our vacations are generally planned,” he says, “to give me a chance to observe very special species of birds.” Haass, a biochemist and neurobiologist in LMU’s Faculty of Medicine, spends much of his leisure time in the field: He is a passionate ornithologist.

“To visit the Arctic coasts at the Norwegian/Russian border in February is a wonderful experience. One is alone with snow, ice and storms.” In fact, he and his wife celebrated their 25th wedding anniversary on the wintry shores of Northern Norway. But Christian Haass also goes in search of rare avian fauna on most weekends. “There are some marvelous locations near Munich where one can see great birdlife.” A favorite haunt is the Ammersee, and in winter he often heads for the Starnberger See.

A spectacular sighting

Ornithology has fascinated him for as long as he can remember: “My father used to say that I learned to walk in order to get closer to birds.” At the age of 10 he joined a bird-watching club and, about 8 years ago, he was a founding member of the Society for Field Ornithology in Bavaria (Otus e.V.). “I’m interested in all kinds of birds,” he says, “but on vacations I look for really unusual species.” His most spectacular sighting so far was Ross’s gull (Rhodosthetia rosea). “It is an exceptionally beautiful, indeed unique species, but little is known about its migration and distribution, and it is almost impossible to find in Europe.” He finally came across it in northern Norway, after scanning thousands of sea gulls at miserable weather conditions.

On field-trips, Haass, equipped with binoculars, spotting scope and camera, spends hours prowling field boundaries, and the shores of lakes and ponds. He does not use camouflage or a hide, but avoids brightly colored clothing. “My strategy is to find a promising location, hunker down and wait. Especially during the migratory season, in spring and fall, that is usually enough.”

The plight of the sparrow

Haass documents rare sightings photographically and with sound recordings. “Observations of very rare species must be checked and verified by reviewers before publication,” he explains, adding that not all ornithologists meet the highest scholarly standards. “Unfortunately, ornithology produces its share of shoddy work,” he says. “A few years ago, a paper ostensibly reporting the ‘rediscovery’ of an extinct species of woodpecker appeared in ‘Science’. It aroused a huge amount of interest, but the ‘sighting’ turned out to be the product of wishful thinking.” As a biochemist who studies the cellular and molecular mechanisms that underlie dementias, he finds such lack of rigor difficult to understand: “The whole point of doing science, whether it be ornithology or neurobiology, is to uncover new facts, to find out things that are true!” But a different problem threatens the very foundation of ornithology itself: Populations of almost every bird species are in decline – the trend is alarming. Meadowland species are acutely endangered, as are species that undertake long migrations. Even species like swallows and sparrows are under threat. “And the major culprit is modern agriculture.”

What really fascinates him about birds, Haass says, “is their sheer beauty, in combination with the changing hues of the landscape through the seasons.” And every new excursion is as exciting as the last. “Ornithology used to be regarded as a hobby for faintly ridiculous types. But it has developed into a hard-core scientific discipline – that is also full of color.”

Translation: Paul Hardy

www.otus-bayern.de
The new hospital now being built in downtown Munich exemplifies the turn away from the traditional division of university medicine into individual specialisms in favor of an interdisciplinary medical center. Work on the new interdisciplinary clinic on the site of LMU’s Downtown Medical Center has just begun. When it is completed in 2020, the new building will house departments of Internal Medicine, Surgery, Emergency Medicine and Obstetrics. The new hospital marks a new departure and is a crucial element in the reorientation of patient care and medical education at LMU. “The decision to build the new Portal-klinik was taken in order to ensure that our teaching capacity in the clinical phase of medical education could be maintained, and that we could continue to provide bedside teaching for our students. Nowadays, in addition to theoretical knowledge and simulated learning situations, this type of hands-on, patient-related training is an absolute must,” says Professor Reinhard Hickel, Dean of the Medical Faculty at LMU.

LMU again rated top university in Germany

In the latest edition of the Times Higher Education (THE) World University Ranking, LMU retains its position in 29th place in the overall table, and once more tops the list of German universities. “This result once again documents the consistently high level of research and teaching at LMU and confirms its status as the leading university in Germany,” says Professor Bernd Huber, the President of LMU. The top three places in the latest THE University Rankings go to California Institute of Technology, the University of Oxford and Stanford University. For further information on the Times Higher Education World University Ranking (THE) 2015, see https://www.timeshighereducation.com/world-university-rankings/

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New DFG Research Unit on intracellular logistics

LMU will serve as the host institution for a newly constituted Research Unit funded by the German Research Foundation (DFG) and devoted to the study of the molecular processes responsible for the intracellular transport and localization of messenger RNAs. The new interdisciplinary research network has received a DFG grant amounting to 2 million euros in its first funding period. “Transport of mRNAs is regulated by a dedicated set of components, but very little is known about how these factors interact to control this essential process,” says Professor Dierk Niessing of LMU’s Biomedical Center, who is the spokesperson for the new Unit. He and his colleagues intend to characterize – for the first time – all of the components of the relevant transport complexes, and will elucidate their structure and function in several model organisms, including Saccharomyces cerevisiae (brewer’s yeast), a filamentous fungus, the fruitfly Drosophila melanogaster and the mouse. “The new Research Unit provides the ideal context for this systematic approach, as it brings together specialists in diverse disciplines such as cell biology, structural biology and bioinformatics,” Niessing points out.

Wheelchair basketball: Medical student wins the European Championship

In September, LMU medical student Johanna Welin and her teammates won the Womens’ European Championship in Wheelchair Basketball in Worcester (UK), beating their Dutch opponents (72:62) in the final game of the tournament. The victory also qualifies the team for the Paralympics in Rio de Janeiro in 2016. Welin was a member of the German squad that took the Gold Medal at the last Paralympics in London, and she was elected Disabled Sportswoman of the Year in Germany in 2012.