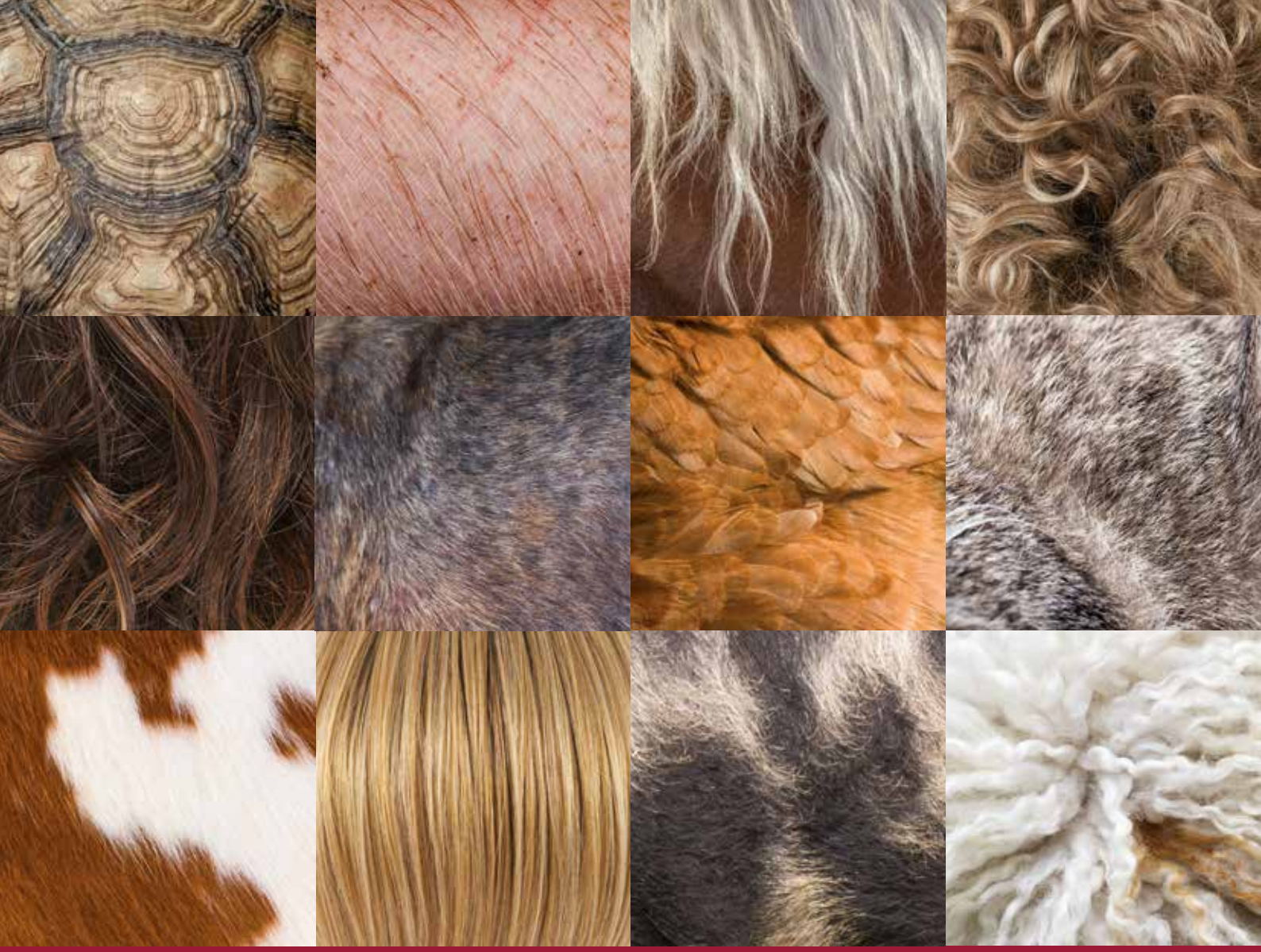

messerli
Research Institute

Annual Report 2014

messerli Foundation

vetmeduni vienna

MEDIZINISCHE UNIVERSITÄT WIEN

universität wien

Herta Messerli

1911-2014

„
Möge das Messen-
Forschungsinstitut helfen
Tier besser zu verstehen
und so den Tieren
ein besseres Dasein zu
(verschaffen) ermöglichen

Imprint

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Statements 2014

Reinhold Mitterlehner

Vice Chancellor and Minister of Science, Research and Economy

The Messerli Research Institute is a wonderful example of value-added resulting from cooperation between universities and the targeted use of private funding. In the short period since its foundation, the institute has established itself in the Austrian research landscape due to its interdisciplinary approach. Its high level of quality, broad range of topics and international orientation attracts both local and international experts to the Messerli Research Institute and its associated centres.

Sonja Hammerschmid

Rector of the University of Veterinary Medicine, Vienna

Although humans have been keeping animals for thousands of years, scientists are only now beginning to discover the abilities and needs these animals have. The changing relationship between humans and animals – with all its contradictions and emotions – requires a scientific discussion as a basis for a constructive social dialogue. The unique variety of disciplines it offers has enabled the Messerli Research Institute to establish itself within a short time on a national and international level.

Wolfgang Schütz

Rector of the Medical University of Vienna

The collaboration between three local universities at the Messerli Research Institute is unique because it builds a successful bridge between human and veterinary medicine, as well as between the humanities and natural sciences. This cooperation also underpins Vienna's excellent reputation as a research location. The Meduni Vienna has ranked under the top 50 most prestigious universities in the world since last year, according to the "Times Higher Education" (THE). It also ranks 14th among European medical schools.

Heinz W. Engl

Rector of the University of Vienna

Cooperation works if it bundles competences and resources for mutual benefit. The collaboration between the Vetmeduni Vienna, the Meduni Vienna and the University of Vienna at the Messerli Research Institute is a successful example of such bundling. This success has also made further investment possible, as the Federal Ministry for Science, Research and Economy has provided additional funding for infrastructure through an HRSM call, in addition to the generous funding by the Messerli Foundation.

Heinz Schweizer

President Messerli Foundation

A Swiss foundation funding a research institute in Vienna is worth a comment. The Messerli Foundation aims, among others, to promote animal welfare and is convinced that this aim can only be reached through scientific knowledge in the long run. The Foundation chose the three Vienna universities under the management of the Vetmeduni Vienna because they were most convincing regarding their commitment to science and not to any ideologies, as compared to international competitors. Its willingness to consider the objectives of a private sponsor enabled the Vetmeduni Vienna to establish the current issue of human-animal interactions as a university subject. This can promote animal welfare in a ground-breaking way.

Editorial

2014

Acquiring, increasing and transferring knowledge

Ludwig Huber
Spokesperson of the Messerli Research Institute 2011–2014

The agreement between the Messerli Foundation and the three universities signed in January 2010 defined the first working period to up 2014, as well as the targets for this period: "[…] to develop sustainably convincing criteria and strategies on the basis of solid scientific and medical findings about animal biology for an ethically acceptable treatment of animals, as well as to promote their application in a socio-political dialogue and through scientific policy consultation." A special focus is on the transfer of knowledge, in addition to acquiring and increasing levels of knowledge.

Research at the institute is committed to the principle of acquiring knowledge. As stated in the contract, the primary objective is supposed to be "promoting research into animal protection in all disciplines". It is the professors' and their assistants' task to set priorities regarding contents and time, independently of political, economic or ideological movements.

Teaching is vital for increasing knowledge. Our students do not only carry our hopes for future improvements in the relationship between humans and animals, but are also the present effective multipliers of the knowledge acquired at the institute. Education refers to knowledge in the field of animal protection, but also to nobleness of heart: Answers to difficult questions in this socially controversial field do not only require knowledge and skills, but also "formation of attitudes and the character" (Wilhelm von Humboldt).

Furthermore, the transfer of knowledge requires that research findings are made directly available to interested members of the public in an understandable way, without losing scientific effectiveness. Jane Goodall, who visited our institute in October, is a role model for this because she has a credible understanding of the relationship which is crucial between wild nature and humans, as Thane Maynard stated.

This annual report marks the end of the start-up phase of the institute and at the same time the end of my term of office as the institute's spokesperson. The scientific report for 2012–2014 will be submitted to the University Boards, the Board of the Messerli Foundation, the Scientific Advisory Board and the external evaluators. It will serve as the basis for the evaluation of the last few years and as an advice for the period to come. I am confident that the route taken so far will be largely endorsed and recommended for the future.

Jane Goodall, Ludwig Huber and Marianne Wondrak
with the Kune Kune pigs

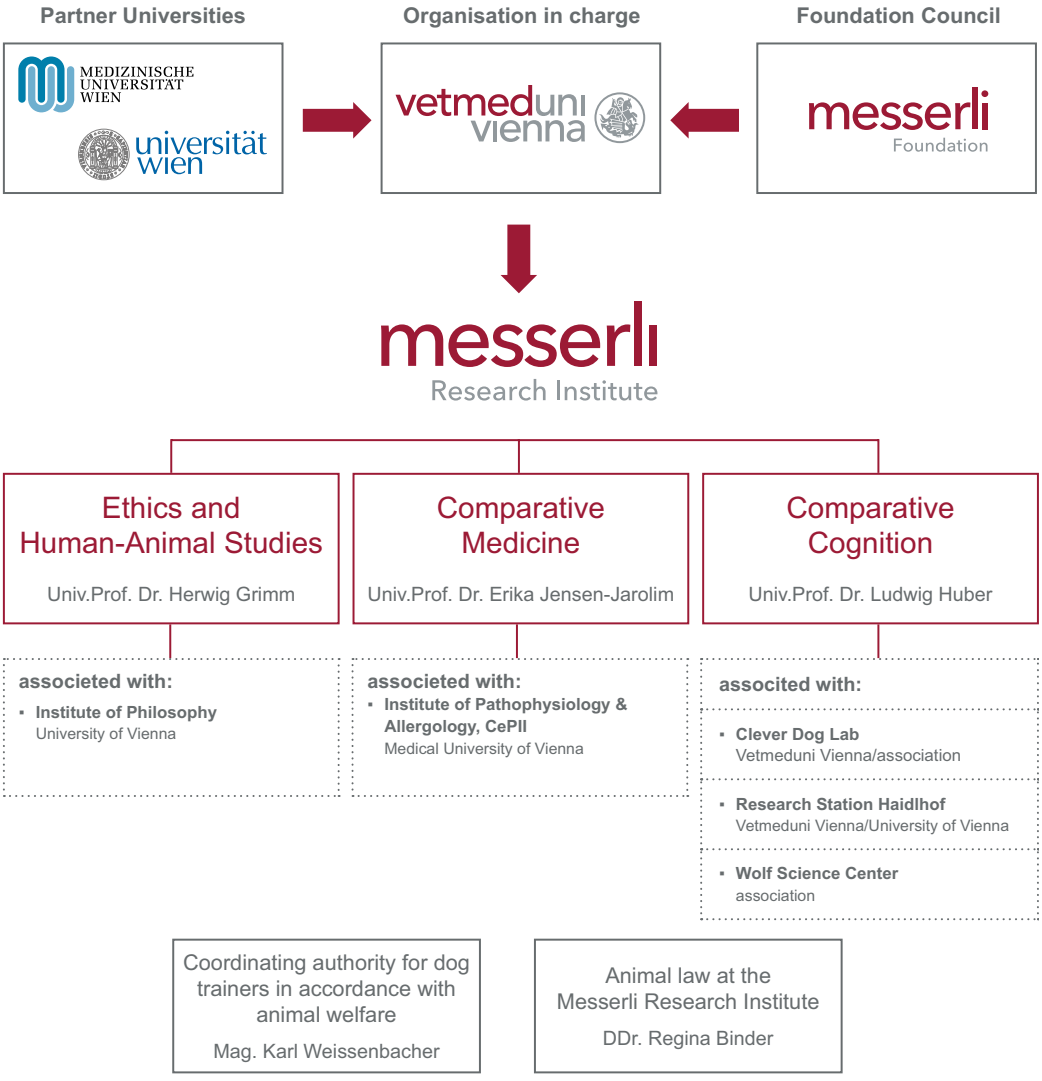
The Messerli Research Institute at a glance 2014

The Messerli Research Institute was founded in 2010, with support from the Messerli Foundation (Sörenberg, Switzerland), under the management of the University of Veterinary Medicine, Vienna, in cooperation with the Medical University of Vienna and the University of Vienna. The professors for the first three units (Comparative Medicine, Comparative Cognition, Ethics and Human-Animal Studies) were appointed in autumn 2011. In March 2012, the institute was officially opened. The work at the Messerli Research Institute has four cornerstones:

- **Research:** The research is devoted to the interaction between humans and animals, as well as its theoretical principles in animal cognition and behaviour, comparative medicine and ethics.
- **Interdisciplinarity:** The institute's work is characterised by its broad interdisciplinary approach (biology, human medicine, veterinary medicine, philosophy, psychology, law) and strong international focus.
- **Teaching:** Research findings are an integral part of the academic curriculum in the Master's programme and are also designed to provide guidelines for the responsible and acceptable treatment of animals.
- **Practice:** The Messerli Research Institute considers providing scientific information to aid people responsible in the field of human-animal interactions one of its main responsibilities.

Organisation Chart

The Messerli Research Institute was established at the Vetmeduni Vienna. It is associated with the rectorate and represented by its spokesperson. It comprises three units, each headed by a fully employed professor. The professors have double appointments at the Vetmeduni Vienna and at one of the partner universities (Medical University of Vienna and University of Vienna). Furthermore, the two sub-units Coordinating Office "Dog trainer in accordance with animal welfare" and Animal Law are associated with the Messerli Research Institute. Several associated centres work in cooperation with the partner universities.



Team

Each of the three units of the Messerli Research Institute has one chair, scientific assistant positions, one administrative assistant position and – at the two natural science units – technical posts. Furthermore, there is an interdepartmental IT office. Two of the administrative assistants work partly interdepartmentally. The Unit of Comparative Medicine has one administrative position at the Medical University of Vienna. By the end of 2014, the staff comprised about 37 fulltime equivalents. 16 of which are permanently employed, about 21 are funded through third-party funded projects. Further scientists, who are not counted at this point, work at the institute's associated centres.

Targets

The Messerli Research Institute develops and broadens scientifically sound findings for the cohabitation of humans and animals. Current questions about the complex relationship between humans and animals and its principles are investigated from a biological, medical and ethical perspective.

Research in Context

The Messerli Research Institute works at the interface between three universities in Vienna: the University of Veterinary Medicine, the Medical University and the University of Vienna. It integrates the universities' existing knowledge and expertise into its own work. Alternatively, research and teaching at the three universities benefit from the institute's research findings and results.

Interdisciplinary research

The institute's three units have their own specific research agenda with a considerable number of projects funded by competitive grants. Interdisciplinary research cooperation between the units is strategically important. Interdisciplinary work and high specialisation shape the institute's unique profile. In the following, selected examples will detail the research topics at each unit.

Comparative Cognition

Research at this unit is dedicated to contemporary questions on cognition and the emotions of animals, among them dogs, wolves, pigs, keas, pigeons, woodpeckers and tortoises. Different non-invasive methods are combined and integrated on various levels of complexity (genetic, neuronal, individual, social and cultural level). The studies are carried out under conditions as close as possible to natural ones in order to investigate the animals' ability to solve species-specific tasks in a cognitive way.

The three main fields of the unit are:

- Cognitive and emotional abilities of dogs and wolves
- Perceptual, technical and social intelligence in birds
- Behaviour and cognition of livestock

The central issues are evolution and the development of cognition and human-animal interactions.

Staff

www.vetmeduni.ac.at/en/messerli/science/cognition/staff/

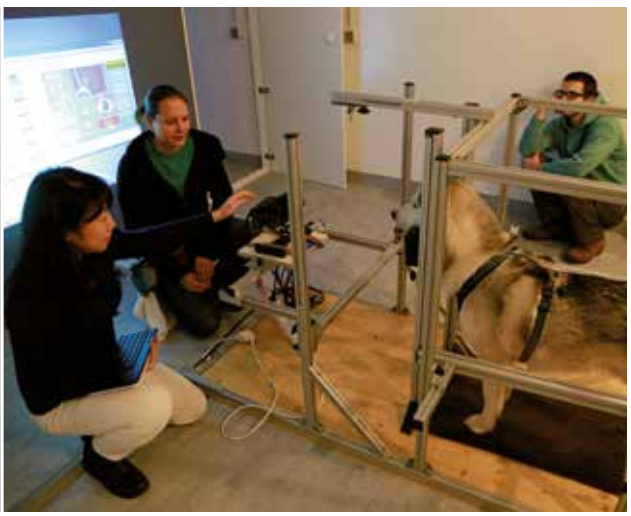
Research projects – highlights

Dogs distinguish human emotions

What is the relationship between cognition and emotion? Do only humans show empathy or animals, too? Are dogs able to interpret the emotions of others? These questions are investigated in the project “Like Me” (leader: Ludwig Huber), funded by the Vienna Science and Technology Fund (WWTF). While the project partners at the University of Vienna and the Medical University of Vienna analyse the respective processes in the human brain, using functional magnetic resonance imaging, the Messerli Research Institute investigates the relevant abilities in dogs. After a pilot phase to establish specific methods, a first breakthrough was achieved end of 2014. The scientists proved the ability of animals to distinguish the emotions of heterospecifics for the very first time. Dogs were schooled to categorise images of human faces as “happy” and “angry”. Although they could only see the eye area or the mouth area during training, they were also able to match images showing the other facial part, even of unknown people, correctly in the test. This can only be possible if the dogs remember the relevant human facial expressions in everyday life, not due to a generalisation of simple facial traits (e.g. visible teeth). This study was published in the prestigious journal Current Biology.

Dog Teddy chooses between two sides of a human face on the basis of the emotion shown.

The eye tracker tracks the eye movements of dogs when watching pictures.



Impulse control and development of personality in dogs

Why do animals of the same species display different levels of intelligence? Significant intraspecific differences can be found in the understanding of the principles of the physical environment. The aim of the FWF project “The effect of early experience on physical cognition in dogs” was to investigate the factors influencing the abilities of animals in the field of physical cognition. Surprisingly, individual variations do not seem to be caused by different experiences during upbringing or the relationship between dog and the owner. A crucial factor is the degree of impulse control – the ability to control instincts and actions. As a large number of dogs were tested for this project within two years, we could investigate the development of individually different behaviour and traits from the first weeks of life to early adulthood. The project team made another surprising discovery: tests with puppies seem to predict differences in behaviour in adult dogs poorly. Most behavioural characteristics are not stable before the age of six months. Some of them even change significantly in the second year of life. A total of 14 publications, released in international journals, resulted from the projects. Four are still in progress.

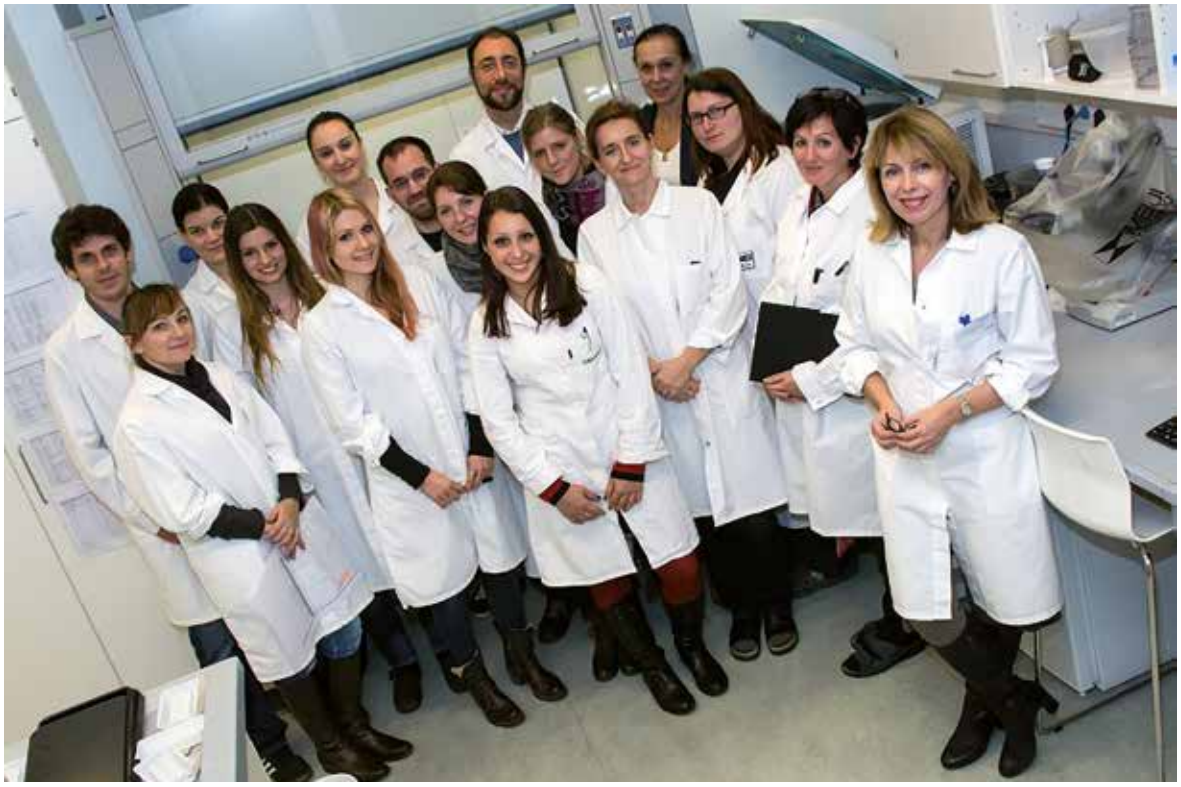
The dog Monthy chooses the correct board, showing his understanding of the concept “support”.

Comparative Medicine

Patients are central

A healthy organism is in harmony with itself and the environment and has an intact immune system that protects it against disease. Changes regarding pollution, dependence on the food chain and processed food, as well as social aspects related to overpopulation disturb this balance in humans and animals. Our environment turns harmless substances into allergens. Stress suppresses a healthy immune response and, therefore, does not sufficiently prevent cancer growth. The Unit of Comparative Medicine dedicates itself to the question of how to modify the immune system in humans and animals in order to prevent or treat allergies and cancer. Humans and their pets are surprisingly similar in regards to these major diseases. Systematic comparative research can increase our knowledge.

Staff



www.vetmeduni.ac.at/en/messerli/science/comparative-medicine/staff-members/

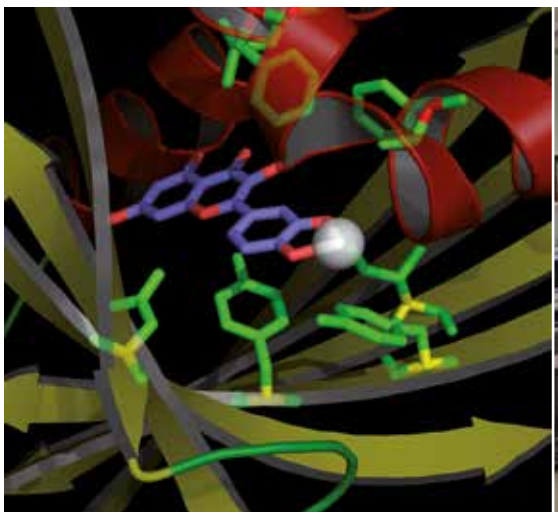
Research projects – highlights

A fundamental mechanism was detected in the field of allergies, answering the question of what makes an allergen an allergen. Research started from a typical plant allergen, but it is also valid for allergens related to animal products such as milk.

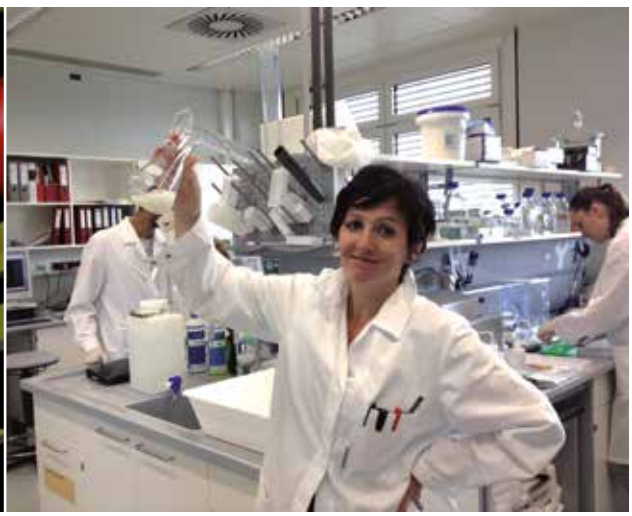
The prevalence of pollen allergies is about 40 percent in humans and dogs. Birch pollen (*Betula verrucosa*) is especially aggressive. Birches contain one of the best known pollen allergens, the so-called “Bet v 1 molecule”. The trees produce more of these molecules when under stress. The allergen makes the immune system produce disease-causing IgE immunoglobulins. In a paper by Franziska Roth-Walter et al. (Journal of Molecular Biology, May 2014), it was shown that Bet v 1 is structurally very similar to lipocalins, which occur basically in all mammals. Lipocalin-2 and Bet v 1 have so-called molecular pockets that they can use to strongly bind iron via siderophores. If these pockets remain empty, the birch pollen protein becomes an allergen and can provoke allergic reactions in humans and animals. In this case, the protein manipulates T helper 2 cells (Th2 cells) – cells of the immune system – towards allergy.

This paper led the group directly to the main allergen in milk, beta-lactoglobulin, which had already been known to be a lipocalin. It was also shown that only the “empty” milk protein, without iron and siderophor in the molecular pocket, supports the activation of Th2-lymphocytes and, thus, the production of IgE to react to the milk protein (Roth-Walter et al., PLOS ONE, August 2014). This leads to the question of which housing and environmental conditions result in insufficient iron loads for dairy cows. Possible factors are excessive milk production, housing stress or organic food versus silage.

Model of a lipocalin allergen (red and yellow ribbons) with the iron atom (grey sphere), centrally bound by siderophores (green/blue)

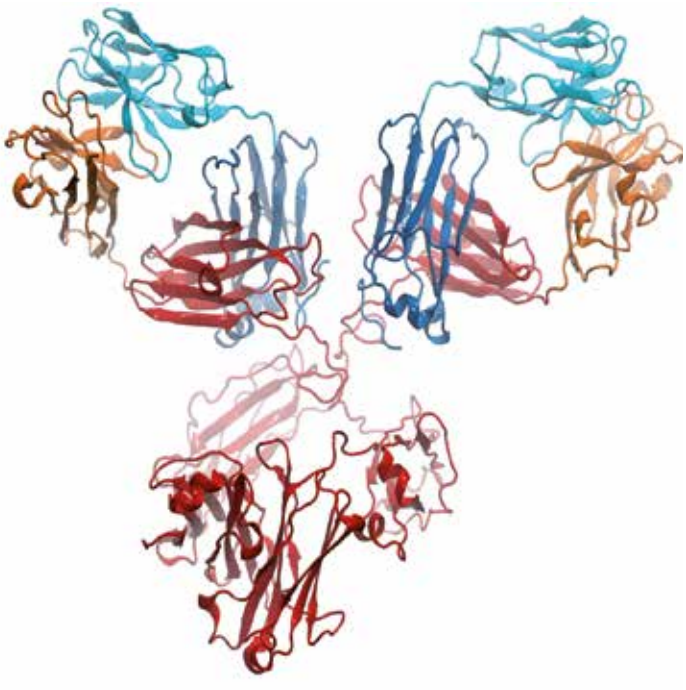


Researcher Franziska Roth-Walter, who qualified as a university lecturer in 2014, working in the CompMed lab



The second research highlight refers to the field of cancer. The unit also focuses on immunological mechanisms for important marker molecules located on cancer cells. As in humans, cancer is also a major disease in their best friends – dogs: about 50 percent of all dogs over 10 years of age develop cancer.

The group had shown earlier that the epidermal growth factor receptor EGFR occurs on breast cancer cells in human and dogs and has a 92 percent molecular identity between the two species. Given this basis, a recombinant immunoglobulin was generated, targeted against EGFR, killing specifically EGFR-positive tumour cells (Singer, Fazekas et al. Mol. Cancer Therapeutics, April 2014). This is the first “caninised” (designed for dogs) diagnostic and therapeutic immunoglobulin worldwide for EGFR-positive tumours in dogs.



Model of a canine anti-EGFR immunoglobulin for cancer diagnosis/therapy in dogs

Judit Fazekas and Josef Singer, lead authors of the publication in the Journal of Molecular Cancer Therapeutics

Ethics and Human-Animal Studies

Eating animals, petting animals and conducting research using animals are established and very different relationships between humans and animals which do not remain unquestioned. Approaches from the fields of philosophy and ethics can help to better understand human-animal relationships with their conditions and contradictions, solve relevant questions and bring suggested solutions into social debate. The team of the Unit of Ethics and Human-Animal Studies works on the following topics in this field, which is subject to socio-politically controversial debates:

- Developing ethics for veterinary medicine
- Advancing new approaches in ethics in human-animal interactions
- Applied animal ethics in the practical fields of agriculture, research and pet keeping
- Research into the ethical relevance of animal cognition

Staff

www.vetmeduni.ac.at/en/messerli/science/ethik/staff/

Research projects – highlights

The Lacanian Animal

This FWF project by Andreas Aigner investigates different forms of anthropocentrism, as well as ambivalences in human thinking and actions related to nonhuman animals on the basis of the psychoanalytical theory by Jacques Lacan. This concerns, for instance, the phenomenon that humans eat some animals, while they keep other as beloved pets at the same time and are fascinated by still other animals. The project analyses the way this ambivalence is linked to unconscious processes and structures of the human psyche.

Andreas Aigner tries to show that the different ways in which humans refer to animals and interact with them are associated with unconscious structures in his doctoral project. Thus, not only the anthropocentrism towards animals criticised by animal ethics becomes subject of debates from a psychoanalytical point of view, but also any intended overcoming of it.

An analysis of the subjective structures and dynamics contributes an important new perspective to the philosophical debate on anthropocentrism. The project gives insight into the links between different implicit normative ideas regulating the ambivalent relationships between humans and animals and unconscious desire and enjoyment stemming from these relationships. The aim is a better understanding of the problem of alleged contradictions in human-animal interactions that is discussed in animal ethics.

Workshop by the Unit of Ethics and Human-Animal Studies

Ethics in Veterinary Medicine

The field of ethics in veterinary medicine is developing and has become increasingly established on a national and international level. Currently, there are only occasional initiatives that clearly react to moral questions in the professional field of vets, such as euthanasia in the pet field, animal protection through veterinary medical intervention, emergency killing and culling, etc. The changed status of animals in our society increases the relevance of the question of veterinary responsibility. As this part of the ethics of human-animal interaction has barely been discussed so far, contents, approaches and topics have to be developed step by step.

In 2014, the Vetmeduni Vienna provided funding for ethics in veterinary medicine to support teaching and research in this field. This is linked to the integration of ethics in veterinary medicine into the new curriculum for the veterinary medicine programme. The Unit of Ethics and Human-Animal Studies is responsible for these courses. This promotes the unit's research and teaching in this promising field, which will be further developed in future years. Kerstin Weich is going to continue her teaching in this field. The project "Vethics For Vets – Ethics for veterinary officers" provides the basis and connects theoretical approaches with the veterinary officers' practical needs and moral questions.

Coordinating Office for dog trainers in accordance with animal welfare

Dog trainers in accordance with animal welfare

The Coordinating Office continued to establish itself as a central contact point for questions about dog training and keeping. As well as requests by print and online media, in addition to radio and TV stations for input on dog keeping and training and related programmes, the office is regularly asked for advice from the public sector – e.g. by ministries, offices of animal welfare ombudspersons and committees of state parliaments in the Austrian provinces. Therefore, the Coordinating Office headed by Karl Weissenbacher can be referred to as an information and counselling centre in the field of dogs. Several talks for cynologists, dog trainers, vets and dog keepers completed the profile in 2014. In its core field of examinations, 48 trainers took the exam in 2014 and 38 of them passed.

Minister Sabine Oberhauser and laureate Barbara Benett

Assistance and Therapy Dogs

Due to the amendment of the Disability Act in July 2014 that regulated the use of assistance and therapy dogs, the Federal Ministry of Labour, Social Affairs and Consumer Protection asked the Coordinating Office to develop examination rules for these fields. Furthermore, the Office was involved in examining all assistance and therapy dogs when the amendment of the Disability Act came into force on 1 January, 2015.

University Course of Applied Cynology

The University Course of Applied Cynology has been successfully established itself and is widely appreciated. In addition to the print publication of the graduates' theses in journals and various invitations to talks and conferences, the course was honoured by the Austrian Animal Protection Prize, one of the most important of its kind in Austria, which was awarded to Barbara Benett for her thesis on the impact of TV series on dog training. An expert jury chose this thesis out of 66 submitted projects. According to the Vetmeduni admission procedure, 28 students out of 45 applications were selected for the fourth course and started their studies enthusiastically in October.

Animal Law at the Messerli Research Institute

Animal Law is part of teaching and research at the Messerli Research Institute, focusing on general animal welfare legislation and animal testing legislation. Regina Binder, who also heads the Information and Documentation Office for Animal Welfare and Veterinary Law at the Vetmeduni Vienna, is responsible for this field. The Unit of Ethics and Human-Animal Studies and the Unit of Comparative Medicine have several areas of interdisciplinary collaboration with this field. This collaboration comprises mainly teaching in the Master's programme IMHAI and the scientific discussion of questions arising from current publications and projects. The normative foundations of the various forms of human-animal interaction and their relationship to empirical findings in natural science are central in this cooperation.

Interdisciplinary Master in Human-Animal Interactions (IMHAI)

One of the major targets of the institute is the appropriate training of young experts who are able to ethically reflect on human-animal interactions and assume responsibility on a scientific basis. Therefore, the three units of the Messerli Research Institute, together with the Institute of Animal Husbandry and Animal Welfare, designed an international Master's programme in spring 2012 that is unique in its broad interdisciplinary approach. The curriculum comprises aspects of natural sciences, humanities and law in the context of human-animal interaction. The research-oriented programme qualifies graduates for both academic careers and careers in all fields of human-animal interaction.

www.vetmeduni.ac.at/en/messerli/teaching/

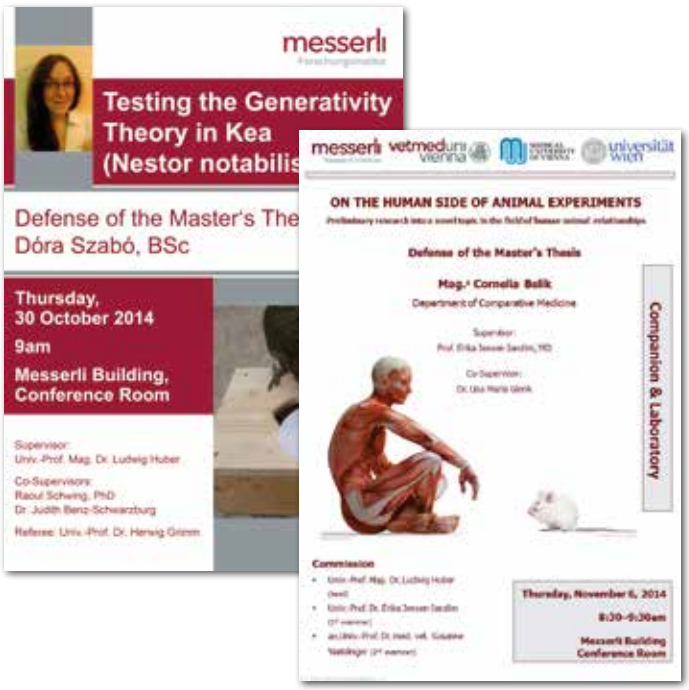
In 2014, the first students graduated:

Dóra Szabó handed in her thesis on "Testing the Generativity Theory in Kea (Nestor notabilis)" (supervisor Ludwig Huber, co-supervisors Raoul Schwing, Judith Benz-Schwarzburg). The defence was successfully completed on 30 October, 2014.

Cornelia Belik graduated with a thesis on "On the human side of animal experiments". The defence took place on 6 November, 2014 (supervisor Erika Jensen-Jarolim, co-supervisor Lisa-Maria Glenk).

Martina Muhr handed in a thesis on "Generation and characterization of a recombinant, soluble form of feline FceRIalpha for chip diagnosis of cat allergy" (supervisor Erika Jensen-Jarolim, co-supervisor Judit Fazekas).

Annika Huber (supervisor Ludwig Huber) and Patricia Käfer (supervisor Herwig Grimm) will finish their theses in the near future.



Further courses

Staff members of the Messerli Research Institute did not only teach in the Interdisciplinary Master's in Human-Animal Interaction, but also in the programmes at the Vetmeduni Vienna, as well as at other universities and schools. This contributes to the institute's visibility and network, especially with its partner universities. Cooperation for teaching leads to permanent and intense exchange with the partner universities.

Members of the Unit of Comparative Cognition taught several courses at the Vetmeduni Vienna (diploma programme veterinary medicine, modules Labortierkunde and Übungstierkunde, Applied Cynology) and at the University of Vienna (Bachelor programme biology, several Master programmes). They supervised several Master's and PhD projects at both universities.

Acting as a bridge, members of the Unit of Comparative Medicine taught in the fields of human and veterinary medicine – e.g. in the human medicine programme, the module Labortierkunde, PhD basic seminars, lab practice, journal clubs and thesis seminars. Furthermore, they supervise Master's and Doctoral theses, also in the doctoral programme MCCA and CCHD at the Meduni Vienna. They are also members of thesis committees and commissions for doctoral disputations and other exams.

Members of the Unit of Ethics and Human-Animal Studies taught in the veterinary medicine programme of the Vetmeduni Vienna, focusing on ethics. They also gave classes on applied ethics at the Institute of Philosophy at the University of Vienna. Furthermore, they taught in the courses Applied Cynology and Animal-assisted Therapy, as well as in the training for animal welfare consultants (with the association Tierschutz macht Schule).

Weekly interdisciplinary journal clubs in the team office of the Unit of Comparative Medicine – IMHAI student Irene Fürdös presenting

PhD and doctoral students

DK programmes

Together with Thomas Bugnyar, Tecumseh Fitch, Walter Hödl, and Kurt Kotrschal (all University of Vienna), Ludwig Huber heads the PhD programme “Cognition and Communication,” which is funded by the FWF. He is supervising three PhD projects: Mark O’Hara on logics in Kea, Stefanie Riemer on the development of technical intelligence in dogs (completed) and Lisa Wallis on cognitive aging in dogs.

The first doctoral programme of the Meduni Vienna funded by the FWF, Cellular Communications in Health and Disease (CCHD; coordinator S. Böhm), was approved in 2006 and is currently in its fourth period. Erika Jensen-Jarolim has been a faculty member from the beginning, as one of 13 Principal Investigators. She supervised four CCHD students, who have already completed their PhD studies. Two are currently working on their doctoral theses under her supervision (Judit Fazekas, Jelena Gotovina). Erika Jensen-Jarolim is also involved in a second doctoral programme by the FWF, “Molecular, Cellular and Clinical Allergology (MCCA)” (coordinator W. Pickl), in which she supervises Lukas Einhorn.

The professors of the PhD programme “Cognition and Communication”

The Unit of Comparative Medicine has been involved in the doctoral programme CCHD of the Meduni Vienna for several years

PhD/doctoral studies

The Unit of Comparative Cognition supervised 12 PhD projects in 2014: on keas (Mark O'Hara), domestic dogs (Anjuli Barber, Giulia Cimarelli, Soon Young Park, Stefanie Riemer, Lisa Wallis, Désirée Brucks, Mylène Chaumette, Durga Chapagain), wolves and dogs (Rachel Dale, Jennifer Essler), and pigs (Marianne Wondrak). The doctoral students were supervised by Ludwig Huber, Friederike Range and Zsófia Virányi.

Erika Jensen-Jarolim supervised seven PhD projects in 2014. Several of them were completed: Josef Singer (defence 28 June, 2014) and Caroline Stremnitzer (defence 25 June, 2014) from the CCHD programme. Kumiko Oida defended her doctoral theses on 28 June, 2014. Lukas Einhorn studied in the MCCA programme, Judit Fazekas and Jelena Gotowina in the CCHD programme, and Galateja Jordakiewa in the programme N094 of the Medical University of Vienna.

Herwig Grimm of the Unit of Ethics and Human-Animal Interaction supervised four scientists in the PhD programme of the Vetmeduni Vienna (Kerstin Weich, Samuel Camenzind), in the doctoral programme of the Vetmeduni Vienna (Anne Zintzsch) and in the doctoral programme by the Institute of Philosophy at the University of Vienna (Andreas Aigner).

Josef Singer after his successful defence

Engagement in committees

Members of the Unit of Comparative Cognition held leading positions on a national and international level. Ludwig Huber was the spokesperson of the Messerli Research Institute at the Vetmeduni Vienna, coordinator of the IMHAI programme and member of the Curriculum Commission for several study programmes. On an international level, he was involved in the network “CompCog” of the European Science Foundation (steering committee) together with Zsófia Virányi (general secretary), as well as in the EU network project EuCog II. Friederike Range and Zsófia Virányi headed the Wolf Science Center and the association “Clever Dog Lab”.

Erika Jensen-Jarolim was involved in national and international committees. Particularly interesting and honouring were her positions on the WWTF committee, the Steering Committee of the Federal Government of Lower Austria to develop the FTI strategy for Lower Austria, the Senate of the Vetmeduni Vienna, the Scientific Advisory Board of the Department for Health Sciences and Biomedicine at the Danube University Krems, and the Aluminium Expert Workshop of the Federal Ministry of Health. On an international level, she is a founding member of the European Academy for Allergy and Clinical Immunology of the Interest Group for Comparative Veterinary Allergology, a member of the IG “Allergy Diagnosis”, president of the taskforce “AllergoOncology” and a member of the taskforce “Biomarkers of Allergen Immunotherapy”.

The honoured guests at the Science Gala 2014 around Governor Erwin Pröll, f.l.t.r. Veit Schmid-Schmidsfelden, Robert Menasse, Petra Bohuslav, Erika Jensen-Jarolim, all laureates, and Barbara Schwarz

Photo: © NLK Pfeiffer

Members of the Unit of Ethics and Human-Animal Studies were involved in committees on a national and international level. Herwig Grimm is a member of the Scientific Advisory Board of the Institute TTN at the Ludwig Maximilian University Munich, Germany, as well as of the Scientific Advisory Board of the doctoral programmes at the Institutes of Philosophy and Cognitive Science at the University of Vienna. He is a member of the Ethics Committee at the Vetmeduni Vienna and the Scientific Advisory Board of the association Tierschutz macht Schule. Norbert Alzmann is a member of the § 15 commission of Baden-Württemberg on the evaluation of research proposals including animal testing.

Grants and Awards 2014

The Unit of Comparative Cognition got three awards in 2014:

- Eva Ringler got the Hertha Firnberg Award of the Federal Ministry of Science, Research and Economy, funding a three-year FWF project (T 699). This enables her to investigate the cognitive behaviour of poison-arrow frogs Allobates femoralis at parental care.
- Lisa Wallis got the Best Oral Presentation Award at the ISAZ Conference 2014 in Vienna.
- Rachel Dale got the CogEvo 2014 Abstract Award at the "Foundations of Social Cognition" Conference in Rovereto, Italy.

Members of the Unit of Comparative Medicine got the following awards in 2014:

- Josef Singer got the Stefan Wagner Dissertation Award of the Austrian Society of Allergology and Immunology (ÖGAI) for his thesis on "IgE based Immunotherapy against Cancer – A Comparative Oncology Approach".
- Judit Fazekas got the award of the Section Science & Research of the Austrian Society of Cynologists and the association Red Paw for "Entwicklung einer zielgerichteten Immuntherapie für Hundepatienten gegen das Tumor-Antigen EGFR" (developing a targeted immunotherapy for dog patients for the tumour antigen EGFR).
- Furthermore, she got the EAACI Congress Scholarship for the annual conference of the European Academy of Allergy and Clinical Immunology (EAACI).

Eva Ringler got the Hertha Firnberg Award of the Federal Ministry of Science, Research and Economy

Rachel Dale and Lis Wallis got awards.

- Franziska Roth-Walter got the Outstanding Abstract Award for “The major birch pollen allergen Bet v 1 is a lipocalin-like protein” at the Scientific Conference 2014 of the World Allergy Organization (WISC).
- Erika Jensen-Jarolim got an award for the best oral workshop presentation at the annual conference of the EAACI for “Der p 2 is a strong epicutaneous allergen even in the absence of TLR4” (Stremnitzer et al.).

Svenja Springer from the Unit of Ethics and Human-Animal Studies got two awards in 2014:

- Scholarship for outstanding students by the Society of the Friends of the University of Veterinary Medicine, Vienna (October 2014)
- Scholarship for outstanding performance by the University of Veterinary Medicine, Vienna (December 2014)

PhD student Judit Fazekas got the award of the Austrian Society of Cynologists and the association Red Paw.

Cooperation & International Engagement

Important partners in 2014

Associated Centres

Comparative Immunology and Oncology at the Meduni Vienna

Erika Jensen-Jarolim and her team literally live the double appointment at the Medical University of Vienna and the Vetmeduni Vienna. She has been working at the Institute for Pathophysiology and Allergy Research for 25 years. This institute is part of the Center for Pathophysiology, Infectiology and Immunology (head: Hannes Stockinger). She built up a division, which is now called “Comparative Immunology and Oncology”, referring to comparative medicine. This lab and the lab at the Vetmeduni Vienna campus are the two locations of the Messerli unit. Both labs are well-equipped. About 70 percent of the staff are working in third-party funded projects. The Unit of Comparative Medicine at the Messerli Research Institute is also involved in the Immunology Research Cluster (coordinator Wilfried Ellmeier).

The Unit of Comparative Medicine maintains good relationships with the rectorates of the Danube University Krems and the Karl Landsteiner Private University.

Clever Log Lab

The “Clever Dog Lab” was established at the Vetmeduni Vienna to investigate the cognitive abilities of dogs experimentally. Eight testing rooms, the welcome and waiting area, two offices, a depot and several side rooms are located on 380 square metres. All testing rooms are equipped with camera surveillance systems to register the behaviour of the dogs and analyse it later. Furthermore, there are three computer-controlled learning appliances with touch screens, as well as an eye-tracker system. The association “Clever Dog Lab” provides access to a large number of dog owners and serves as a platform for knowledge transfer from basic research into the socio-politically relevant practise.

Research Station Haidlhof

The Haidlhof of the Teaching and Research Farm Kremesberg (LFG) near Bad Vöslau (Lower Austria) provides an infrastructure for research into the cognition of birds and livestock, which is unique at a global level. Keas, ravens and woodpeckers are kept in generous aviaries. The rich environment and special testing rooms – also a bioacoustics lab – provide nearly ideal conditions for investigating the intelligence of these animals. The two project partners (University of Vienna/Cognitive Biology and Vetmeduni Vienna/Comparative Cognitions) were able to raise infrastructure funds at the Ministry of Science for the extension of the station, which has already started. In summer 2014, an 8-ha free-range lab for pigs was built (see also page 44).

Two dogs are tested in the Clever Dog Lab regarding their willingness to cooperate

View into the kea aviary at the research station

Wolf Science Center

Zsófia Virányi and Friederike Range (Comparative Cognition) founded the Wolf Science Center (WSC) and the two related associations (one scientific and one supporting) together with Kurt Kotrschal from the University of Vienna. The station is located in the Wildlife Park Ernstbrunn. Wolves and dogs are raised in the same way and kept in (separated) packs in large enclosures. There is also a testing building and special research facilities. The aim is to investigate the behaviour and cognition of dogs and wolves in order to better understand the effects of domestication. A second testing area was built to extend capacities due to an ERC project by Friederike Range and other projects. About 25 scientists work at the WSC.

Institute of Philosophy at the University of Vienna

There is intense exchange and regular teaching cooperation with the Institute of Philosophy at the University of Vienna due to Herwig Grimm's double appointment, his related research and teaching and Martin Huth's teaching as an external lecturer. In addition to teaching, members of the Unit of Ethics and Human-Animal Studies are also involved in research – e.g. in the doctoral programme of the Institute of Philosophy. The institute is big compared with international standards and benefits from the staff's broad range of competences. Members of the institute teach classes on various highly specialised topics.

Visitors at the Wolf Science Center

Field trip by the research seminar
of the University of Vienna to the Haidlhof

Cooperation with our partner universities

University of Veterinary Medicine, Vienna

- Institute of Animal Husbandry and Animal Welfare
- University Clinic for Small Animals
- University Clinic for Swine
- Institute of Medical Biochemistry
- Clinical Unit of Diagnostic Imaging
- Institute of Population Genetics
- Konrad Lorenz Institute of Ethology
- Tiere als Therapie (Animals as Therapy)/ Research and training centre
- VetCore
- Institute of Laboratory Animal Science
- Clinical Unit of Anaesthesiology and Peri-operative Intensive-Care Medicine

University of Vienna

- Department of Cognitive Biology
- Department of Behavioural Biology and Human-Animal Relationships Research Group
- Department of Integrative Zoology
- Cognitive Science Platform
- Faculty of Psychology
- Institute of Philosophy
- Institute Vienna Circle

Medical University of Vienna

- Center for Pathophysiology, Infectiology and Immunology
- Center for Biomedical Engineering and Physics
- Department of Radiotherapy
- Department of Psychiatry and Psychotherapy
- Department of Child and Adolescent Psychiatry
- Department of Dermatology
- Department of Surgery
- Preclinical Imaging Cluster
- Immunology Research Cluster
- Comprehensive Cancer Center

Further national partners

- Zoo Schönbrunn
- Network Berufliche Assistenz, Vienna
- University of Natural Resources and Life Sciences, Vienna
- Technical University of Vienna
- Catholic-Theological Private University Linz

Further international partners

The members of the Unit of Comparative Cognition cooperate closely with scientists from universities in Italy (Milan, Padua, Parma, Rome, Rovereto), Hungary (Eötvös Loránd and Semmelweis in Budapest), Great Britain (Bristol, Exeter, Lincoln, Oxford), Japan (Tokyo), USA (Duke, Minnesota, Nebraska), and New Zealand (Christchurch, Auckland), partly in concrete cooperative projects.

The Unit of Comparative Medicine currently cooperates with institutions in Great Britain (Imperial London, King's College), Spain (Technical University of Madrid), Germany (Clinic of the University of Munich, Research Center Borstel, University of Lübeck, University of Kiel, MediGene Martinsried), Portugal (University of Trás-os-Montes and Alto Douro), and Japan (Tokyo University of Agriculture).

The internationally renowned US professors Dorothy Cheney, Robert Seyfarth, and Colin Allen

The Unit of Ethics and Human-Animal Studies cooperates with scientists from university institutes, among others from Germany (Ludwig Maximilian University of Munich) and Switzerland (University of Zurich, University of Basel), focusing on ethics in veterinary medicine and animal ethics.

Cooperation with networks and societies

Members of the Unit of Comparative Cognition (Ludwig Huber, Friederike Range, and Zsófia Virányi) cooperate with research groups from the 11 European countries that built the ESF research network CompCog for five years. Furthermore, they are in touch with researchers from Europe, the USA and Australia in the Canine Science Forum.

The Unit of Comparative Medicine is strongly involved in research clusters such as the immunology research cluster and tumour immunology clusters. The doctoral programmes CCHD, MCCA and SFB “Prevention, Diagnosis & Therapy of Allergies” (coordinator Rudolf Valenta), as well as the BioNanoNet, are excellent opportunities for national cooperation. On an international level, members of the unit are involved in the Collegium Internationale Allergologicum, the European Academy of Allergology and Immunology, the American Academy of Allergy, Asthma and Immunology and the World Allergy Organization.

The Unit of Ethics and Human-Animal Studies cooperates with platforms and associations in the field of animal ethics, among others the Research Initiative Animal Theories (FITT), the Colloquium Bündnis Mensch und Tier, the European Society for Agricultural and Food Ethics, the European Academy of Sciences and Arts, Minding Animals Germany and Minding Animals International.

Prof. Ronald Noe (Strasbourg) in the kea aviary at the Haidlhof

Guest Researchers at the Messerli Research Institute

As already in previous years, several guest researchers from all over the world contributed to the work of the Unit of Comparative Cognition in the Clever Dog Lab, the Wolf Science Center and at the Haidlhof, among others from England, Switzerland, Germany, Hungary, Portugal, Sweden, Italy, Croatia, Poland and the USA.

Additionally, the Unit of Comparative Medicine – with its two complementary locations – was an attractive destination for applications by international Master and PhD students. The guests came from Sweden, Japan, Spain, Ukraine and Serbia.

In the Unit of Ethics and Human-Animal Studies, the planned cooperation with the doctoral programme "Law and Animals: Ethics at Crossroads" (University of Basel) took place for the first time in 2014. A guest researcher worked on her doctoral thesis on legal questions relating to human-animal relationships during her three-month stay.

The Hungarian scientist Borbála Turcsán takes a saliva sample of a dog.

Society & Public Relations

2014

The Messerli Research Institute is committed to continuous knowledge transfer to the public sphere, in line with its principles as defined in its mission statement. The institute maintains cooperation with partners from different fields. Thus, the institute contributes to the promotion of a scientifically sound and ethically acceptable treatment of animals in our society.

Media Highlights

A detailed documentation of the institute's media coverage can be found on www.vetmeduni.ac.at/en/messerli/infoservice/press/.

Current research findings by the Unit of Comparative Cognition on wolves (learning from conspecifics, ability to cooperate, numeric imagination), dogs (recognition of faces, cognitive aging), and turtles (contagious yawning) resulted in huge media response, as well as visits by renowned persons such as Minster of Health Alois Stöger in the Clever Dog Lab and Jane Goodall (with Vice Chancellor Reinhold Mitterlehner and Governor of Lower Austria Erwin Pröll) at the Haidlhof.

f.l.t.r.: Mayor Prinz, Professor Fitch, Rector Hammerschmid, Governor Pröll, Jane Goodall, Vice Chancellor Mitterlehner, Rector Engl, Professors Huber and Bugnyar

Minister Stöger visits the Clever Dog Lab together with Rector Sonja Hammerschmid and Ludwig Huber.

Publication highlights by the Unit of Comparative Cognition resulted in a positive media response. Erika Jensen-Jarolim was also a guest in the Science Talk on ORFIII, talking to anchor woman Barbara Stöckl about her research topics, but also about her personal career. Her involvement in Lower Austrian research policy resulted in an invitation to a panel discussion on the question “Does science contribute to social and economic progress?” at the Science Gala discussing with novelist Robert Menasse, industrialist Veit Schmid-Schmidsfelden, and Barbara Stöckl.

Additionally, a presentation by Melanie Joy attracted the attention of the media. The talk was organised by the Unit of Ethics and Human-Animal Studies. Melanie Joy is a social psychologist (University of Massachusetts, Boston, USA) and became famous because of her book “Why we love dogs, eat pigs, and wear cows”. Another event with notable response was a debate in Die Zeit between Herwig Grimm and Friederike Schmitz, philosopher at the Humboldt University of Berlin. The two philosophers discussed about controversial issues such as meat consumption and the keeping of livestock.

Panel discussion anchored by Barbara Stöckl

Photo: © NLK Pfeiffer

Events 2014

Members of the Messerli Research Institute were involved in several national and international conferences in 2014. They acted as hosts, co-organisers, committee members etc. Thus, they contributed to the institute's visibility in Austria and abroad and promoted the network of researchers in the field of human-animal interaction.

The ISAZ Satellite Meeting on 22 July, 2014 under the title "Brute facts and normative implications: Understanding human-animal interactions".

Herwig Grimm at the 9th World Congress on Alternatives and Animal Use in the Life Sciences in Prague, 24–28 August 2014

Public presentation of the VETHICS project: “Animals: Living resources” (24 June 2014)

Prae/Post-Doc conference together with the foundation “Bündnis Mensch und Tier”, 18/19 July 2014

Infrastructure 2014

In the course of the Messerli project on pigs, a free-range lab was built at the Haidlhof, Lower Austria according to the highest welfare standards (see page 35). Pasture feeding was chosen for ethical and scientific reasons because it is the only way to provide nearly natural conditions for the animals and the development of their socio-cognitive abilities.

In a first step, farmland (ca. 7 hectare) was fenced off and a special type of trefoil grass was cultivated. This is now available for the Kune Kune pigs, according to a rotation principle. A strong outer fence with stranded wire protects the pigs against intruders. Inside, the pastures are separated by flexible electric fences. The inner and outer fences are separated by a broad corridor (10 metre). A little wood (ca. 1 hectare) in the centre provides shelter. There are insulated sleeping huts (6 square metres each), arranged like an A. The frost-proof water supply consists of a well (depth 12 metre), an insulated water tower (1000 litres) and a heated watering place. A testing hut with a computer-controlled learning box and special camera surveillance system were built for this project. Electricity is supplied by a solar system and a diesel generator. A container and two tents serve as office and depots.

The wood provides shelter for the sleeping huts.

The Kune Kune pigs on the pasture at the Haidlhof

The low-cost infrastructure was mainly built in our own workshops (Wolfgang Berger, Andras Peter, Peter Füreder, Michael Pichler). Members of the Unit of Comparative Cognition, the Research Station Haidlhof (also University of Vienna) and the Teaching and Research Farm Kremesberg (head: Walter Pohl) prepared the surfaces, built up the fences and completed all the other tasks on-site under the guidance of Marianne Wondrak.

Staff members build up the pasture fence.

Social Events 2014

Departure for the hiking tour at the retreat in Drosendorf

Opening of the Riedl Library in the Messerli building

Christmas party 2014

Christmas party 2014

Presentations of the Clever Dog Lab at the Open Day

IMHAI teachers of the Unit of Comparative Medicine at the Heurigen

The Unit of Comparative Medicine baking cookies before Christmas

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