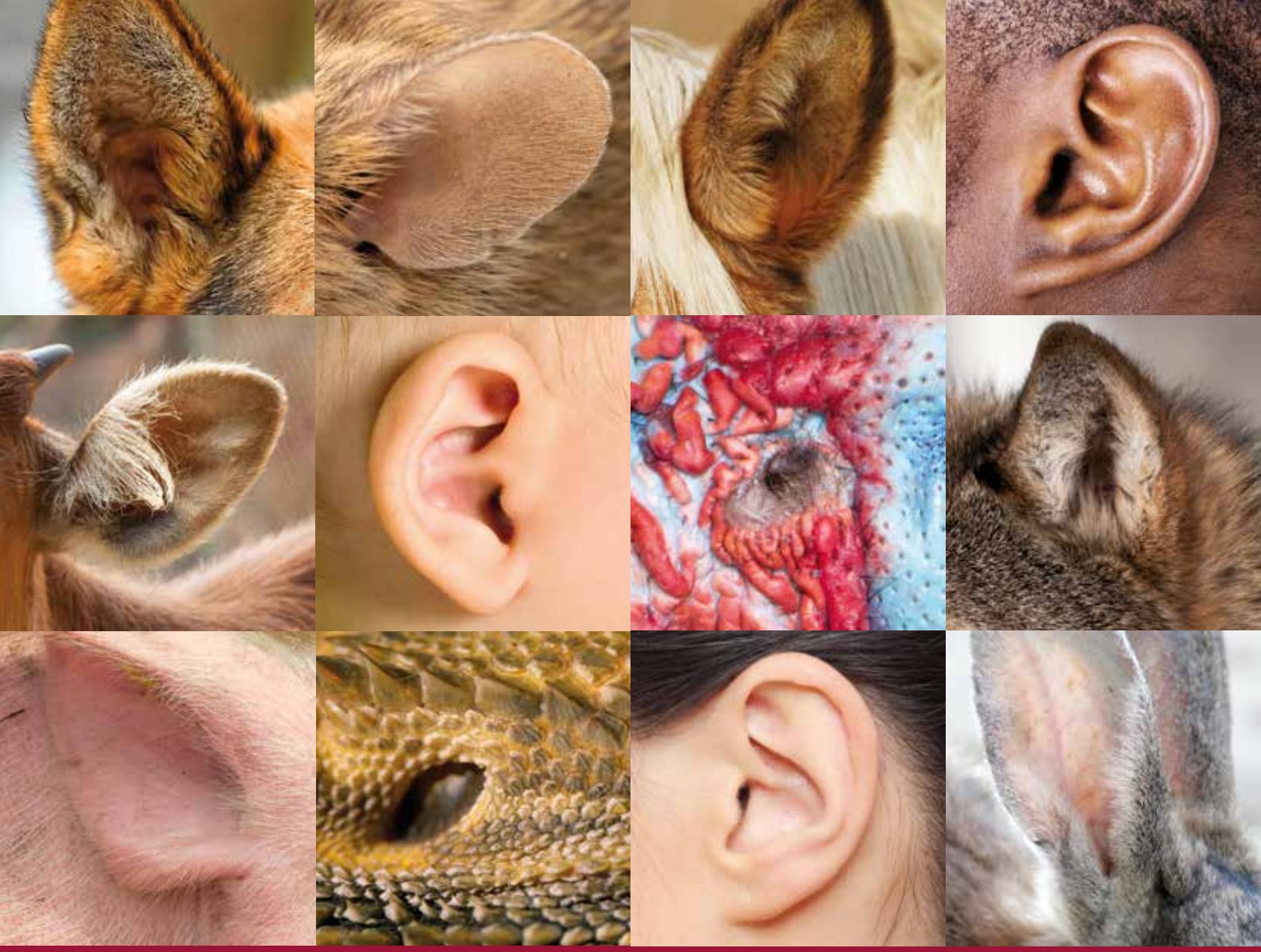

messerli
Research Institute

Annual Report 2013

messerli Stiftung

vetmeduni vienna

MEDIZINISCHE UNIVERSITÄT WIEN

universität wien

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Preface

2013

Sonja Hammerschmid

Rector of the University of Veterinary Medicine

The young Messerli Research Institute, due to its uniqueness in terms of subject matter, could establish itself beyond the national borders within a very short period of time.

The aim in research and teaching is to find answers to questions concerning the manifold and changing human-animal interactions. Even if these questions are various and numerous, their answers always have something in common: they provide orientation based on scientific findings and claim the assumption of responsibility – on an individual as well as a societal level.

The translation of the EU Directive on animal testing into national legislation in the past year, for instance, showed that an interdisciplinary approach based on scientific findings was absolutely necessary. Balancing of harms and benefits in animal testing will be carried out through a set of criteria, taking ethical aspects into account. The Messerli Research Institute has been engaged to develop these means, which will now be developed in an intensive process involving all stakeholders and many international experts.

The close relations between the University of Veterinary Medicine, Vienna, and its two partner universities ensure a comprehensive transfer of knowledge that students and scientists benefit from. Ethical aspects, for instance, are increasingly integrated into veterinary medicine teaching during reforms of the curriculum. The Messerli Research Institute makes substantial contributions to teaching the next generation of vets these aspects. Transfer of research results manifests itself also in the unique Master's programme.

The institute's integrative approach will find particular expression in the new joint research project, which will investigate socio-cognitive abilities of domestic pigs and indicators for animal well-being. Arising ethical questions will also be discussed. The project is still starting up, but I'm convinced that any newly found results will draw widespread attention.

In this sense, I wish the team great success in its tasks. I would like to thank all cooperation partners and the Messerli Foundation, in particular Herta Messerli, for the trust placed in the institute. Bundling the efforts of three Viennese universities, we will continue to commit ourselves to shaping the human-animal relationship in a responsible way.

Wolfgang Schütz

Rector of the Medical University of Vienna

Important interdisciplinary exchange of knowledge between human and veterinary medicine

The Messerli Research Institute is a perfect example of interdisciplinary thinking and action at Austrian universities. Common mechanisms of diseases in humans and animals can be recognised more rapidly through comparative and interdisciplinary research, aimed at developing new therapies as fast as possible. The resulting interdisciplinary exchange of knowledge between human and veterinary medicine has positive effects on research at the Medical University and at the University of Veterinary Medicine.

At the same time, the Messerli Foundation took on a social mission in the sense of supporting people in their responsibility towards animals and to transmitting research results to them through the founding of this research institute.

This cooperation between three local universities is unique and a successful bridge between human and veterinary medicine as well as between the humanities and sciences. This collaboration also underlines the international top position and excellent reputation of research in Vienna.

The Medical University of Vienna's success is increasingly markedly, not only due to large numbers of outstanding publications by researchers in international top journals, but also in terms of international university rankings. The Meduni Vienna has improved its position significantly, for instance, in the renowned Times Higher Education Ranking and is now shares position 251–275. It is at position 51 in the ranking for medical universities worldwide. We can be proud of these top performances, especially in the light of the very difficult framework conditions we face.

Heinz W. Engl

Rector of the University of Vienna

The University of Vienna is focused on concentrating competencies, sharing resources and infrastructure as well as promoting interdisciplinary, cross-university research and young scientists by cooperating with Austrian universities and other research institutions. The Messerli Research Institute, founded in March 2012, is a good example of this kind of cooperation due to its broad interdisciplinary approach and its international orientation. Only the generous funding of the Messerli Foundation has made this possible – once again sincere thanks to you at this point. The Messerli Research Institute not only contributes significantly to research into human-animal interaction, but also performs an important social function by increasing awareness of the responsible treatment of animals on a scientific basis.

As the Rector of the University of Vienna I am very pleased to see that the research location Vienna has been expanded by this interesting and ambitious institute, which can look back on a successful 2013. The collaboration with the two partner universities has stimulated further cooperation: the University of Vienna and the University of Veterinary Medicine were able to raise structural funding for higher education for a joint Professorship in Animal Physiology, focusing on Ornithology. The University of Vienna, the Medical University and the University of Veterinary Medicine were successful with a joint proposal for the Interdisciplinary Translational Brain Imaging Cluster with High-field MR. The Messerli Research Institute itself will also benefit from this research infrastructure.

Heinz Schweizer

Vice president Messerli Foundation

The Messerli Foundation, located in central Switzerland, aims to alleviate suffering in all beings. On the one hand, it gives support for children in need, while on the other hand it supports the well-being of animals. Several projects to protect animals have already been carried out, i.e. the establishment and maintenance of a veterinary medical research station in the Serengeti or research into the habitat of cheetahs in Namibia, which resulted in the decrease of shot cheetahs through the education of farmers. In order to broaden the scientific basis of the foundation's goals, the foundation council decided to establish a centre of education and research into human-animal interactions together with qualified universities, with an interdisciplinary organisation, an international orientation and where freedom of research and education are guaranteed.

The Messerli Research Institute perfectly fulfils these criteria. It is headed by an international and highly motivated team of scientists and is backed by three universities that effectively support interdisciplinarity through cooperation, while the Scientific Advisory Board accompanying the institute, maintains the interdisciplinary research as the main focus.

This annual report shows the results of this work. Findings are published in specialised literature and talks, and form the basis for the unique Master's programme on human-animal interactions at the Messerli Research Institute.

The Messerli Foundation is proud of what has been achieved so far and wants to thank all people involved.

Interdisciplinary efforts

Ludwig Huber

Spokesperson Messerli Research Institute

In contrast to a pure competence centre, the main aim of a research institute is to gain new knowledge, not only adopt it. This knowledge, however, is never complete. Gaining new knowledge only means making one more step towards insight, without knowing how long the path will be. The product of these findings is never the truth, except in a trivial sense. Science does not provide absolute or final certainty, but falsifiable knowledge. This is sometimes opposed to political and societal expectations on science: to find simple answers to complex questions.

Nonetheless, science is about simplification. It is the scientists' task to explain complex contents to people outside the scientific community. Karl Popper stated that good science – and good philosophy – consists of successful over-simplifications. Or according to Albert Einstein: "Everything should be as simple as it can be, yet no simpler."

Human and animal behaviour is complex, the various interactions between humans and animals even more so. What is, for instance, "natural" or "species-appropriate" behaviour? These adjectives are often used in discussions on animal husbandry and animal welfare, but there is no simple empirical equivalent, not unlike "innate" behaviour. Despite whatever genetic disposition, behaviour can be modified by learning, individual adaptation and continuous environmental influences (to a greater or lesser degree). It is, thus, more reasonable to ask about the potential animals have to cope with the rigours of life and while still pursuing their own interests. It is obvious that these interests have to be free of suffering to be realised. Whether the animals themselves have to be cognizant of these interests is not so clear. Whether their value (in terms of considering them) is higher if their interests are closer to those of humans, is even less clear. The example of being free of suffering shows that the term has to be filled with contents from behavioural and cognitive biology, as well as medicine, and its normative content has to be ethically justified, otherwise it remains an empty statement. This is exactly what can be achieved at the Messerli Research Institute.

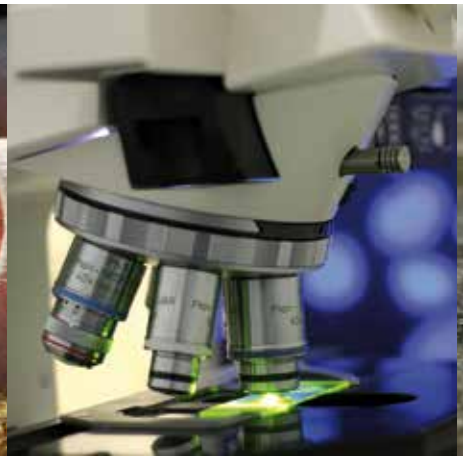
The Scientific Advisory Board of the institute met for the first time in December 2013. The members encouraged us to continue along our path of interdisciplinary collaboration in order to find answers to complex and often controversial questions in human-animal interactions. Ongoing and approved projects will position the units within their disciplines and contribute to the institute's visibility. The first project involving all three units will be launched in spring 2014, thanks to the generous support of the Messerli Foundation. It will investigate the socio-cognitive abilities of domestic pigs, their ethical relevance and new indicators for stress and well-being (see p. 37). This will hopefully contribute to the development of a unique Messerli profile.

Kune-Kune boar Charly

The Messerli Research Institute at a glance 2013

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. On March 29, 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.
- **Orientation:** The institute's work is characterised by its broad interdisciplinary approach (biology, human medicine, veterinary medicine, philosophy, psychology, law) and a strong international focus.
- **Teaching:** Research findings are an integral part of the academic curriculum – especially in a new Master's programme on Human-Animal Interactions – and are also designed to provide guidelines for the responsible and acceptable treatment of animals.
- **Practice:** Thus, the Messerli Research Institute considers providing scientific information to aid people responsible in the field of human-animal interactions one of its main responsibilities.


Targets

Principles and criteria for ethically acceptable dealings with animals

One of the main focal points of the Messerli Research Institute's work is the development of convincing criteria and methods in animal ethics. A key aspect of the teamwork relates to the interdisciplinary transfer of knowledge on salient findings from current research in the fields of biology, veterinary medicine, human medicine and philosophy. The Messerli Research Institute also places high importance on ensuring that principle-oriented debates are kept in mind constantly, while following this application-oriented goal.

Research into Human and Animal Health and the 3R-concept

The Messerli Research Institute considers the promotion of human and animal health using comparative medical research projects as one of its targets. Regular knowledge transfer will be encouraged through direct interdisciplinary exchange between local and international universities, as well as institutes and clinics on the campus of the University of Veterinary Medicine, Vienna. The resulting synergies shall create an impact through rapid, health-sector developments and the avoidance of dual structures. The consistent communication of the potential of comparative studies will improve awareness of the topic in the scientific world.

The chances of further improving and ensuring the fulfilment of the 3R-concept (Replacement, Reduction and Refinement) in medical research are realistic through the use of systematic comparative studies between humans and animals and the further promotion of clinical studies in the veterinary field, as an important alternative and supplement to studies using laboratory animals. Knowledge compiled from the fields of cognition and animal behaviour, as well as ethics, will contribute to improve the present laboratory practice in terms of the 3Rs. New discussion points in the debate on ethically justifiable animal experiments are expected.

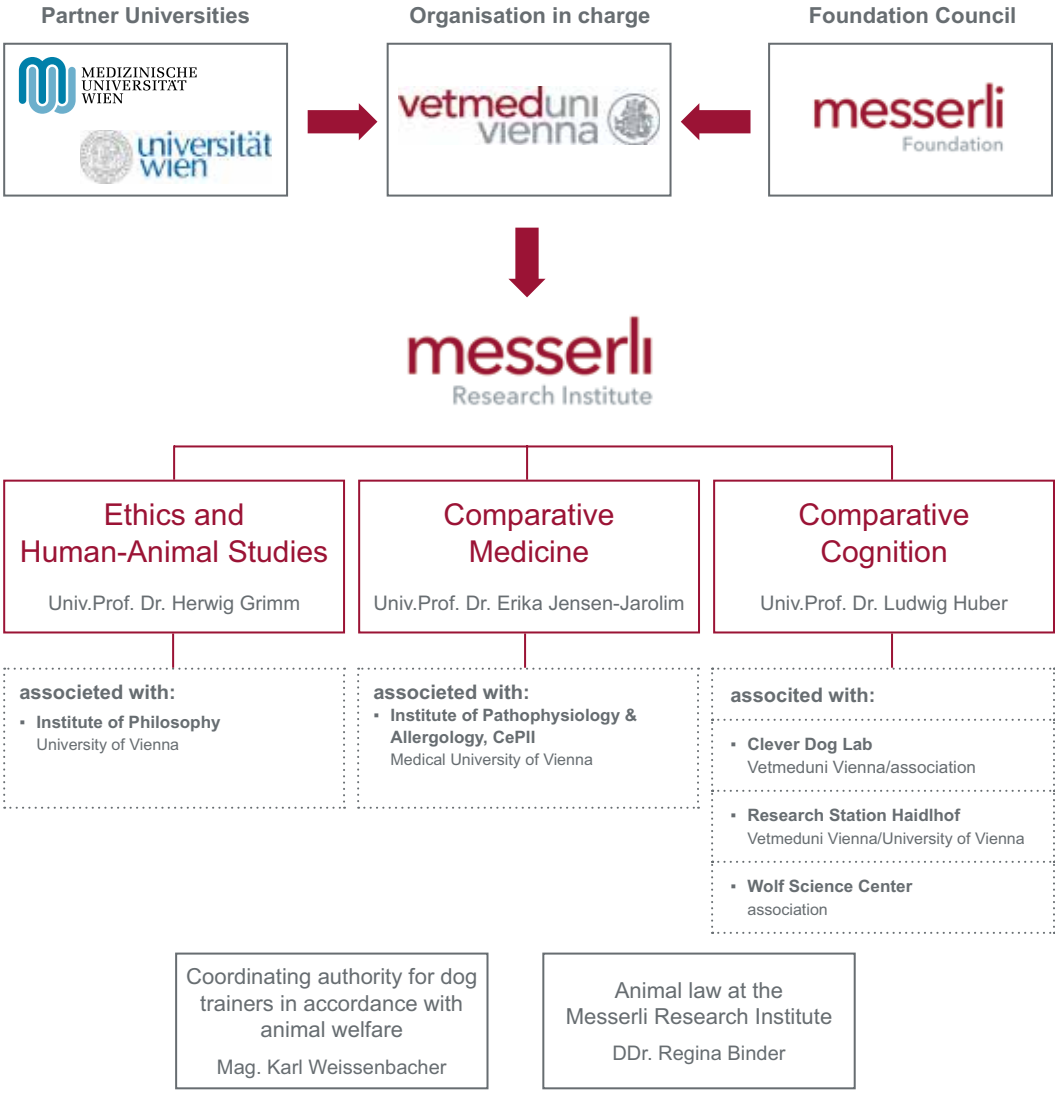
Basic Research in Natural Sciences as a Platform

The Messerli Research Institute strives to achieve a balance between excellent basic and applied research. Key findings stemming from scientific work carried out at the Messerli Research Institute are the platform on which human-animal interactions can be examined in a practically oriented manner. For instance, the field of comparative cognitive research increases levels of empirical knowledge on cognitive, emotional and moralanalogous skills in animals, which will change not only the general perception of animals but also the way we humans see ourselves. These findings are supposed to contribute to animal welfare a better treatment of animals.

Organisation Chart

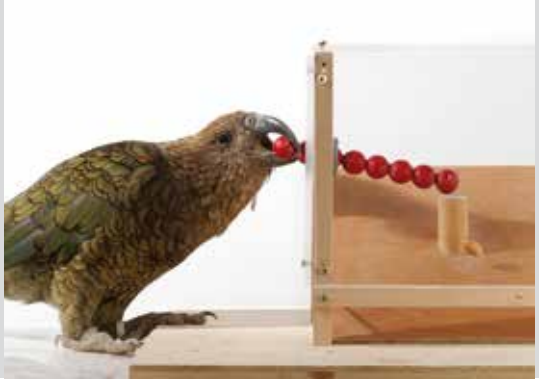
The Messerli Research Institute was established at the Vetmeduni Vienna. It is associated with the rectorate and represented by the spokesperson. It comprises three units (each headed by a fully employed professor), two sub-units and several associated centers that work in cooperation with the partner universities or associations.

In autumn 2013, the sub-unit “Animal Law” was formally established (see p. 83).



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. By the end of 2013, the staff comprised 25 permanently employed personnel. Staff employed by third party-funded projects significantly increased the total level of personnel in 2013. A similar number of scientists work for associated centres.



Kea “Kermit” using tools

Unit of Comparative Cognition

Ludwig Huber

Spokesman of the Institute & Head of Comparative Cognition

Ludwig Huber studied Biology and Philosophy at the University of Vienna. He gained his Master’s degree in 1988 and his PhD with Rupert Riedl in 1991, became a professor in 2000 and headed the Department of Cognitive Biology until his move to the Messerli Research Institute in 2011.

Friederike Range

Head of the Clever Dog Lab, on maternity leave from July 22, 2013, to September 6, 2014

Friederike Range gained her Master’s degree at the University of Bayreuth, Germany (1998) and her PhD at the University of Pennsylvania (2004), USA. She worked in Huber’s EU project (2005–2008) as a Postdoc and founded the Clever Dog Lab in 2007 together with him. She also co-founded the Wolf Science Center (2008). She has been the Head of the Clever Dog Lab at the Messerli Research Institute from 2011. She habilitated in 2013.

Gyula K. Gajdon

Head of the Kea Lab, on paternity leave from August 10, 2013, to May 10, 2014

Gyula Gajdon studied Zoology at the University of Zurich, Switzerland, and gained his doctorate at the ETH Zurich. He worked as a Postdoc with Huber in Vienna (2001–2010) and established the Research Station Haidlhof with him in 2010. He has been a Senior Scientist at the Messerli Research Institute and the Head of the Kea Lab since 2011.

Corsin Andreas Müller

Head of the Clever Dog Lab, temporary replacement for Range

Corsin Müller studied Zoology at the University of Zurich, Switzerland, where he gained his Master’s degree (2002) and his PhD (2007). He was a Postdoc at the University of Exeter (2008–2009), UK, and in Vienna (2010–2013). He has been co-heading the Clever Dog Lab as a temporary replacement for Range since August 2013 (50 percent).

Tamás Faragó
Head of the Clever Dog Lab, temporary replacement for Range

Tamás Faragó graduated from the Eötvös Loránd University, Budapest, Hungary, as a biologist in 2006, where he also gained his PhD (2012). He is working as a research fellow of the Comparative Ethology Research Group of the Hungarian Academy of Sciences. He has also been the co-Head of the Clever Dog Lab as a temporary replacement for Range since August 2013 (50 percent).

Raoul Schwing
Head of the Kea Lab, temporary replacement for Gajdon

Raoul Schwing completed his Bachelor of Science at the University of Utrecht, Netherlands, and his PhD at the University of Auckland (2013), New Zealand. He became a Senior Scientist and Head of the Kea Lab in August 2013, as a temporary replacement for Gajdon.

Karin Bayer
Lab Manager Clever Dog Lab

As the lab manager of the Clever Dog Lab, Karin Bayer is responsible for all organisational aspects of the dog lab. She studied Zoology at the University of Vienna.

Franziska Luckabauer
Assistant of the Head of the Unit and of the institute's spokesperson

Franziska Luckabauer is the assistant to the institute's spokesperson and to the Head of the Unit of Comparative Cognition. She supports the institute in all administrative matters. She studied linguistics at the University of Vienna.

Peter Füreder
IT System Administrator

Peter Füreder is responsible for the construction and operation of the IT infrastructure and ensures the smooth operation of technical equipment for research.

Michael Pichler
Electrical engineer

Michael Pichler is employed at the Center for Medical Physics and Biomedical Engineering of the Medical University of Vienna. He spends half of his working time in his lab developing hardware and software for the technical equipment required for research due to Huber‘s double appointment.

Wolfgang Berger
Engineer

Wolfgang Berger‘s responsibility comprises the development and construction of the technical equipment for research, as well as ongoing maintenance.

Tanja Hampel
Animal keeper

Tanja Hampel is the Head of the animal keepers group at the Haidlhof Research Station. She is employed by the University Vienna, but half of her salary comes from the Vetmeduni Vienna.

Jennifer Bentlage
Laboratory assistant

Jennifer Bentlage gained her Bachelor’s degree in Biology at the University of Göttingen, Germany. She has been studying in the Master’s programme “Ethology, Neurobiology and Cognitive Biology” at the University of Vienna since 2010. She has been working as a lab assistant in the Clever Dog Lab since 2013.

Postdocs

Zsófia Virányi
Co-head of the Clever Dog Lab, on maternity leave from March 18, 2013 to May 28, 2014

Zsófia Virányi gained her Master's degree in Biology (2000) and PhD in Ethology (2004) at the Eötvös University, Budapest, Hungary. She has been a Postdoc in Vienna since 2006 and co-founded the Clever Dog Lab with Huber and Range (2007) and the Wolf Science Center with Kotrschal and Range (2008). She has been a Senior Scientist at the Messerli Research Institute and the co-Head of the Clever Dog Lab since 2011.

Lisa Horn
Clever Dog Lab, until June 30, 2012

Lisa Horn studied Zoology at the University of Vienna. She was a Postdoc in the Clever Dog Lab.

Sarah Marshall
Clever Dog Lab/Wolf Science Center

Sarah Marshall studied Psychology at the University of St. Andrew's, UK. She gained her PhD at the same university and another one at the University of Milan, Italy. She is working in the ERC project (Starting Grant) "Understanding the Proximate Mechanisms of Canine Cooperation" at the Messerli Research Institute.

Doctoral Students

Anjuli Barber
Clever Dog Lab

Anjuli Barber studied Biology and System Biology of Brain and Behaviour at the University of Bielefeld, Germany. She is now a PhD assistant in the WWTF project "Like me: Imitation, empathy and prosocial behaviour in dogs and humans".

Désirée Brucks
Clever Dog Lab

Désirée Brucks studied Biology at the University of Göttingen, Germany. She is working in the project "Proximate mechanisms of canine cooperation: Prosocial attitudes and inequity aversion" at the Messerli Research Institute.

Mylène Chaumette
Clever Dog Lab

Mylène Chaumette studied Environmental Physiology and Ethology at the University of Strasbourg, France. She is working in the ERC project (Starting Grant) "Understanding the Proximate Mechanisms of Canine Cooperation" at the Messerli Research Institute.

Rachel Dale
Wolf Science Center

Rachel Dale studied Psychology at the University of Dundee, UK, and completed her Master's degree in Evolutionary and Comparative Psychology at the University of St. Andrews, UK, where she worked with elephants. She is a doctoral student in the project "Proximate mechanisms of canine cooperation: Prosocial attitudes and inequity aversion" at the Messerli Research Institute.

Jennifer Essler
Wolf Science Center

Jennifer Essler completed her Bachelor's degree in Psychology at the Georgia State University, USA. She continued to study various aspects of cognition in capuchin monkeys at Bucknell University, USA, where she gained her Master's degree in Animal Behaviour. She is a doctoral student in the ERC project (Starting Grant) "Understanding the Proximate Mechanisms of Canine Cooperation" at the Messerli Research Institute.

Soon Young Park
Clever Dog Lab

Soon Young Park studied Neuroscience and Cognition at the University of Utrecht, Netherlands, and at the Konuk University of Veterinary Medicine in Seoul, South Korea. She is working in the WWTF project "Semantics of Talking".

Stefanie Riemer
Clever Dog Lab

Stefanie Riemer studied Animal Behaviour and Environmental Biology at the Anglia Ruskin University Cambridge, UK, as well as Biology and Ecology at the University of Vienna. She is working in the project "The effects of early experience on physical cognition in dogs" at the Messerli Research Institute.

Lisa Wallis
Clever Dog Lab

Lisa Wallis studied Animal Behaviour at the Manchester Metropolitan University, UK. She is a doctoral student in the project "Cognitive aging and development in pet dogs".

Research assistants

Durga Chapagain
Durga Chapagain studied Veterinary Medicine and Animal Husbandry at the Institute of Agricultural and Animal Sciences of the Tribhuvan University, Nepal, and Animal Science at the Swedish University of Agricultural Sciences in Uppsala, Sweden. She is working in the project “Cognitive development and ageing in pet dogs” at the Messerli Research Institute.

Maria Teresa Antunes Marmota
Clever Dog Lab, until March 1, 2013
Maria Teresa Antunes Marmota studied Evolutionary and Developmental Biology at the University of Lisbon, Portugal. She was a research assistant in the WWTF Project “Semantics of talking”.

Manuel Kemethofer
Clever Dog Lab
Manuel Kemethofer studied Zoology at the University of Vienna. He has been a lab assistant in the Clever Dog Lab since October 2013.

Giulia Cimarelli
Clever Dog Lab
Giulia Cimarelli studied Biology at the University of Rome “Sapienza”, Italy. In 2012, she was an exchange student in the Erasmus program in Vienna and has since been working on her Master’s thesis in the Clever Dog Lab. She is also studying in the fields of Cognitive Biology, Ethology and Sociobiology at the University of Vienna.

Borbála Turcsán
Clever Dog Lab
Borbála Turcsán studied Biology at the Eötvös Loránd University, Budapest, Hungary. She works as a research assistant at the Institute of Cognitive Neuroscience and Psychology of the Hungarian Academy of Sciences and as a part-time research assistant at the Messerli Research Institute. She investigates the relation between behaviour and genetics in dogs.

Marianne Heberlein
Wolf Science Center

Marianne Heberlein studied Animal Behaviour at the University of Zurich, Switzerland, and is working as a research assistant in the project “Cognitive development and ageing in pet dogs” in the Clever Dog Lab and in the Wolf Science Center.

Marleen Hentrup
Wolf Science Center

Marleen Hentrup gained her Master’s degree in Biology at the University of Münster, Germany. She is a research assistant and animal trainer in the ERC project (Starting Grant) “Understanding the Proximate Mechanisms of Canine Cooperation”.

Teresa Schmidjell
Clever Dog Lab/Wolf Science Center

Teresa Schmidjell studied Biology at the University of Vienna and is working as a research assistant in the project “Semantics of talking” in the Clever Dog Lab and in the Wolf Science Center.

Rita Takács
Wolf Science Center

Rita Takács studied Game Management at the University of West Hungary. She is a research assistant in the ERC project “Understanding the Proximate Mechanisms of Canine Cooperation”.

Student assistants

Simone Grohmann
Daphne Eipeltauer
Catarina Luísa Espanca Bacelar

Interns

Caroline Scherleitner (July 1–31, 2013)
Peter Scherleitner (July 1–31, 2013)

Unit of Comparative Medicine

Due to the continuous exchange between scientists and the clinics at the Medical University of Vienna and the University of Veterinary Medicine, the Unit of Comparative Medicine is operating in two labs at the two universities. Scientists in both labs are working on overlapping projects and creating synergies. This annual report, published by the Messerli Research Institute, lists permanently employed staff at the Vetmeduni Vienna. However, many more people worked in the unit in 2013: the internationally renowned group leaders Enikö Kallay, Eva Untersmayr-Elsenhuber and Diana Mechtcheriakova, in total three secretaries, 5,6 technical posts, 4,5 postdocs, 12 PhD students, 11 Master students, 1 Bachelor students and some guest researchers. The members of the unit cooperate closely and participate in joint classes such as the journal clubs and doctoral/Master's seminars; there is constant exchange in an interdisciplinary environment.

Erika Jensen-Jarolim
Head of Comparative Medicine

Erika Jensen-Jarolim graduated in medicine and is a doctor of Pathophysiology and Immunology. Her long-term research focus includes Allergology, Oncology and AllergoOncology. Strategies in comparative medicine should lead to rapid diagnostic and therapeutic developments for human and animal patients.

Franziska Roth-Walter
Senior Scholar

Franziska Roth-Walter studied Chemistry before graduating as a Postdoc from Mount Sinai Hospital, New York. On her return for the US, she worked at the Institute of Pathophysiology and Allergy Research at the Meduni Vienna. She has held the post of a Senior Scholar at the Unit of Comparative Medicine since autumn 2011.

Isabella Pali
Head of Food Immunology, on maternity leave from 2013 to June 2015

Isabella Pali graduated in Food Sciences and received both Humboldt and Firnberg scholarships from the Austrian Science Fund (FWF). Her research field is food allergies, focusing on pregnancy and birth.

Krisztina Szalai
Temporary replacement for Pali, until November 30, 2013

Krisztina Szalai studied Biology at the University of Pécs, Hungary. Later, she gained a Master's degree at the University of Vienna and a doctorate at the Medical University of Vienna. Her scientific performance comprises publications on allergies, focusing on atopic dermatitis and mimotope vaccines, and several awards.

Lisa-Maria Glenk
Temporary replacement for Pali (50 percent), from December 1, 2013

Lisa-Maria Glenk studied Biology and Veterinary Medicine, focusing on Evolutionary Biology and Behavioural Endocrinology. She gained her PhD at the Vetmeduni Vienna in 2012 on animal-assisted interventions. She has been a visiting scientist at the University of Prague, Czech Republic, and a project partner in the Virtual Reality Laboratory at the Faculty of Psychology of the University Vienna. She has been a Junior Postdoc in the Unit of Comparative Cognition since December 2013, working in the fields of Animal Welfare, Stress Physiology and Immunomodulation.

Karin Hufnagl
Temporary replacement for Pali (50 percent), from December 1, 2013

Karin Hufnagl studied Biology at the University of Vienna, focusing on Zoology and Cell Biology. She gained her PhD at the Institute of Cancer Research at the Meduni Vienna. After that she worked at the Institute of Specific Prophylaxis and Tropical Medicine, focusing on investigating new strategies for prevention and treatment of allergies. She has been working in the Unit of Comparative Medicine since December 2013.

Anna-Maria Willensdorfer
Lab Manager, until November 30, 2013

Anna-Maria Willensdorfer is a chemical-technical assistant (CTA) and was responsible for the setting up and management of the new laboratory for Comparative Medicine at the Vetmeduni Vienna. She supported the team in their research into allergological and oncological issues.

Gerlinde Hofstetter
Lab Manager, from December 1, 2013

Gerlinde Hofstetter graduated from the HBLVA for the chemical industry and has worked in different institutions. She gained her Bachelor's degree in the in-service program "Bioengineering" at the FH Campus Vienna and will soon complete her Master's degree in Bioprocess Engineering. She has been a lab manager in the lab of the Unit of Comparative Medicine since December 2013.

Regina Meixner
Assistant of the Head of the Unit

As a departmental secretary with many years of experience, Regina Meixner is the assistant of the Head of the Unit. Among other tasks, she is responsible for national and international cooperation and works closely together with the second location of the Unit at the Vienna General Hospital.

Katarina Josipovic
Administration 2 Comparative Medicine

Katica Josipovic is the personal assistant of the Unit Head and the secretary of the Unit at the Medical University Vienna. She supports the Unit and deals with human resource issues and projects funded by third parties. She also studies Architecture at the Technical University of Vienna.

IT-Support

Peter Füreder (12,5 %) supports the Unit of Comparative Medicine in IT affairs.

Unit of Ethics and Human-Animal Studies

Herwig Grimm
Head of Ethics and Human-Animal Studies

Herwig Grimm is the head of the Unit of Ethics and Human-Animal Studies. He studied in Salzburg, Zurich and Munich and gained his doctorate at the Munich School of Philosophy, Germany, in 2010. Before his move to the Messerli Research Institute, he worked at the Institute Technology-Theology-Natural Sciences at the Ludwig Maximilians University of Munich.

Judith Benz-Schwarzburg
Senior Scholar

Judith Benz-Schwarzburg studied Linguistcs, German Literature, Philosophy and Ethics and gained her doctorate at the University of Tübingen, Germany, in 2012. She is a Senior Scholar in the Unit of Ethics and Human-Animal Studies, focusing on animal ethics/animal philosophy and the cognition of animals.

Martin Huth
Senior Scholar

Martin Huth studied Philosophy and History and gained his doctoral degree at the University of Vienna in 2007. He is a Senior Scholar in the Unit of Ethics and Human-Animal Studies, focusing on phenomenology and post-structuralism.

Samuel Camenzind
Scholar

Samuel Camenzind studied German Linguistics and Literature, Philosophy and Social Pedagogics at the University of Zurich, Switzerland. He is a scholar and doctoral candidate in the Unit Ethics and Human-Animal Studies and currently working on his dissertation on “Instrumentalisation as an ethically relevant criterion. A bioethical analysis and evaluation of SCNT cloning on nonhuman mammalians”.

Julia Schöllauf
Assistant of the Head of the Unit

Julia Schöllauf is the assistant of Herwig Grimm and deals with all organisational issues of the Unit and the institute’s public relations. She studied Music at the University of Music and Performing Arts Vienna and Transcultural Communication at the University of Vienna.

Norbert Alzmann
Project staff

Norbert Alzmann studied Biology in Ulm, Germany. He gained his doctorate in 2010 in Ethics in the Life Sciences at the University of Tübingen. At the Messerli Research Institute he works in the project “Developing a set of criteria to evaluate research proposals including animal testing”.

Vera Marashi
Project staff

Vera Marashi studied Biology at the University of Münster, Germany, and gained her PhD in Zoology/Behavioural Biology. She worked in research and in the pharmaceutical industry. She has been working at the Messerli Research Institute in the project “Developing a set of criteria to evaluate research proposals including animal testing” since April 2013.

Kerstin L. Weich
Project staff

Kerstin Weich studied Modern German Literature, Philosophy and Media Studies at the Dresden University of Technology and at Freie Universität Berlin, Germany. She also studied Veterinary Medicine at Freie Universität Berlin. She has been working in the project “Vethics For Vets – ethics for veterinary officers” since November 2012.

Andreas Aigner
Doctoral student

Andreas Aigner studied Psychology at the University of Salzburg and is a clinical and health psychologist. He is a doctoral student in the Unit of Ethics and Human-Animal Studies.

Student assistant

Hannah Kranz
Svenja Springer

IT-Support

Peter Füreder (12,5 %) supports the Unit of Ethics and Human-Animal Studies in IT affairs.

Coordination office for dog trainers in accordance with animal welfare

Karl Weissenbacher
Coordinator

Karl Weissenbacher studied Veterinary Medicine and has been concerned with non-violent dog training for more than a decade. In addition to heading the coordinating office he is also responsible for the course “Applied Cynology”.

Animal Law at the Messerli Research Institute

Regina Binder
Group leader

Regina Binder studied Law and German Philology at the University of Vienna. She has been working at the University of Veterinary Medicine since 2002, where she established and heads the Information and Documentation Office for Animal Welfare and Veterinary Law.

Highlights 2013

CompCog Conference

The Unit of Comparative Cognition at the Messerli Research Institute hosted the 3rd Transfer-of-knowledge conference of CompCog at the Vetmeduni Vienna campus from July 3–5, 2013. This international conference was the summarising and closing conference of CompCog, an ESF Research Networking Programme titled “The Evolution of Social Cognition: Comparisons and integration across a wide range of human and non-human animal species”. The five-year programme brought together 29 European laboratories from 11 countries. Its general objective was to develop “real” comparative cognition across a wide range of vertebrate and invertebrate species (including humans) with coherent theoretical background, consistent terminology and standard methods. This kind of cognition research was supposed to be made transparent for other fields such as social sciences, genetics, physiology, animal welfare, robotics, etc. and to be integrated into them.

The final event was the conference in Vienna. It provided an overview of the development of comparative cognition research in Europe in the last five years and discussed the challenges it is likely to face in the coming years – all in the usual communicative and collaborative spirit of CompCog. With more than 160 participants from 22 countries, 31 talks – among them seven plenary talks – and 57 posters, the conference provided an interesting and inspiring forum, ending in the hope that it has generated new ideas and fruitful cooperation.

3rd Transfer-of-Knowledge Conference of CompCog

Satellite Meeting to ISMA

Issues of comparative medicine must not only be discussed in the context of veterinary medicine, but also of human medicine, in order to promote an interdisciplinary dialogue. Erika Jensen-Jarolim founded the “Interest Group for Comparative and Veterinary Allergology” together with Ralf Müller (Chief of Medical Small Animal Clinic, Ludwig Maximilians University Munich, Germany), Eliane Marti (Head of Clinical Immunology, Vetsuisse Faculty, University of Berne, Switzerland) and Jozef Janda (Czech Academy of Sciences) within the European Academy of Allegology and Immunology (EAACI). It was important for her to host a first meeting in Vienna under the title “Messerli” because Vienna is regarded as the birth place of molecular allergology.

The satellite meeting to the “International Symposium on Molecular Allergy“ (ISMA), which took place from December 5–7, 2013, under the patronage of the EAACI, was a worthy start. Vice-rector Otto Doblhoff-Dier gave a welcome note, followed by keynote speaker Hiroshi Matsuda from Japan and other interesting talks. About 70 participants from all over the world took part in the lively discussion in the historical Auditorium of Sciences in the 1st District.

The speakers of the Satellite Meeting

Inspired conversations during coffe breaks

Symposium on animal testing

The new Animal Experiments Act which transposed the EU Directive 2010/63 into national law in 2012 requires the development of a methodology to evaluate research proposals including animal testing by 2015. The former Federal Ministry for Science and Research engaged the Messerli Research Institute to develop this set of criteria. As a start, the Messerli Research Institute hosted an international symposium on March 27, 2013 under the title “Taking Ethical Considerations Into Account? Methods to Carry Out the Harm-Benefit Analysis According to the EU Directive 2010/63/EU”. Several renowned experts from the field of the ethical evaluation of animal experiments took part. The aim was to develop a comprehensive knowledge base for the creation of the Austrian set of criteria.

Twenty-two speakers from eight European countries and the USA talked about their experience with the topic and with the transposition of the EU directive in their own countries. During the symposium, different concepts such as checklists, scoring systems or comparative methodologies were introduced. Most of the experts emphasised the importance of independent and well-balanced committees. Another point of discussion was integration of the public in the context of animal experiments for more transparency. In a resume, the experts concluded that the actual influence of a set of criteria would strongly depend on the legal framework and on political intentions.

The audience at the symposium

Talk in the main hall at the Vetmeduni Vienna

Scientific Advisory Board

The Scientific Advisory Board of the Messerli Research Institute is the external advisory body to guaranty scientific quality and focused research at the institute. The most important tasks are developing research strategies, as well as the international position and networking.

The five members were nominated by the rectorates of the three universities and the Messerli Foundation. They are external and independent experts in the disciplines represented at the institute. They come from Denmark, Great Britain, the Netherlands, Switzerland, and Austria.

The Scientific Advisory Board was constituted on December 19, 2013, when the members visited the institute. In the morning, each unit gave a presentation of 40 minutes, followed by discussions. Rector Hammerschmid and Vice-Rector Doblhoff-Dier from the University of Veterinary Medicine, Vienna, representatives from the partner universities (Vice-Rector Müller from the Medical University of Vienna and Professor Bugnyar from the University of Vienna), the Messerli Foundation Board (Schweizer, Hengartner, Fässler and Ammann) and almost the complete staff of the institute participated. After lunch, the Scientific Advisory Board was constituted, voted in a speaker (Peter Sandøe) and prepared a joint feedback on the presentations. This feedback provides an important basis for future strategies and prioritisations of the institute's research goals. The Scientific Advisory Board will meet once a year in Vienna.

The Scientific Advisory Board at the presentation of the Messerli Research Institute


Photo: © privat

Peter Sandøe is a professor for Bioethics at the University of Copenhagen, Denmark. He is a philosopher and an expert in the field of animal ethics. He was elected spokesman of the Scientific Advisory Board.


Photo: © University of Bristol

Christine Nicol is a professor for Animal Welfare Science at the University of Bristol, UK. She is a behavioural biologist and an expert in applying knowledge about animal behaviour to the well-being of farm animals.


Photo: © Nienke Kouwenhoven, Faculty of Veterinary Medicine

Frauke Ohl is a professor for Animal Welfare Science and Laboratory Animal Science at the University of Utrecht, Netherlands. She is an expert in the field of behavioural neurobiology and its application to the protection of farm animals. She is also a member of the Scientific Advisory Board of the University of Veterinary Medicine, Vienna, and is therefore a connector between the two Advisory Boards.


Photo: © privat

Nikola Biller-Andorno is a professor for Biomedical Ethics at the University of Zurich, Switzerland. She is an expert on the moral philosophical foundations of Medical Ethics and Bioethics in an international and intercultural context.


Photo: © privat

Georg Wick is a professor emeritius for General and Experimental Pathology at the University of Innsbruck. He is a specialist in Pathophysiology, Pathology and Immunology. He is working in his diagnostic lab in the latter two disciplines.

2013

Visit by the Messerli Foundation Board

The board of the Messerli Foundation visited the Institute twice in 2013. Heinz Schweizer, Hans Hengartner and Ulrich Fässler got a first impression of the developing Messerli Research Institute during their visit in May.

On May 7, 2013, the new research lab of the Unit of Comparative Cognition at the Vetmeduni Vienna campus was officially opened (see p. 94). After the speeches, the board members and many other guests had the opportunity to join guided tours through the lab.

A visit at the associated centres was on the agenda for May 8, 2013. The board members visited Haidlhof estate of the Teaching and Research Farm of the Vetmeduni Vienna. The Research Station for Cognition and Communication was founded in 2010 and is run by the Unit of Comparative Cognition of the Messerli Research Institute and the Department of Cognitive Biology of the University of Vienna (see p. 82). In the afternoon, the board members visited the Wolf Science Center near Ernstbrunn (Lower Austria). The close contact with the wolves fascinated the visitors.

In the third week of December, the members of the Messerli Foundation Board and Dominique Ammann, responsible for finance in the Messerli Foundation Board, came to Vienna once again. They got to know the members of the newly constituted Scientific Advisory Board of the Messerli Research Institute and explained the goals and wishes of the Messerli Foundation in joint discussions.

The members of the foundation board at Haidlhof

The members of the foundation board at the Wolf Science Center

Herta Messerli is an honorary senator of the Vetmeduni Vienna, as well as the founder and president of the Messerli Foundation. She headed her company for reprographical devices and materials, the A. Messerli AG in Zurich, until 1994.

Heinz Schweizer is a lawyer in Zurich. He is the vice-president and executive director of the Messerli Foundation and initiated the foundation of the Messerli Research Institute.

Hans Hengartner was a professor of Experimental Immunology at the Department of Biology of the ETH Zurich and at the Faculty of Medicine of the University of Zurich.

Ulrich Fässler is a lawyer and a notary. He was a member/president of the Governing Council of the Canton Luzern from 1989 to 2003 and a delegate to the Swiss Federal Council of Administrative Reforms from 2003 to 2007. He is an honorary senator at the University of Luzern.

Dominique Ammann is an expert of financial investments and a founding partner of the company PPCmetrics AG. In the Messerli Foundation, he is responsible for finance and investments.

Research 2013

Targets

Public and political debates about animal protection issues, animal protection rights and animal ethics are characterised by greatly opposing interests and seemingly contradicting opinions. This is not surprising, as studying human-animal interactions touches on questions about personal values and existential issues in human nature. The Messerli Research Institute aims to make a significant contribution to these issues by extending scientific foundations and making the basis for answering ethically and socially relevant questions transparent.

Research in Context

The Messerli Research Institute is working 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. The institute then offers its research findings to them for their own teaching and research.

Interdisciplinary research

The three units of the institute have their own research agenda with a considerable number of funded research projects. They will be described below for each unit separately. In addition, the institute pursues a collaborative, interdisciplinary research strategy, which hopefully will give the institute its own characteristic and unique profile over the years.

In 2013, the members of different units worked out several promising project proposals. One of these projects will come into existence in 2014. In October 2013, the Messerli Foundation agreed on providing generous funding over a period of three years. This will be the first collaborative project by the three units of the institute. This grant will strengthen the institute's interdisciplinary research in comparative cognition, comparative medicine and animal ethics.



Socio-cognitive abilities of domestic pigs, their ethical implications, and indicators of well-being

In spring 2014, the institute will set up and commission a pig lab at the highest possible welfare standards at the Haidlhof Research Station (see p. 82). The pigs will be kept in a cutting-edge, free-range housing system that meets their natural behavioural repertory. The project aims to empirically investigate certain socio-cognitive abilities of domestic pigs. A PhD student will be recruited by worldwide advertisement to carry out tests on social intelligence, emotional contagion, imitation, pro-social behaviour, cooperation and sense of community, accompanied by standard learning and memory tests. The student will be supervised by Ludwig Huber, who has a long-term interest in the cognitive abilities of a wide range of animals (from fish and reptiles to birds and mammals), as well as in questions of domestication (especially in the wolf-dog system) and human-animal interactions. As the findings will likely raise questions about the welfare and moral status of pigs and their relevance for society, the project will be co-supervised by the Unit of Ethics and Human-Animal Studies (Herwig Grimm, Judith Benz-Schwarzburg). Additionally, the Unit of Comparative Medicine (Erika Jensen-Jarolim, Lisa-Maria Glenk) will accompany the cognition studies, aiming to define new stress biomarkers from saliva (see p. 57). The researchers will try to conduct cutting-edge research on pig cognition, health and welfare, but they will also deduce, understand and discuss ethical aspects and implications of the project.

Project leader: Ludwig Huber

Project partners:
Herwig Grimm, Erika Jensen-Jarolim

Involved scientists:
Judith Benz-Schwarzburg, Lisa-Maria Glenk

Term: April 2014–March 2017

Funded by: Messerli Foundation

The so-called “Sägeacker” near the Haidlhof Research Station in Lower Austria, where the pigs will be kept in a free-range housing system

Comparative Cognition

Research in this unit is dedicated to current questions of cognition and emotion in animals from a comparative and integrative point of view. Cognitive abilities are not unique to humans, but can be found in more or less similar forms in non-human species. The institute focuses on a variety of vertebrate species – among them dogs and wolves, mountain parrots, pigeons, woodpeckers and tortoises – according to specific research questions. The fact that cognition can only be understood as a complex biological phenomenon requires the combination of various biological and psychological methods and approaches, which are exclusively non-invasive at our unit, as well as the integration of research at various levels of complexity (genetic, neuronal, individual, social, cultural level). The studies are conducted under both natural and semi-natural conditions, where the animals' abilities to solve species-related problems in a cognitive manner are tested. The Unit of Comparative Cognition attempts to contribute to the development of good practice in animal keeping, training, management and the health care of animals kept as pets, as well as in captive (industrial, zoo, lab, etc.) settings – for instance by collaborating with members of the Institute of Animal Husbandry and Welfare, providing scientific support to the Animals for Therapy Group and the Coordination Office for dog trainers in accordance with animal welfare as well as through the direct transfer of expanded scientific knowledge to practitioners and members of the general public.

Cognitive and emotional abilities of dogs and wolves

About 500 million dogs live in more or less close relationship with humans worldwide. Together with their closest wild-living relatives, wolves, they are in the focus of the unit's first research goal. Researchers at the Clever Dog Lab and the Wolf Science Center are aiming to create a better understanding of the cognitive and emotional abilities of canines, focusing on their biological (genetic, hormonal and other physiological) mechanisms, developmental and aging-related changes as well as their behaviour and nutrition. The researchers are investigating the possible effects of domestication by comparing dogs and wolves by fair means, i.e. by applying the same hand-rearing program to them and keeping them in packs, but – at the same time – in intimate relationship with humans. Among the candidate traits are the ability to imitate and feel empathy, as well as cooperate and (gesturally and vocally) communicate with humans. The research topics are motivated by practical uses, aiming to create benefits for owners, dog trainers, veterinarians, behavioural consultants, and other practitioners as well as authorities. The effects of domestication on the health of canines are being studied in collaboration with the Unit of Comparative Medicine and the Clinic for Small Animals.

Perceptual, technical and social intelligence of birds

Birds are the main focus of the second research goal of the Unit of Comparative Cognition. At the Research Station Haidlhof the kea – a mountain parrot native to New Zealand – is being studied due to its well-known level of technical intelligence. Within the last few years, it has been shown that this bird has started to use tools (inserting a stick into a food box) in the lab, despite not being known to use tools in the wild. This fact challenges the main theories about the evolution of tool use, together with a few other cases (e.g. rooks). Now, it is necessary to find out what underlying mechanisms and motivations (e.g. neophobia, curiosity and exploration) are responsible for technical innovations in the animal kingdom. A second main research focus in the kea lab is on analogical thinking and abstract reasoning, which are valuable abilities in both technical and social environments. The kea lab has several ongoing collaborations with other renowned universities. The Ronald Noe Lab in Strasbourg, as well as Oxford's New Caledonian Crow Lab under the supervision of Auguste von Bayern, are both sending post-graduate researchers to work with the keas on projects. We are also hosting students from other Viennese programmes, such as the Art & Science projects of the University of Applied Arts and a Masters student from the University of Vienna's Middle European Interdisciplinary Master Programme in Cognitive Science (MeiCogSci). The pigeon is the main species the unit is concentrating on in its research into perceptual and concept-like abilities in non-human animals. These birds are also involved in a long-term project to develop an automatic learning environment, in which unrestrained birds can be trained and tested in a voluntary and self-determinating manner.

Cognition and emotion of farm animals

In addition to research into wild and pet animals, the institute also focuses on livestock as a part of its research agenda. Two diploma projects with domestic pigs — one about social learning, the other on exploration — were completed in 2013. The pigs were studied at the Clinic of Pigs in cooperation with Isabel Hennig-Pauka and Miriam Viehmann. This research will be taken to a further stage in the coming years with the new Messerli project on pigs under free-range conditions (see page 37), which will be carried out in collaboration with Josef Troxler and Johannes Baumgartner from the Institute of Animal Husbandry and Animal Welfare.

A domestic pig in front of a computer-controlled learning system

Animal Protection and Human-Animal Interaction

Contemporary animal ethicists complain that even the most progressive current welfare policies lag behind on, ignore, or arbitrarily disregard the science on sentience and cognition. Comparative cognition research, therefore, needs to be brought into socio-political debates on how to treat animals, translated into everyday language, made transparent to opinion leaders, and transformed into practical relevance. The main challenge here is to strengthen the responsibility and sensibility of humans towards other social, emotional and intelligent animals, as well as improve their diverse relations (and interactions) with animals.

Enriched environment for the keas at Haidlhof

Research Projects

Finished projects in 2013

The effect of early experience on physical cognition in dogs

Animals differ widely in their ability to solve physical problems, but little is known about the factors that cause this variation. Dogs, in particular, have typically performed poorly in physical cognition tasks, for example compared to great apes. It has been suggested that the poor performance of dogs in physical tasks, like their excellent performance in social tasks, is a consequence of domestication. However, performance in cognitive tasks may also be influenced by experiences and other individual factors. This project investigated whether the problem-solving ability of dogs is influenced by extensive early experiences, inhibitory control and/or individual personality traits. Our results show a conspicuous and robust absence of an effect of prior experiences. Instead, individual problem-solving ability was best predicted by the subject's level of inhibitory control and its ability to "take a step back and look at a problem" rather than rushing in at once.

Project leaders:
Ludwig Huber, Friederike Range

Project collaborators: Corsin Müller (Postdoc), Stefanie Riemer (PhD student)

Term: January 2010–December 2013

Funded by: FWF – Austrian Science Fund, project 21418

Cognitive development and aging in pet dogs

A battery of intelligence tasks ("Vienna Canine Cognitive Battery") was designed to investigate the changes of cognition in domestic dogs over their lifespan. This project tested the performance of dogs of various ages (from 6 months to 10 years) in a variety of complex technical and social tasks. The results of the project shall contribute to a better understanding of cognitive development and aging in dogs and, thus, help to develop technologies and treatments to support cognitive development and decelerate the aging process.

Project leaders:
Zsófia Virányi, Friederike Range

Employed collaborators: Lisa Wallis (PhD student), Angela Gaigg (research assistant)

Term: 2010–2013

Funded by: Royal Canin

Epidemiological studies on the distribution of enteric and respiratory coronavirus in dogs in Hungary and Austria

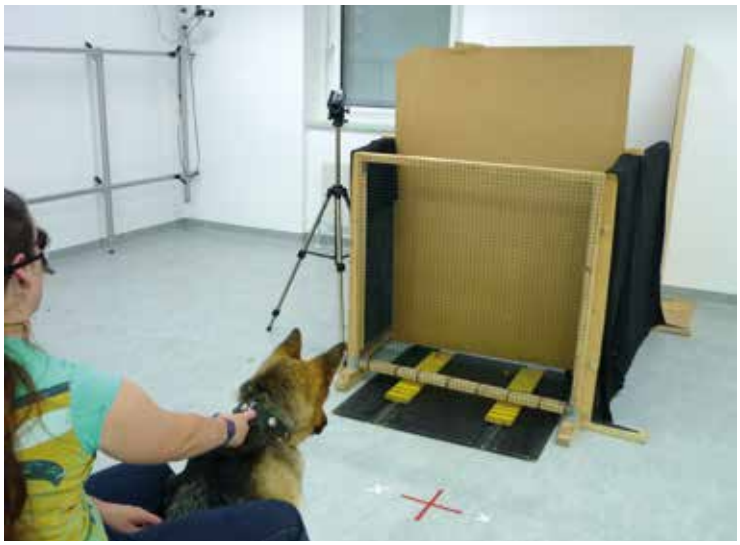
The project was aimed at comparing the prevalence of canine enteric and respiratory coronaviruses in Hungary and Austria by using two different methodologies. Furthermore, it investigated their importance of these viruses in dogs living in the two countries.

Project leader:
Karin Möstl (Institute of Virology, Vetmeduni Vienna)

Project collaborators:
Zsófia Virányi, Giulia Cimarelli

Term: October 2012 to September 2013

Funded by: AÖU – Aktion Österreich-Ungarn



A German shepherd tries to solve a physical problem with his human partner.

A kea exploring the effects of inserting a wooden object into a tube.

Acquisitional Neophilia, Retentional Blinders?

The mental abilities of corvids and parrots not only match those of the great apes in terms of relative brain size, but also in terms of performance on various cognitive tasks. So far, true comparative studies including both species and using an identical experimental setup have been scarce. The project attempts to use an integrative and comparative approach to investigate the role of neophobia and exploration on the acquisition of a discrimination task in several species of large-brained birds with differing ecological background. The study compared the performance of keas and ravens (both species are housed at the Haidlhof Research Station), Vasa, Eclectus and African Grey Parrots (from the parrot sanctuary in Lincolnshire), New Caledonian Crows and Jackdaws (currently hosted at the avian cognition lab of the University of Oxford, based at the Max-Planck Institute for Ornithology in Seewiesen, Germany), as well as Goffin Cockatoos (housed by Alice Auersperg near St. Pölten).

Project leader: Mark O'Hara

Project partners:
Ludwig Huber, Gyula Gajdon, Anna Wilkinson (UK), Auguste von Bayern (Germany), Berenika Mioduszweska, (Germany), Alice Auersperg (Austria)

Term: June 2012–March 2013

Funded by: European Science Foundation, Network program "Comparative Cognition", Collaborative Research Project

Colour versus colour-contrast in discrimination learning of pigeons

The aim of the project was to test whether pigeons would preferentially use colour or colour-contrast during stimulus discrimination learning. The pigeons were trained to peck a (rewarded) stimulus consisting of a red-green contrast instead of an uncoloured, grey (unrewarded) stimulus. After training, the pigeons were tested for generalisation towards differently coloured (unrewarded) stimuli in a transfer phase: uni-coloured stimuli with one of the two target colours (red or green) or new colour-contrast stimuli consisting of a yellow-blue contrast. In addition, only an uncoloured, grey stimulus was used in control trials (as during learning). The results showed significantly more false pecks on uni-coloured stimuli than on new colour-contrast stimuli and on grey stimuli. Thus, we confirmed a preference for colours in birds that is similar to the preference sometimes found in humans.The current findings support the view that the ultimate function of colour vision is seeing or discriminating colour rather than colour-contrasts, taking into consideration that the birds' visual system has a higher resemblance with their vertebrate ancestors with a four-colour system than with the human system.

Project leader: Nils Heise

Project partners: Ludwig Huber; Ulrich Ansorge (University of Vienna, Institute for Psychological Basic Research and Research Methods)

Project collaborators: Wolfgang Berger, Peter Füreder

Term: 2012–2013

Funded by: WWTF – Vienna Science and Technology Fund (CS11-009); FWF – Austrian Science Fund (P19574)

Ongoing projects

Like me: Imitation, empathy and pro-social behaviour in dogs and humans

This project investigates the relationship between cognition and emotion in one specific area: the relationship between imitation, empathy and pro-social behaviour. Experimental settings to investigate empathy and emotions in dogs have been developed in the Clever Dog Lab, in addition to the psychological and neuroimaging studies on humans – for instance which brain areas are active when we see other people in painful situations. First, the stimulus presentation and physiological measurements were evaluated and validated. In a next step, it could be shown that stimulus presentation and data acquisition via an eye tracker, which has so far been used only in humans, is sufficient and that combined measurements of heart rate variability, the lateralisation of body parts and hormone concentrations might be appropriate tools for measuring emotional states in dogs. In a first experiment with dogs, we could show that dogs located food more successfully in a cooperative task between conspecifics, if the cooperation partner had performed a matching action (like in imitation recognition studies) before rather than a non-matching action in a manipulation task. This provides initial evidence that imitation in dogs facilitates social interactions and may increase affiliating emotions between individuals.

Project leader: Ludwig Huber

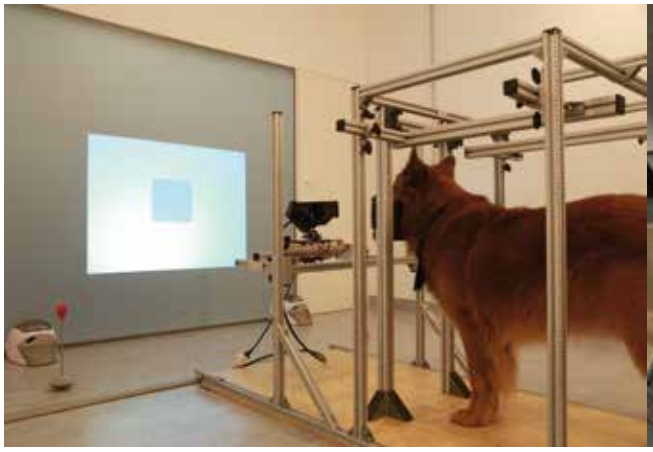
Project partner: Claus Lamm (University of Vienna), Christian Windischberger (Meduni Vienna)

Project collaborators: Anjuli Barber (PhD student), Esther Müller (Diploma student), Dania Randi (Master student), Simone Grohmann (student assistant)

Term: April 2012–March 2015

Funded by: WWTF – Vienna Science and Technology Fund, Cognitive Sciences Call

The eye-tracker analyses eye movements of dogs



Semantics of talking with the eyes and gestures

Using sophisticated technologies such as eye-tracking and genotyping the oxytocin receptor gene, this project investigates the extent to which dogs and wolves rely on the same cognitive and motivational mechanisms as humans when following the gaze or pointing gesture of others – cues that can serve as evolutionary and developmental precursors of language, interpreted by humans as a form of cooperative and intentional communication. The results of the project will help to reconstruct the evolution of human communication, as well as to better understand how dogs communicate with people.

Project leader: Zsófia Virányi

Project collaborators: Soon Young Park (PhD student), Marianne Heberlein (research assistant), Catarina Bacelar (research assistant)

Term: April 2012–March 2015

Funded by: WWTF – Vienna Science and Technology Fund, Cognitive Sciences Call

Photo: © Peter Kaut

Understanding the proximate mechanisms of canine cooperation

Elucidating similarities and differences in the cognitive and emotional processes underlying cooperative interactions in non-primate and primate taxa may have profound implications for our understanding of cooperation in humans and non-human animals. The project includes a series of experiments with wolves and dogs that have been raised and kept identically. The work will focus on cognitive processes closely linked to the emotional system, such as empathy, inequity aversion and delayed gratification. These processes are thought to be involved in triggering, maintaining and regulating primate cooperation. Furthermore, using social network theory, we will integrate knowledge of animals' emotional tendencies, as well as of their cognitive abilities, to model canine cooperation and test the model's predictions with our own data.

Project leader: Friederike Range

Project collaborators: Sarah Marshall-Pescini (Postdoc), Rachel Dale (PhD student), Jennifer Essler (PhD student), Rita Takács (animal trainer), Marleen Hentrup (animal trainer)

Term: March 2013–February 2018

Funded by: ERC – European Research Council, ERC Starting Grant

Proximate mechanisms of canine cooperation: Pro-social attitudes and inequity aversion

The aim of this project is twofold: first, to investigate whether and to which extent dogs show pro-social attitudes such as care, mediation or consolation and second, to elucidate the cognitive and motivational building blocks of inequity aversion in canines. Pro-social behaviour is defined as actively offering food to a companion. It is considered to be part of altruism. Although pro-social tendencies have traditionally been investigated between conspecifics, the current project will explore whether dogs show pro-social tendencies towards their human partners because of the peculiar interspecific bond between dogs and humans. Although we know that dogs stop cooperating when treated unequally, it is unclear whether, as in humans, this behaviour is driven by the same evaluation of costs and gains in comparison to the partner or if it is based on simpler mechanisms.

Project leader: Friederike Range

Project collaborators: Mylène Chaumette (PhD student), Désirée Brucks (PhD student)

Term: March 2013–February 2016

Funded by: FWF – Austrian Science Fund

Cognitive aging and development in pet dogs (study 1 & 2)

This project is a follow-up study of the joint research project "Cognitive development and aging in pet dogs" which investigated the development and aging of various cognitive functions in pet dogs: basic processes, general, physical, and social cognition. The current study, we will test whether a newly developed food can delay cognitive decline in aging pet dogs.

Project leaders: Friederike Range, Zsófia Virányi

Project collaborators: Durga Chapagain (research assistant), Manuel Kemethofer (research assistant)

Term: 2013–2017

Funded by: Royal Canin

Genetics and epigenetics of wolf and dog social behaviour

The project aims to identify genetic and epigenetic markers of dogs and wolves associated with the social behaviour of animals living in different social environments, such as in packs or individually, having owners with different handling styles, or having a dominant vs. subordinate position in the pack. One of our main aims is to create the Canine Social Behaviour Biobank, a unique collection of genetic, epigenetic and behavioural data of dogs and wolves.

Project leaders: Zsófia Virányi, Friederike Range

Project collaborators: Giulia Cimarelli (research assistant), Borbála Turcsán (research assistant)

Term: 2013–2016

Funded by: FWF – Austrian Science Fund, OTKA Bilateral Research Project

A pig is approaching the entrance of the automatic learning box.

Analogical Reasoning in Birds

Analogical reasoning is the process of recognising the relationship between objects, as well as the ability to recognise a general principle and apply it to new situations. A complex test procedure on analogical reasoning with a touch screen has been developed for this project. Furthermore, a diploma project on the perception of size differences and analogical reasoning is nearly finished. Additionally, inference by exclusion as a precursor for analogical reasoning is currently being studied, using the touch screen. Studies with solid objects will follow. An internship project showed that keas tend to use knowledge gained in relation to objects to solve analogical tasks at the touch screen rather than vice versa. Moreover, the kea-related part of a long-term study that compared learning of an artificial grammar in keas and pigeons was completed and published.

Project leaders: Ludwig Huber, Gyula Gajdon

Project partners: Thomas Bugnyar (University of Vienna, Department of Cognitive Biology)

Project collaborator: Mark O'Hara (PhD student)

Term: May 2011–April 2015

Funded by: FWF – Austrian Science Fund, DK programme "Cognition and Communication"

A kea solving a task on analogical reasoning by exclusion at the touch screen

Creating an automatic learning environment for birds

The combination of highly controlled experimental testing and the voluntary participation of unrestrained animals has many advantages over traditional, laboratory-based learning environments in terms of animal welfare, learning speed, and resource economy. Such automatic learning boxes have so far not been achieved with highly mobile creatures like birds. The aim of this project is to create such a box for pigeons. Living together in small groups in outside aviaries, they can choose freely to participate in learning experiments by entering and leaving the automatic learning box at any time. They are identified by RFID technology at the single access and then trained or tested in a stress-free and self-determinating manner. The voluntary nature of their participation in line with their individual biorhythm guarantees high motivation levels and good learning and test performances. Such a box became operational at the animal shelter of the Vetmeduni Vienna in 2013. The performance of six pigeons provided proof that such a new learning environment can work.

Project leader: Ludwig Huber

Project partners: Christian Palmers (Adaptive Behaviour Research, Vienna), Nils Heise and Christopher Zeman (both from the University of Vienna, Institute for Psychological Basic Research and Research Methods)

Project collaborators: Wolfgang Berger, Peter Füreder, Michael Pichler

Term: permanent funding

Funded by: industry

Approved Research and Infrastructure Projects in 2013

Improving the infrastructure at the Research Station Haidlhof

It became necessary to modernise and expand the facilities and improve the existing infrastructure at the Research Station Haidlhof (see p. 82), after almost three years of operation and its continuous extension thanks to new research projects (Fitch: ERC advanced grant; Bugnyar: FWF Start grant; Huber: FWF grant; Schwab: WWTF grant; Jorg Massen: FWF Lise Meitner grant). The grant that has been given will provide funding for the expansion of office space, building of new test rooms for pigs and chickens, improvement of the bioacoustics lab and the installation of state-of-the-art IT infrastructure, including a quick and secure data line, a data server, video surveillance and an internal network. In addition, the grant will provide salaries for four full-time positions of non-scientific personnel: an IT manager, a project manager, a technician, and an animal keeper.

Project leader: Vetmeduni Vienna (represented by Ludwig Huber)

Project partner: University of Vienna (represented by Thomas Bugnyar, Tecumseh Fitch, both Department of Cognitive Biology)

Project collaborator: Werner Pohl (LFG Kremesberg), Petra Pesak (University of Vienna, Department of Cognitive Biology)

Term: January 2014–December 2016

Funded by: Austrian Federal Ministry for Science and Research

The old farmhouse called “Haidlhof” with its square courtyard dates back to the early 16th century.

The kea group after building the big kea aviary in autumn 2010

Interdisciplinary translational brain imaging cluster

The aim of this project is to establish a brain imaging cluster in Vienna by combining groups of three different universities: first, the Centre of Excellence High-field Magnetic Resonance (MR) of the Vienna General Hospital, Austria, jointly founded by the departments of Medical Physics and Radiodiagnostics of the Medical University of Vienna, the new professorships for Biological Psychology and for Clinical Psychology at the University of Vienna and the Clinical Unit of Diagnostic Imaging and the Messerli Research Institute of the Vetmeduni Vienna. Two identical magnetic resonance scanners (fMRI scanners, three tesla each) will be bought with the generous funding of the Austrian Federal Ministry for Science, Research and Economy which will enable the basic and clinical scientists to combine efforts and carry out collaborative research projects. It is planned to scan both dogs and dog owners in the same scanner for the first time. The dogs will be trained in the Clever Dog Lab to voluntarily enter an enclosed metal tube and remain motionless for the duration required to collect quality fMRI images, despite the noise and the vibrations of the scanner. The tests in the scanner will be carried out using only positive reinforcement and without sedation or physical restraints. Various visual stimuli or video clips will be presented to determine which brain circuits respond differently if the emotional valence of the stimuli changes.

Project leader: Medical University of Vienna (represented by Siegfried Trattnig, Department of Biomedical Imaging and Image-Guided Therapy)

Project partner: University of Vienna (represented by Claus Lamm, Institute for Psychological Basic Research and Research Methods), Vetmeduni Vienna (represented by Ludwig Huber, Messerli Research Institute; Sibylle Kneissl, Clinical Unit of Diagnostic Imaging)

Term: January 2014–December 2016

Funded by: Austrian Ministry of Science, Research and Economy

Training and tasks for dogs in the MRI scanner

Presentations and other scientific events

Ludwig Huber

Wild minds. Animal cognition research in Vienna. MEi:CogSci lecture series. University of Vienna, January 8, 2013

Früchte vom Baum der Erkenntnis. Zur Evolution von kognitiven und moralanalogen Fähigkeiten (Fruits from the tree of knowledge. On the evolution of cognitive and moral-analogous abilities). Deutsches Museum München, Munich, Germany, January 9, 2013

Comparative Cognition: Challenging the anthropocentric view of imitation. 55th TeaP (Conference of Experimental Psychology, March 24–27, 2013). Vienna, March 27, 2013

Towards a broader and deeper view on social learning. Lecture series "Experimental and Theoretical Psychology". Universiteit Gent, Belgium, April 17, 2013

Dog cognition. Lecture series of the Department of Experimental Psychology. Universiteit Gent, Belgium, April 18, 2013

The cognitive abilities of dogs in the perceptual, physical and social domain. Workshop "The Art and Science of Animal Behaviour" (May 24–28, 2013). Vetmeduni Vienna, May 28, 2013

Spontaneous tool invention in the kea. What animals understand about the physical world. Animal Cognition symposium, Ruhr University Bochum, Institute of Philosophy II. Bochum, Germany, June 25, 2013

Biology of cognition. Comparative Cognition: 3rd ToK Conference of the ESF CompCog network (July 3–5, 2013). Vienna, Austria, July 4, 2013

What is the relationship between innovation and intelligence? Is cognition still the key? Behaviour 2013: Joint meeting of the 33rd International Ethological Conference (IEC) & the Association for the Study of Animal Behaviour (ASAB, August 4–8, 2013). Newcastle, UK, August 5, 2013

Social learning in reptiles. Behaviour 2013: Joint meeting of the 33rd International Ethological Conference (IEC) & the Association for the Study of Animal Behaviour (ASAB, August 4–8, 2013). Newcastle, UK, August 7, 2013

Evolutionäre, vergleichende und soziale Aspekte von Willenshandlungen. 19th Meeting of the Austrian Pharmacological Socitety and 13th Meeting of the Austrian Neuroscience Association (September 16–19, 2013). Vienna, September 16, 2013

Gyula Gajdon

Puzzle boxes for the kea's puzzle mind. Individual and social learning in in a mountain parrot. Seminar am Fachbereich Psychologie der Paris-Lodron-Universität Salzburg, 27.11.2013

Friederike Range

Wolf cognition – Do domestication hypotheses have the right ideas about wolves? Université de Neuchâtel, Institut de Biologie, Switzerland, March 26, 2013

The role of motivation in canine social cognitive skills. APS (Association for Psychological Science) Convention (May 23–26, 2013). Washington, D.C., USA, May 24, 2013

Zsófia Virányi

Domestication and tolerance: How can dogs and wolves use conspecific- and human-given cues? 55th Conference of Experimental Psychologists (March 24–27, 2013). Vienna, March 26, 2013

The 5 years of CompCog. Comparative Cognition: 3rd ToK Conference of the ESF CompCog network (July 3–5, 2013). Vienna, July 3, 2013

Corsin Müller

Factors influencing problem-solving performance in domestic dogs. Behaviour 2013: Joint meeting of the 33rd International Ethological Conference (IEC) & the Association for the Study of Animal Behaviour (ASAB, August 4–8, 2013). Newcastle, UK, August 8, 2013

Sarah Marshall-Pescini

Do humans have goals? A pilot study on dogs' perception of object-directed actions. Comparative Cognition: 3rd ToK Conference of the ESF CompCog network (July 3–5, 2013). Vienna, July 4, 2013

Stefanie Riemer

Personality development in pet dogs from puppyhood to adulthood – a longitudinal study. Behaviour 2013: Joint meeting of the 33rd International Ethological Conference (IEC) & the Association for the Study of Animal Behaviour (ASAB, August 4–8, 2013). Newcastle, UK, August 8, 2013

Pet dogs' personality: consistency and change across time. International Veterinary Behaviour Meeting. Lisbon, Portugal, September 26–29, 2013.

Lisa Wallis

Developing tools to assess cognitive functioning in pet Border collies during development and aging using a computer-automated touch screen battery. Cognitive and Neurobiological Aging in the Dog satellite meeting of Society for Neuroscience. San Diego, CA, USA, November 8, 2013.

Dóra Szabó

Testing the reproducibility of behavioural tests in dogs in three European countries. Comparative Cognition: 3rd ToK Conference of the ESF CompCog network (July 3–5, 2013). Vienna, July 3, 2013.

Guest lectures and symposia hosted by the Unit of Comparative Cognition

ESF Network Programme "Comparative Cognition": Workshop "Concepts and methodologies in the field of intertemporal choices", organised by Friederike Range (Messerli Research Institute) and Jeffrey Stevens (University of Nebraska-Lincoln, Lincoln, Nebraska, USA), Messerli Research Institute, March 17–20, 2013. Speakers and topics can be found in the appendix on page 100.

ESF Network Programme "Comparative Cognition": 3rd Transfer-of-Knowledge Conference (July 2013). Scientific organisers: Zsófia Virányi and Ludwig Huber. Local organisers: Franziska Luckabauer and Teresa Schmidjell (all Messerli Research Institute). July 3–5, 2013. Speakers and topics can be found in the appendix on page 100.

Symposium "Old dog scientists learn new tricks" (organised by Stefanie Riemer, Zsófia Virányi, Friederike Range and Ludwig Huber, all Messerli Research Institute) at Behaviour 2013: Joint meeting of the 33rd International Ethological Conference (IEC) & the Association for the Study of Animal Behaviour (ASAB), Newcastle, UK, 04.–08.08.2013. Speakers and topics can be found in the appendix on page 101.

Clever Dog Lab Seminar, Messerli Research Institute. Speakers and topics can be found in the appendix on page 101.

Further guest lectures at the Messerli Research Institute:

Workshop by Sophia Yin (San Francisco, USA): *The Art and Science of Animal Behaviour*, May 24–28, 2013. The topics can be found in the appendix on page 101.

Sabrina Brando (KM Lelystad, The Netherlands): *Problem solving,* May 26, 2013

Rita Takács (Wolf Science Center, Ernstbrunn, Austria): *Training and socialisation of wolves and dogs for scientific research: The WSC philosophy*, May 28, 2013

Alan Kamil (University of Nebraska, Lincoln, USA): *Animal intelligence: birds are smarter than you think,* October 3, 2013

Kathy Sdao (Tacoma, Washington, USA): *How to Avoid Training Errors: Practical Suggestions to Speed Animal Learning,* October 14, 2013

Jane Goodall (Gombe, Tanzania): *Reasons for Hope,* December 12, 2013

The participants of the 3rd Transfer-of-Knowledge Conference in front of the big lecture hall of the Vetmeduni Vienna

Comparative Medicine

The bridging function performed by Comparative Medicine between the Medical University of Vienna and the University of Veterinary Medicine was strengthened in 2013. Several courses for PhD students at both locations provided insight into the other's field, as well as experimental cross-discipline research projects. The opening of the new Comparative Medicine Lab at the Vetmeduni Vienna has inspired research. The lab, equipped with high-tech devices such as TissueFAX for tissue analysis and the allergen microchip reader, not only support the unit's work, but also make the unit an attractive partner within the Messerli Research Institute, at the Vetmeduni Vienna campus and beyond. The research focus has already been on comparative studies during the last few years. The role of immune response in cancer, for instance, is not only being evaluated in human samples, but also in animals. A IgG immunoglobulin to fight against EGFR – one of the most important tumour antigens for dogs suffering from cancer – was generated in 2013 and will now be used as the first canine antibody for animal patients at the clinic. In the field of allergy research, the unit analyses the molecular mechanisms in humans and animals contributing to allergies under the auspices of the One Health Initiative. Human allergies to animals are as inconvenient as animal allergies to their owners. But which molecules trigger this? The Unit of Comparative Medicine is trying to find the answers in Austrian Science Fund (FWF)-funded basic research projects.

Data on human and animal patients is generated from mouse studies using translational research methods. This is an accepted method for fulfilling the 3Rs (replacement, reduction, refinement) because fewer mice are needed due to quicker translation times at the clinic. But does that mean that a dog or a human is worth more than a mouse? Is it acceptable that humans develop high-tech medicine for pets that cannot decide if they want to or not like human patients? The ethical evaluation of these questions will be subject to discussions in the next few years. An interdisciplinary context could provide the answers.

Research Projects

Ongoing projects

Targeting ERbB-1 and ERbB-2 overexpressed in cancer of dog by passive immunotherapy with IgG versus IgE antibodies

Passive immunotherapies are among the most successful therapeutics in human clinical oncology. However, they have not yet been used in veterinary medicine, although ca. 50% of all dogs above 10 years of age develop cancer and die. The Unit of Comparative Medicine produced a large scale canine anti-EGFR antibody in 2013. The cooperation for the radio labelling of the canine immunoglobulin for cancer diagnosis was initiated with the Department of Biomedical Imaging and Image-Guided Therapy of the Medical University of Vienna, the Platform for Radiooncology and Nuclear Medicine, the Clinical Unit of Internal Medicine Small Animals of the Vetmeduni Vienna, and the company piChem (Graz). The proof-of-concept experiments were finished successfully at the end of 2013. At the moment, a clinical study is being prepared for dogs suffering from EGFR-positive tumours is being prepared. The unit is proud of having generated the first canine antibody for oncology worldwide.

Project leader: Erika Jensen-Jarolim

Project collaborators: Judit Fazekas, Josef Singer

Project partners: Renate Kuner (University of Natural Resources and Life Sciences, Vienna), Edzard Spillner (University of Hamburg), Michael Willmann and Johann Thalhammer (Vetmeduni Vienna, Clinical Unit of Internal Medicine Small Animals), Maximilian Pagitz (Vetmeduni Vienna, Radiooncology and Nuclear Medicine), Christina Rami-Mark (PhD student), Markus Mitterhauser (Meduni Vienna, Department of Biomedical Imaging and Image-guided Therapy), Fritz Andreae (piChem)

Term: 2011–2014

Funding: FWF – Austrian Science Fund

Development of mimotope vaccines for preclinical and comparative medicine studies

Sub-project 19 in the Austrian Science Fund (FWF) Special Research Programme (SFB) on Allergies F4606 (spokesman of both SFB: Rudolf Valenta, Meduni Vienna)

Although the IgE biology of mice, dogs and humans is not completely comparable, initial results indicate that similar allergens are relevant to humans and dogs. In order to understand the superior mechanisms for the development of allergies on a molecular level, allergic dogs are tested for their molecular allergy profile by ISAC ImmunoCAP allergen microchips. A so-called custom-designed

microchip was developed in cooperation with ThermoFisher. Twenty molecules specific for veterinary patients were spotted on it, in addition to 112 allergens. This required European collaboration, which has been facilitated by the newly founded EAACI Interest Group for Comparative and Veterinary Allergology (see p. 29). Knowledge of the molecules will enable the improvement of allergen immunotherapy towards vaccine strategies for pets. These results will be transferred back to humans.

Project leader: Erika Jensen-Jarolim

Project collaborators: Kumiko Oida (PhD student), Anna Lukschal, Franziska Roth-Walter, Gerlinde Hofstetter, Martina Muhr (IMHAI Master student), Alexandra Schoos (diploma student)

Project partners: Lucia Panakova and Johann Thalhammer (Vetmeduni Vienna, Clinical Unit of Internal Medicine Small Animals)

Term: from beginning of 2012, 3 years, perspective 10 years

Funding: FWF – Austrian Science Fund

Cell communications in Health and Disease: allergy and oncology

This project is part of the Austrian Science Fund (FWF) doctoral programme “CCHD – Cell Communication in Health and Disease” (spokesman: Stefan Böhm). Erika Jensen-Jarolim has supervised five PhD students working on different topics such as “Neuronal pathways connect allergy and behaviour“ since 2006. This work is based on the clinical observation that allergy sufferers show avoidance behaviour, especially in widely unexplained sensitisations to odorous substances. A mouse model was established in order to test avoidance behaviour. The surprising results indicate that exposure to odorous substances does not lead to allergisation, but to tolerance, accompanied by a higher tumour risk. The data are highly relevant for humans and animals sharing households. They provide important insights regarding the One Health concept.

In a second PhD project, the mentioned canine anti-EGFR antibody is converted into other classes of immunoglobulins, in particular IgE, in order to make anti-tumour treatment more effective. IgE is very interesting because of its high bonding capacity to cellular receptors. Minor charges in IgE result in very efficient anti-tumour activity. This would lower the therapy costs and open new perspectives for animal cancer treatment.

A third PhD project analysed the molecular mechanism of house dust mite allergens, which are undesired housemates for humans and pets. All PhD projects resulted or will result in peer-reviewed publications.

Project leader: Erika Jensen-Jarolim

Project collaborators: Josef Singer (PhD student), Caroline Stremnitzer (PhD student), Judit Fazekas (PhD student)

Term: until 2016

Funding: FWF – Austrian Science Fund

Comparing allergic mechanisms in humans & dogs to promote the development of immunotherapeutical strategies

This project is part of the Austrian Science Fund (FWF) doctoral programme "MCCA – Molecular, Cellular and Clinical Allergology" (spokesman Winfried Pickl) and has clear synergies with the above-mentioned SFB project. The most important methods in molecular and cellular allergology will be established for the canine system, focusing on establishing allergen microchips for dogs. The aim is to develop sensitisation profiles by direct comparison with human dog owners. The IgE detection system on the chip has to be optimised for this purpose, which is the subject of associated diploma projects. In 2013, for instance, the alpha chains for IgE in dogs, cats and horses were cloned in order to use them for IgE detection on the chip.

Project leader: Erika Jensen-Jarolim

Project collaborator: Lukas Einhorn (PhD student)

Project partners: Franziska Roth-Walter, Josef Singer (PhD student), Judit Fazekas (PhD student), Lucia Panakova (Vetmeduni Vienna, Interne Medizin Kleintiere), Michael Willmann and Johann Thalhammer (Vetmeduni Vienna, Clinical Unit of Internal Medicine Small Animals)

Term: 2013–2016, perspective up to 10 years

Funding: FWF – Austrian Science Fund

Tiere fürs Herz (Animals for the heart) – a pilot study

There has been no scientific proof of the concept that visits by therapy dogs to patients suffering from cardiac insufficiency can bring positive effects for the patients so far. Study leader Claudia Stöllberger, cardiologist at the Hospital Rudolfstiftung in Vienna, planned to answer this question with an interdisciplinary team involving the Unit of Comparative Medicine. A pilot study was planned, followed by a large study observing patients suffering from cardiac insufficiency. Lisa-Maria Glenk was supposed to contribute as a stress expert, Andrea Beetz as a psychologist and Zsófia Virányi as an expert on dog cognition. However, the results of the pilot study were disappointing because it turned out that hardly any patients wanted to accept visits by therapy dogs. The results have been summarised in a publication which has been submitted.

Project leader: Claudia Stöllberger (2nd Med. Dep. Hospital Rudolfstiftung)

Project collaborators: Lisa-Maria Glenk

Project partners: Zsófia Virányi, Andrea Beetz (University of Rostock, Germany, Institut für Sonderpädagogische Entwicklungsförderung und Rehabilitation), Erika Jensen-Jarolim

Term: until December 31, 2013

Approved Research Projects in 2013

Epidemiology of food allergy in and around Vienna and the impact of filaggrin gene loss-of-function mutation on food allergy, LS12-060

This project will investigate the molecular sensitisation profile in human patients in Vienna. There are currently no clear data and no precise molecular epidemiology on this topic, in particular concerning food allergies. It is obvious that this project will generate data that will contribute to the ongoing SFB and the doctoral programme MCCA.

Project leader: Tamar Kinaciyan, co-applicant Isabella Pali

Project partners: Erika Jensen-Jarolim, Michael Kundi (Meduni Vienna, Institute of Environmental Hygiene)

Term: 2015–2018

Funding: WWTF – Vienna Science and Technology Fund, Life Sciences Call – Food and Nutrition

Oak processionary moth

Photo: © Stefan Franz – Fotolia.com

The risk potential of oak processionary moths

Oak processionary moths are an increasing problem in oak monocultures, and not only for plants themselves. They contaminate the environment with so-called setae, very tiny hair that can float off into the air that can damage human and animal skins and mucosae. Setae cannot be degraded and can cause severe inflammation. The interdisciplinary project team will identify the causative toxins and allergens in order to potentially take steps against them. The team of the Unit of Comparative Medicine will examine the setae in regards to protein chemistry and allergology. They will work together with the VetCore team at the Vetmeduni Vienna. The project is within the One Health concept of the unit, as animals are also affected by the negative impacts of oak processionary moths.

Project leader: Harald Maier (Meduni Vienna, Department of Dermatology)

Projekt partners: Wolfgang Spiegel (Meduni Vienna, Center for Public Health), Karl Stampfer (University of Natural Resources and Life Sciences, Vienna, Institute of Forest Engineering), Axel Schopf (University of Natural Resources and Life Sciences, Vienna, Institute of Forest Entomology, Forest Pathology and Forest protection), Tamar Kinaciyan (Meduni Vienna, Department of Dermatology), Erika Jensen-Jarolim

Projekt collaborators: Gerlinde Hofstetter, (Messerli Research Institute), Dieter Klein, Ebrahim Razzazi (Vetmeduni Vienna, VetCore)

Term: 2014–2018

Funding: Deutsches Umweltbundesamt (German Federal Environmental Agency)

Medical part of the Messerli project "Socio-cognitive abilities of domestic pigs, their ethical implications, and indicators of well-being"

Stress and well-being can significantly modify the immune system and, thus, also health. The measurement of cortisol, α-amylase and IgA from saliva is used as parameters for measuring stress. This has been shown to be relevant to different mammal species, from humans to mice. However, data on domestic pigs is rarer. This part of the project aims to accompany the project groups from the Units of Comparative Cognition and Ethics and Human-Animal Studies by the consistent measuring of stress parameters, applying state-of-the-art methods and defining new biomarkers from saliva that provide evidence of the stress-associated immune status as secreted molecules in saliva. The planned tests will expand the existing lab-analytical capabilities of the Unit of Comparative Medicine and form the basis of comparative and cross-species research into health-relevant parameters.

Leader of the sub-project: Erika Jensen-Jarolim

Project partners: Ludwig Huber (leader of the overall project), Herwig Grimm

Scientists involved: Judith Benz-Schwarzburg, Lisa-Maria Glenk

Term: 2014–2017

Funding: Messerli Foundation

Further projects of the Unit of Comparative Medicine

In addition, there are several more (Austrian Science Fund/FWF) research projects, two WWTF projects, one Initial Training FP7 Programme project coordination and one Herzfeld Family Foundation project at the Unit's second location, the Laboratory of Comparative Immunology and Oncology at the Center for Pathophysiology, Infectiology and Immunology at the Meduni Vienna. However, these projects are not described in detail in this annual report by the Messerli Research Institute.

Presentations and other scientific events

Erika Jensen-Jarolim

Comparative Allergology and Oncology: approaches to Allergo-Oncology. Research Meeting, Meduni Vienna, Institute of Medical Genetics. Vienna, April 30, 2013.

Neues aus der Komparativen Medizin. Impulse Seminar, Meduni Vienna, May 3, 2013.

Von der Nahrungsmittelallergie zur AllergoOnkologie. Netzwerk Schweres Asthma. Stuttgart, Germany, July 4, 2013.

Allergien im Wechselspiel mit anderen Erkrankungen: Komorbiditäten. Annual Meeting of the German Association for Allergology. Bochum, Germany, September 6, 2013.

Komparative Medizin: Von der Allergologie zur Onkologie. Annual Meeting of the Association of Austrian Small Animal Surgeons (VÖK), September 20–21, 2013. Salzburg, September 20, 2013.

From tumor vaccines to IgG and IgE anti-cancer therapies. Agricultural University Tokyo, Japan, October 4, 2013.

Comparative oncology: Development of xenogenic vaccines and recombinant antibodies for dog mammary cancer patients. Cold Spring Harbor Asia Conference: Tumour Immunology and Immunotherapy. Suzhou, China, October 31, 2013.

News in allergy & food allergy: from molecules to clinic. International Comparative Medicine Symposium: Comparative allergology. Vienna, April 19, 2013.

Franziska Roth-Walter

Impact of food processing on the allergenic potential of dietary antigens. International Comparative Medicine Symposium: Comparative allergology. Vienna, April 19, 2013.

Lisa-Maria Glenk:

Animal-Human-Welfare in tiergestützten Interventionen: Welche Bedingungen müssen gegeben sein, dass tiergestützte Therapie wirkt? Plenary talk at the conference “Tiergestützte Therapie und Pädagogik: Innovationen aus Forschung und Praxis”. Freiburg, Germany, September 20–21, 2013.

Guest lectures and symposia hosted by the Unit of Comparative Medicine

International Comparative Medicine Symposium: Comparative allergology, April 19, 2013.

Speakers and topics can be found in the appendix on page 102.

Satellite Meeting of the International Symposium on Molecular Allergology of the European Academy of Allergy and Clinical Immunology, December 5, 2013.

Speakers and topics can be found in the appendix on page 102.

Further talks organised by the Unit of Comparative Medicine

Rainer Ehmann (Asthma center Stuttgart, Germany): *Tierische Nasen in der Diagnostik, insbesondere von Lungenerkrankungen*, November 8, 2013

Rainer Ehmann at the CompMed Seminar

Ethics and Human-Animal Studies

The team at the Unit of Ethics and Human-Animal Studies is an interdisciplinary group working on questions relating to our moral relationship to animals. Human-animal interactions are currently undergoing change. This involves the increased need for orientation. The disciplines represented in the unit – philosophy, veterinary medicine, biology, literature studies and history – mirror the various aspects and the heterogeneity of these new questions in human-animal interactions. This variety and the scientific profiles of the staff shape the unit's work. Changing perception of the moral relationship between humans and animals is leading to fundamental reflections – in the field of livestock and lab animals as well as of pets and wild animals.

Against this backdrop, the scientists are focusing mainly on two fields. They pose socially relevant ethical questions in an applied-oriented manner, develop possible solutions and bring them into the social dialogue. This refers to, for instance, animal testing, veterinary medical practice and the keeping of livestock. The second field is the theoretical foundations of these socially relevant questions. The scientists are trying to develop new approaches and theories in human-animal interactions.

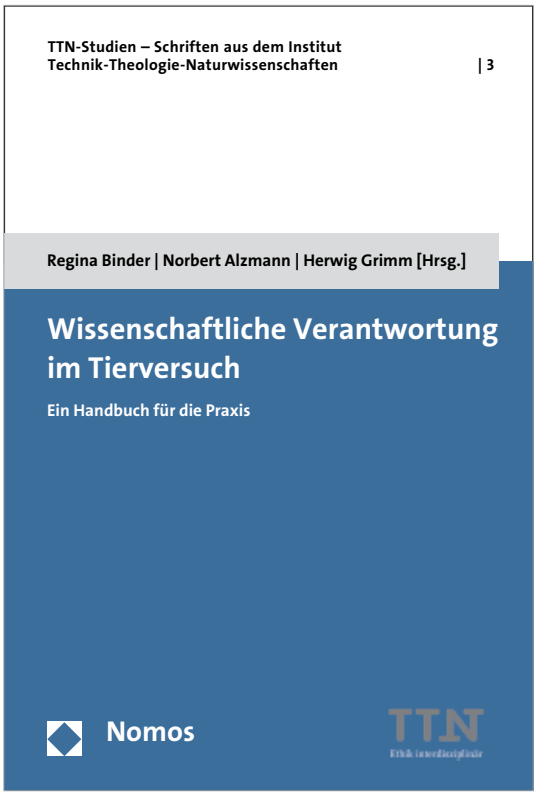
Interdisciplinary collaboration between the humanities and science is central, in particular in regards to socio-politically relevant questions. The principles of the 3Rs (replacement, reduction, refinement), for instance, combine normative criteria and scientific knowledge in the field of animal testing. But direct collaboration between the disciplines is also essential for the development of reasonable possible solutions, in terms of the social responsibility of vets and the moral challenges that face them.

Research Projects

Finished projects in 2013

Scientific responsibility in animal experiments

The framework for national laws in the field of animal testing is defined in EU Directive 2010/63, and this has been translated into national legislation via the new Animal Experiment Act. A cooperation project was initiated by the Unit of Ethics and Human-Animal Studies at the Messerli Research Institute, the Documentation Center of Animal Welfare and Veterinary Legislation at the University of Veterinary Medicine and the Medical University of Vienna in this instance. The aim was to develop practical guidelines for researchers and committee members to reach norm requirements in the field of animal experiments, against the backdrop of the new Animal Experiments Act and the corresponding regulations. The manual produced will support researchers and committee members in their scientific responsibility. The publication illustrates the scientific, legal and ethical aspects of animal experiments in a clear and practical way and bundles them for the needs of scientists and committee members.



Project leader: Herwig Grimm

Project collaborator: Norbert Alzmann

Project partner: Regina Binder (Documentation Centre of Animal Welfare and Veterinary Legislation at the University of Veterinary Medicine)

Term: March 2012–December 2013

Funding: Messerli Research Institute, University of Veterinary Medicine, Vienna, Medical University of Vienna

Ongoing projects

VETHICS FOR VETS – Ethics for veterinary officers

Human-animal interactions are currently undergoing change. This has led to massive contradictions. These contradictions and changing values are increasingly obvious in the field of veterinary practice and confront veterinary officers with ethical problems, in particular. Veterinary officers find themselves between the priorities of animal protection, the economy, law, politics and the general public. The project "VETHCS FOR VETS – Ethics for veterinary officers" is developing assistance tools for moral conflicts together with the veterinary officers. The main topics faced by veterinary officers on a day-to-day basis are central: the topic in 2013 was "Besser sterben. Tiergerechtes Töten" (Dying better. Humane killing). The topic in 2014 will be "Tiere – lebendiger Rohstoff?" (Animals – living resources?), followed by "Der überforderte Mensch" (Overwhelmed humans) in 2015. Relevant ethical questions are structured and reflected in expert workshops, based on the veterinary officers' experience and guided by competent ethicists. The sensitive and ethically oriented treatment of topics such as killing as well as using and humanising animals is the basis for assistance tools to be used in practice and for further research into the theory of veterinary medicine.

Project leader: Herwig Grimm

Project collaborators:
Kerstin L. Weich, Hannah Kranz

Term: 2012–2015

Funding: Austrian Federal Ministry of Health

Workshop with veterinary officers

Instrumentalisation as an ethically relevant criterion

A bioethical analysis and evaluation of SCNT cloning in nonhuman mammals

The doctoral project by Samuel Camenzind aims to analyse and evaluate Somatic Cell Nuclear Transfer Cloning (SCNT cloning) with adult cells in nonhuman mammals. The focus of the evaluation is on the development of a criterion which can be used to distinguish different forms of instrumentalisation and compare SCNT cloning with other reproduction technologies. The project will contribute to the investigation of ethically relevant criteria within animal ethics and bioethics by developing an instrumentalisation criterion. It also aims to provide orienta-

tion in the ethical evaluation of animal cloning and define the relationship between SCNT cloning and other reproduction technologies with regard to instrumentalisation.

Supervisors: Herwig Grimm, Klaus Peter Rippe (University of Education Karlsruhe)

Term: 2012–2015

Developing a set of criteria to evaluate animal experiment proposals

There has been no standardised method for the evaluation of animal experiment proposals and for harm-benefit analysis on the basis of objective criteria up to now. The aim of the project is to develop such a methodology in order to evaluate research projects including animal experiments, also from an ethical point of view. The background is the new Animal Experiments Act 2012 that came into effect on January 1, 2013.

In the process of transposing EU Directive 2010/63 into national law, the development of a set of criteria for objective harm-benefit analysis was anchored in the Austrian Animal Experiments Act to become valid by the end of 2015. This set of criteria will be developed at the Messerli Research Institute. The criteria will be practical in nature in order to enable objective harm-benefit analysis, taking ethical aspects into account. This set of criteria will be developed in an interdisciplinary project, against the backdrop of already existing sets of criteria and based on experience from former commission work and proposals. The Messerli Research Institute hosted an international symposium on March 27, 2013. Several renowned experts were invited (see p. 30). Experts and stakeholders were also invited to give written feedback on the set of criteria. Furthermore, their opinions were discussed in stakeholder workshops. All relevant stakeholders have been considered.

Project leader: Herwig Grimm

Project collaborators:
Norbert Alzmann and Vera Marashi

Term: December 15, 2013–December 15, 2015

Funding: Austrian Federal Ministry for Science, Research and Economy

Working group at the symposium on March 28, 2013

Symposium in the main hall at the Vetmeduni Vienna

Phenomenological Theory of Human-Animal Interactions

Postdoc project by Martin Huth

Martin Huth is working on a phenomenological theory of human-animal interactions that is oriented towards life-oriented meanings. The theory attempts to describe the fact that we have always been living with animals and that this fact is embedded in history and culture. We cannot ignore animals, given specific norms. We deal with animals every day. This requires the appropriate responsibility. It is not enough to simply reconstruct or apply existing behaviour and standards. Such individual encounters manifest a demand that we cannot not answer. Therefore, we are called upon to assume responsibility that we can only assume within a variable socio-cultural context, independently of specific attributions.

Project leader: Martin Huth

Approved Research Projects in 2013

Morality in animals

Judith Benz-Schwarzburg's postdoc project deals with abilities which are currently discussed as morality in animals in the fields of biology and philosophy, such as empathy, (altruistic) helping, fairness, cooperation/social interaction and inequity aversion. The aim is to make new empirical findings accessible for philosophical interpretation and link them to philosophical discussions such as the debate about moral agents vs. moral subjects or the discussions on personhood and animal rights. From a scientific and philosophical perspective, the project discusses the extent to which we can speak about morality in animals in a meaningful way and tries to find out what a minimum theory of morality would have to comprise in order to be applicable to animals.

This research focus by Judith Benz-Schwarzburg also includes the project section on morality in pigs that will be part of the project "Socio-cognitive abilities of domestic pigs, their ethical implications, and indicators of well-being" (see p. 37).

Leader of the project section "Morality in pigs": Judith Benz-Schwarzburg

Project partner: Ludwig Huber (Leader of the overall project), Erika Jensen-Jarolim

Term: April 2014–March 2017

Funding: Messerli Foundation

Presentations and other scientific events

Herwig Grimm

Professional Ethics – Amtstierärzte im Spannungsfeld zwischen Politik, Öffentlichkeit, Ökonomie und Tierschutz. Association of official vets: 31st International Veterinary Congress. Bad Staffelstein, Germany, April 22, 2013

Ethik in der Veterinärmedizin. Bayrisches Landesamt für Gesundheit und Lebensmittelsicherheit: Schleißheimer Forum. Oberschleißheim, Germany, May 14, 2013

Vethics: professional ethics for veterinary officers. European Society for Agricultural and Food Ethics Conference 2013, September 11–14, 2013. Uppsala, Sweden, September 12, 2013

Tierliche Individuen in der Forschung. Jedem Tier (s)einen Namen geben? Die Individualität von Tieren und ihre Relevanz für die Wissenschaften, September 16–17, 2013. Eferding, Austria, September 16, 2013

2033: Tierhaltung ohne Zwang als konkrete Utopie. 20. Freiland-Tagung: Die Freiheit, Nutztiere gut zu halten. University of Natural Resources and Life Sciences Vienna, September 26, 2013

Ethik und Geschichte der Tiermedizin und Projektvorstellung VETHICS FOR VETS. Talk with Kerstin Weich and Martin Huth, Forum Animals and History. Naturhistorisches Museum, Vienna, October 1, 2013

Judith Benz-Schwarzburg

Sozio-kognitive Fähigkeiten bei Tieren und ihre ethische Relevanz. Presentation for the jury of the German Study Award. Berlin, Germany, July 1, 2013

Cognitive Relatives yet Moral Strangers? Linking Cognition and Ethics. Summer School Wittenberg, August 12–18, 2013. Halle-Wittenberg, August 14 and 15, 2013

Tierliche Individuen in der Forschung. Jedem Tier (s)einen Namen geben? Die Individualität von Tieren und ihre Relevanz für die Wissenschaften, September 16–17, 2013. Eferding, Austria, September 16, 2013.

Martin Huth

The "secret" of killing animals. EurSafe 2013, September 11–14, 2013. Uppsala, Sweden, September 12, 2013

Ethik und Geschichte der Tiermedizin und Projektvorstellung VETHICS FOR VETS. Talk with Herwig Grimm and Kerstin Weich, Forum Animals and History. Naturhistorisches Museum, Vienna, October 1, 2013

Das Syndrom der Gerechtigkeit. Tagung Praktische Philosophie, Paris Lodron University of Salzburg (October 3–4, 2013). Salzburg, October 3, 2013

Die Historizität der Mensch-Tier-Beziehung. Forum Animals and History: Ethical and Political Implications. University of Vienna, October 30, 2013

Zwischen Mensch und Tier?! Martin Heidegger, Giorgio Agamben und Jacques Derrida. Tagung Phänomenologie und Metaphysikkritik, University of Freiburg. Freiburg im Breisgau, Germany, November 23, 2013

Samuel Camenzind

Dignity of creature: beyond suffering and further. EurSafe 2013, September 11–14, 2013. Uppsala, Sweden, September 13, 2013

On "genetic copy". A misleading metaphor in the ethical debate on SCNT-cloning. ICAS 2013 (November 28–30, 2013). Karlsruhe, Germany, November 28, 2013

Norbert Alzmann

Taking Ethical Considerations Into Account? Methods to Carry Out the Harm-Benefit Analysis According to the EU Directive 2010/63/EU. Symposium "Taking Ethical Considerations Into Account? Methods to Carry Out the Harm Benefit Analysis According to the EU Directive 2010/63/EU". Vetmeduni Vienna, March 27, 2013

Catalogues of Criteria – assistance for the harm-benefit analysis to objectify the assessment of ethical acceptability. Seminar "Animal Research, Ethics and Public Policy" (Centre for Animals and Social Justice CASJ & University of Leicester). Leicester, UK, July 4, 2013

A catalogue of criteria to objectify the harm-benefit analysis according to Austrian legislation. LINZ 2013: 18th European Congress on Alternatives to Animal Testing and EUSAAT 2013: 15th Annual Congress of EUSAAT, September 15–18, 2013. Linz, September 17, 2013

Kerstin Weich

Euthanasie in der Kleintierpraxis – Ergebnisse der TierärtzInnenbefragung. 4th Conference of ÖTT, Vetmeduni Vienna, May 2, 2013

Ethik in der Veterinärmedizin. Bayerisches Landesamt für Gesundheit und Lebensmittelsicherheit: Schleißheimer Forum. Oberschleißheim, Germany, May 14, 2013

Vethics: Professional Ethics for Veterinary Officers. EurSafe 2013, September 11–14, 2013. Uppsala, Sweden, September 12, 2013

Vom guten Töten – zur Innenarchitektur des Einschläferns. Kampnagel Life Art Festival, Congress "Occupy Species – die explodierte Universität". Hamburg, Germany, June 14, 2013

Veterinärmedizinische Ethik am Beispiel der Frühkastration von Hündinnen zur Mammakarzinomprophylaxe. Annual meeting of VÖK. Salzburg, September 20–22, 2013

Forumsbeitrag zur veterinärmedizinischen Ethik (Kastration). Würzburg Summer School for Cultural and Literary Animal Studies, annual topic "Political Zoology". Würzburg, Germany, September 23–28, 2013

*Ethik und Geschichte der Tiermedizin und Projektvorstellung Vethics For Vets. T*alk with Herwig Grimm and Martin Huth. Forum Animals and History. Naturhistorisches Museum, Vienna, October 1, 2013

Neutered Bitches. Mischwesen in der Tiermedizin anhand des Patientenbegriffs und am Beispiel der Kastration von Hündinnen. Tieranatomisches Theater: HUMANIMAL – Mythos und Realität, Museum für Naturkunde, Helmholtz-Zentrum. Berlin, Germany, October 18, 2013

Geschichte der Tiermedizin. Methodische Überlegungen. 17th annual meeting of the DVG group "Geschichte der Veterinärmedizin" (November 8–9, 2013). Berlin, Germany, November 9, 2013

Guest lectures and symposia hosted by the Unit of Ethics and Human-Animal Studies

Symposium „Taking Ethical Considerations Into Account? Methods to Carry Out the Harm-Benefit-Analysis According to the EU Directive 2010/63“. Messerli Research Institute, March 27-28, 2013.

Speakers and topics can be found in the appendix on page 102f.

Working group Human-Animal Interactions:

Speakers and topics can be found in the appendix on page 103.

Lecture series “Post-Anthropocentrism” together with the Institute for Philosophy of the University of Vienna (Angela Kallhoff):

Speakers can be found in the appendix on page 103.

Teaching 2013

Teaching at the Messerli Research Institute in 2013 included a number of courses at the three partner universities in Vienna and some courses at foreign universities. The focus, however, was again on the new Master's programme at the University of Veterinary Medicine, Vienna, which embarked on its second year.

Interdisciplinary Master in Human-Animal Interactions (IMHAI)

One of the major targets of the institute is the 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 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 programme is (mainly) in English and builds upon knowledge and competences acquired from previous Bachelor's or diploma programmes at national or international universities. The research-oriented programme qualifies graduates for both academic careers and careers in all relevant fields of human-animal interaction.

The broad interdisciplinary approach and the bundling of basic and applied research is a challenge for the teachers, as well as for the students. Therefore, the people involved were selected carefully – teachers, as well as students.

Practical course in the Clever Dog Lab

IMHAI aims

The Master's programme pursues the following goals and equips students with the following competences:

- Orientation in different scientific ways of thinking
- Interdisciplinary cooperation in research projects
- Specialisation within one main field
- Ethical evaluation and systematic reflection of current relevant topics of human-animal interaction
- Carrying out independent research projects

Curriculum

A total of about 90 credited hours of courses per semester are scheduled within the four semester programme, which consists of:

- **four compulsory modules** – 78 ECTS
  - Animal Behaviour and Cognition (20 ECTS)
  - Comparative Medicine (20 ECTS)
  - Animal Husbandry and Welfare including Legal Framework of Human-Animal Interactions (24 ECTS)
  - Philosophy, Philosophy of Science and Animal Ethics (14 ECTS)
- **two elective compulsory modules** – 12 ECTS
  - General scientific abilities and soft skills (6 ECTS)
  - Specialisation in the subject of the Master's Thesis (6 ECTS)
- **Master's Thesis** – 30 ECTS

Textbook Comparative Medicine

Comparative aspects of anatomy and physiology are discussed in the first semester of the module "Comparative Medicine" in the Master's programme. The first textbook on Comparative Medicine, "Comparative Medicine, Anatomy and Physiology" (edited by Erika Jensen-Jarolim) was published with Springer in 2013. An interdisciplinary team contributed to this book, which includes all aspects of Comparative Medicine in the IMHAI.

Sheep in front of the learning board in the practical course "Into Science"

Practical Courses and Seminars

The students attend practical courses and seminars in their third semester. One example for each compulsory module is described in the following.

Into Science – Practical course in behavioural and cognitive sciences

IMHAI students are trained for all stages in scientific inquiry: formulating hypotheses and predictions, establishing experimental designs, collecting data, analysing results statistically, as well as interpreting and presenting the project in oral form and written publications. The students work in small groups of two or three on novel, unanswered project questions.

Topics and groups in autumn term 2013/14

1. Visual discrimination in sheep (supervised by Ludwig Huber)
2. Food preference and its possible effect on performance in cognitive tasks in kea (supervised by Raoul Schwing)
3. Effect of prior positive social dog-human interaction on dogs' imitative performance (supervised by Tamás Faragó)
4. The effects of being imitated on pro-social behaviour in dogs (supervised by Corsin Müller)

Learning outcomes

- Successful students are able to conduct behavioural experiments to test the cognitive and emotional abilities of animals.
- They have enough knowledge to create clear hypotheses, make solid predictions and establish experimental designs.
- They have the necessary skills to work with animals in experimental settings.
- They are able to collect data and analyse it systematically, using both descriptive and conclusive statistics.
- They have enough knowledge of the relevant literature to interpret the results and discuss their theoretical implications.
- They are skilled in presenting the project in oral and written forms.

Project work: Applied Ethology and Animal Welfare

This course provides students with a basic understanding of scientific studies in the fields of Applied Ethology and Animal Welfare Science. Students work in small groups on short projects, going through all the project stages, starting from formulating a research question to presenting the results.

Topics and groups in autumn term 2013/14

- The utilisation (manipulation) of jute cloths by sows and their piglets in farrowing pens before and after farrowing (supervised by Johannes Baumgartner)
- The influence of a roof above the lying area on lying, elimination and agonistic behaviour in pigs (supervised by Johannes Baumgartner)
- Effects of feeding space on agonistic interactions in sheep (supervised by Susanne Waiblinger)
- Oral activities in calves – their relation to feeding (supervised by Susanne Waiblinger)
- IgA in saliva as indicators of positive emotions in calves – relationship to play behaviour (supervised by Stephanie Lürzel)

Learning outcomes

Students will have basic knowledge and skills to perform studies in Applied Ethology and Animal Welfare. This includes:

- compilation of an ethogram
- formulation of hypotheses
- compilation of a study design using a suitable methodology
- data acquisition
- data analysis and interpretation of the results
- presentation of the results

Comparative Aspects of Prevention & Therapy

Based on the medical foundations studied in the first and second semester, the Comparative Medicine module focuses on medical treatment and prevention in the third semester, comparing again the situations of human and animal patients. Students work independently on specific and controversial questions on this topics in the seminar "Comparative Nutrition and Dietetics", supervised by Isabella Pali and Qendrim Zebeli. Results are presented and discussed in the group. The seminar "Drug Development and Clinical Application", coordinated by Ilona Reischl (Austrian Agency for Health and Food Safety, AGES) was a highlight. The students got an insight into the high legal and methodical standards in drug production, following excursions to the AGES labs.

Photo: © Fotolia/Andy Dean

Practical course with the keas at Haidlhof

Practical Course on Ethics and Human-Animal Studies

The aim is to accompany students in the field of Animal Behaviour and Cognition from an ethical point of view. The project groups reflect and discuss ethical questions connected with their experiments and the experimental design (for instance, questions on animal training and keeping). Furthermore, the students reflect on philosophical and ethical questions, which are only indirectly connected with their projects.

Selected questions in autumn term 2013/14

1. Individualism in animals: the standardisation fallacy
2. The problem of negative evidence in animal cognition studies
3. Preferences in animals and their role in Singer´s preference-utilitarianism
4. The problem of handraising in parrots
5. Boredom in captivity: enrichment as a mitigation option
6. Is it morally acceptable to breed dogs?

Learning outcomes

- Identification and discussion of ethically relevant aspects of behavioural experiments
- Reflection of the students' own treatment of animals
- Overview of relevant literature, formulation of further theoretical questions and larger philosophical and ethical contexts
- Formulation and structuring of individual research questions
- Presentation of ethical problems in talks and publications

Further courses

At the Vetmeduni Vienna:

Ludwig Huber, Raoul Schwing, Corsin Müller: Course *Ethologie* within the lecture series *Rassenkunde*, *Tierhaltung und Ethologie* (1st semester of the diploma programme Veterinary Medicine)

Ludwig Huber: Course *Lernen und Verhalten* within the lecture series *Physiologie* (3rd semester of the diploma programme Veterinary Medicine)

Ludwig Huber: VO *Animal Cognition* within the module *Labortierkunde* in the diploma programme Veterinary Medicine, autumn term 2013/14

Corsin Müller: Course *Dog Behaviour* within the lecture *Tierverhalten und Sicherheitsaspekte bei Haustieren (Übungstierkunde)*

Karin Bayer: *Lernverhalten von Hunden und Methodik*, module in the University Course Applied Cynology, July 6–7, 2013

Stefanie Riemer: *Persönlichkeit bei Hunden*, lecture in the University Course Applied Cynology, July 7, 2013

Karl Weissenbacher: Module in the University Course Applied Cynology, July 27–28, 2013

Erika Jensen-Jarolim: Seminar *Animal Models for human Disease* within the module Labortierkunde in the diploma programme Veterinary Medicine

Herwig Grimm: *Tierethische Verantwortung übernehmen in der Praxis* within the module Labortierkunde in the diploma programme Veterinary Medicine, May 16, 2013

Judith Benz-Schwarzburg: *Einführung und Überblick über die Ethik der Mensch-Tier-Beziehung* in the module Labortierkunde in the diploma programme Veterinary Medicine, March 13, 2013

Judith Benz-Schwarzburg: *Tiere und Ethik*. Module in the University Course Tiere als Therapie, October 13, 2013

Martin Huth: *Grundlagen der Tierethik* within the module *Labortierkunde* in the diploma programme Veterinary Medicine, March 13, 2013

Martin Huth: Lecture within the University Course Applied Cynology, November 9/10, 2013

Samuel Camenzind: *Tierethische Positionen 1*: *Singer/Regan* within the module Labortierkunde in the diploma programme Veterinary Medicine, April 11, 2013

Samuel Camenzind: *Ethik – Praktische Relevanz* within the University Course Applied Cynology. November 23–24, 2013

Kerstin Weich: *Ethische Aspekte bei Planung, Begutachtung und Umsetzung von Tierversuchsvorhaben* and *Probleme bei der Güterabwägung* within module Labortierkunde in the diploma programme Veterinary Medicine, April 18 and 25, 2013

Norbert Alzmann: *Kriterienkataloge zur Beurteilung von Tierversuchsvorhaben* within the module Labortierkunde in the diploma programme Veterinary Medicine, May 15, 2013

At the University of Vienna:

Ludwig Huber taught and supervised theses in the PhD programme *Cognition and Communication* (DK FWF) together with Thomas Bugnyar, Tecumseh Fitch, Walter Hödl and Kurt Kotrschal.

Ludwig Huber co-organised the Cognitive Biology Seminar consisting of ca. 14 lectures per term. Students from the Unit Comparative Cognition participated (as well as in the Journal Club in Cognitive Biology).

Ludwig Huber taught in the course *Philosophisch-theologisch-biologisches Seminar* (Head: Marianne Popp).

Supervising of Master theses and PhD projects: Ludwig Huber, co-supervisors Tamás Faragó, Gyula Gajdon, Friederike Range, Zsófia Virányi, Corsin Müller, Raoul Schwing

Herwig Grimm: Research seminar *Post-Anthropozentrismus. Eine Debatte in der Tierethik* together with Angela Kallhoff

Herwig Grimm/Samuel Camenzind: Seminar *Beyond Suffering*

Martin Huth: *Klassiker der praktischen Philosophie*

Martin Huth: Gerechtigkeit – *Ausgewählte Texte von der Antike bis zur Gegenwart*

At the Medical University of Vienna:

Erika Jensen-Jarolim and Franziska Roth-Walter were teachers and supervisors in the PhD programmes “CCHD – Cellular Communication in Health and Disease” and “MCCA – Molecular, Cellular and Clinical Allergology”. They supervised Master students, for example in “Experimental Therapy and Drug Resistance” of the Comprehensive Cancer Center Vienna at the Department of Medicine I of the Meduni Vienna.

Erika Jensen-Jarolim and the members of the Unit of Comparative Medicine taught in different propaedeutics in the PhD programme in Immunology, in lab courses, basic seminars and journal clubs, as well as in lectures for medical students (block 8: *Krankheit, Krankheitsursachen und -bilder and block 13 Ernährung)*.

At the University of Veterinary Medicine, Vienna, and the Medical University of Vienna:

In 2013, 20 interdisciplinary journal clubs *New Developments and comparative aspects in allergology, oncology and immunology* took place in the Unit of Comparative Medicine. Teachers from Vetmeduni Vienna (Veronika Sexl, Armin Saalmüller and Mathias Müller) and from the Meduni Vienna were involved. These journal clubs took place alternately at both locations and were also announced at both locations. The team office of the Comparative Medicine Lab was a popular venue for talks. Additionally, students in the module Labortiermedizin (coordinated by Thomas Rülicke), IMHAI students and students of Veterinary Medicine took part. The seminars focused on human and animal diseases and the animal models developed for them.

Journal Club of the Unit of Comparative Cognition

FH Technikum Wien

Erika Jensen-Jarolim, Franziska Roth-Walter: supervising and co-supervising of a Diploma Thesis

FH Campus Wien

Erika Jensen-Jarolim, Franziska Roth-Walter: supervising and co-supervising of a Diploma Thesis

University of Teacher Education, Lower Austria

Martin Huth: Aristoteles (five Lectures) and Utilitarismus, St. Pölten, October 5 and 19, 2013

International

Zsófia Virányi: Guest speaker at the Central European University, Budapest, Hungary, March 4, 2013

Tamás Faragó: Lectures on vocal communication in canines and other species at the Eötvös Loránd University, Budapest, Hungary, October 10 and 12, 2013

Norbert Alzmann: *Tierethik mit besonderer Berücksichtigung von Tierversuchen*. Lecture within the FELASA B Course, tiz-bifo Akademie. Munich, Germany, July 12, 2013

Norbert Alzmann: *Tierethik in Theorie und Praxis – unter besonderer Berücksichtigung von Tierversuchen*. EPG Seminar, Eberhard Karls University Tübingen, Germany, March 11–13, 2013

Norbert Alzmann: *Tierethik in Theorie und Praxis*. EPG Seminar, Eberhard Karls University Tübingen, Germany, July 19–21, 2013

Engagement in committees and networks

Ludwig Huber

- Spokesman of the Messerli Research Institute
- Coordinator of the Master's programme IMHAI
- Member of the Curriculum Commission for the Master's programme IMHAI and the Bachelor's programme Equine Sciences (until September 30, 2013)
- Member of the Curriculum Commission for three Master's programmes (among them IMHAI) and six University Courses of the Vetmeduni Vienna (from October 1, 2013)
- Austrian representative in the Steering Committee at European Science Foundation
- Member of the EU network project European Network for the Advancement of Artificial Cognitive Systems, Interaction and Robotics II
- Member of the Steering Committee of the research platform "Cognitive Science" at the University of Vienna
- Secretary General of the association Clever Dog Lab to investigate cognition and behaviour of dogs
- Member of the Internal Scientific Advisory Board of the Konrad Lorenz Institute for Evolution and Cognition Research
- Member of the Scientific Advisory Board of the Konrad Lorenz Research Station Grünau im Almtal
- Member of the Advisory Board to transpose the new EU Directive on animal experiments

Friederike Range

- President of the association "Wolfsforschungszentrum"
- Vice-President and financial officer of the association Clever Dog Lab to investigate cognition and behaviour in dogs
- Secretary General of the association of supporters of "Wolfsforschungszentrum"

Zsófia Virányi

- Programme coordinator in the European Science Foundation Network "CompCog"
- Secretary General of the association "Wolfsforschungszentrum"
- President General of the association of supporters of "Wolfsforschungszentrums"
- President of the association Clever Dog Lab to investigate cognition and behaviour of dogs

Tamás Faragó

- Member of the Hungarian Ethological Society

Erika Jensen-Jarolim

- Member of the Board of Trustees of the Vienna Science and Technology Fund (WWTF)
- Member of the Senate at the Meduni Vienna
- Member of the Advisory Board to transpose the new EU Directive on animal experiments
- Deputy member of the Senate at the Vetmeduni Vienna
- Member of the Steering Committee of the Federal Government of Lower Austria to develop the FTI strategy for Lower Austria
- Member of the Scientific Advisory Board of the Center for Regenerative Medicine and Orthopaedics at the Danube University Krems
- Member of the Advisory Board of the Research Center Borstel, Leibniz Community Germany
- Member of the commission of external consultants of the animal ethics commission of the city of Vienna
- President of the association “Rote Pfote – Krebsforschung für das Tier” (Red Paw – Cancer Research for Animals)
- Delegate of the Austrian Society for Allergology and Immunology to the World Allergy Organization
- Board member of the newly founded Interest Group for Comparative Veterinary Allergology of the European Academy for Allergy and Clinical Immunology (EAACI)

Herwig Grimm

- Member of “Forschungsinitiative Tiertheorien: Grundlagen der Mensch-Tier-Beziehung in den Kultur- und Sozialwissenschaften”
- Member of the Scientific Advisory Board of the Institute Technik-Theologie-Naturwissenschaft at the Ludwig Maximilians University Munich, Germany
- Member of the Scientific Advisory Board of the association “Tierschutz macht Schule”
- Member of the European Society for Agricultural and Food Ethics (EurSafe)
- Member of the interdisciplinary workgroup “Mensch-Tier-Beziehung”
- Member of the European Academy of Sciences and Arts
- Member of the Ethics Committee at the Vetmeduni Vienna
- Member of the DACH network of the European Society for Agricultural and Food Ethics (EurSafe)

Judith Benz-Schwarzburg

- Founding member of Minding Animals Germany

Norbert Alzmann

- Member of the consulting commission on animal testing in the administrative region of Tübingen
- Member of the Scientific Committees at the Congress Linz 2013 of the European Society for Alternatives to Animal Testing

Grants and Awards 2013

Member of the Young Academy of the Austrian Acedemy of Sciences

Friederike Range became a member of the Young Academy of the Austrian Academy of Sciences (ÖAW) in the section Biology – Cognition and Behaviour. The ceremony took place on May 15, 2013. The Young Academy consists mainly of ERC Starting awardees and START awardees. As an integral part of the ÖAW, the Young Academy participates in all the activities of the Academy.

Habilitation

Friederike Range habilitated in the field of "Behaviour and Cognition" at the Vetmeduni Vienna on March 13, 2013.

Jane Goodall Honorary Ambassador

The Austrian Jane Goodall Institute, represented by executive director Gudrun Schindler-Rainbauer, appointed Ludwig Huber as Honorary Ambassador. Jane Goodall presented him with the medal and a certificate in the Auditorium Maximum of the Vienna University of Economics and Business on December 12, 2013. She excited the 650 people in the lecture hall with her inspiring talk "Reasons for Hope" and called the attention to endangered animals, people in poverty and the threats to the environment.

Poster Presentation Award

Franziska Roth-Walter got the Presentation Award of the Symposium on Molecular Allergy in Vienna on December 5, 2013.

Jane Goodall (middle) and Gudrun Schindler-Rainbauer (left) presented Ludwig Huber with the medal and a certificate

German Study Award

Judith Benz-Schwarzburg was awarded the second prize of the German Study Award, including 3,000 euros, in the category humanities and cultural studies for her doctoral thesis “Verwandte im Geiste – Fremde im Recht: Sozio-kognitive Fähigkeiten bei Tieren und ihre Relevanz für Tierethik und Tierschutz”. This award honoured the most important doctoral theses of the year in Germany. Judith Benz-Schwarzburg was a doctoral candidate at the Institute of Ethics in Life Sciences at the University of Tübingen from 2006 to 2012. She wrote her doctoral thesis with bioethicist Eve-Marie Engels.

Judith Benz-Schwarzburg at the presentation of the German Study Award

Cooperation & International Engagement

All the activities of the Messerli Research Institute – research, as well as teaching – are internationally oriented within a network of strong partners.

The members of the institute

- cooperate with excellent institutes and individual scientists
- interact in international research projects
- participate in international conferences and other events as speakers
- are involved – also in leading positions – in international networks
- found and intensify international exchange programmes
- promote academic mobility for students in European programmes (e.g. Erasmus)
- engage international scientists on pre- and postdoc level
- invite national and international experts and scientists for guest talks and workshops

The most important partners in 2013:

Associated Centres

Comparative Immunology and Oncology at the Meduni Vienna

The Institute for Pathophysiology and Allergy Research at the Center for Pathophysiology, Infectiology and Immunology (head: Hannes Stockinger) at the Meduni Vienna is Erika Jensen-Jarolim's home institute, which she headed from 2006 to 2011. It is one of the two locations of the Unit of Comparative Cognition. This division is now called Comparative Immunology and Oncology and has a well-equipped lab. Its location at the General Hospital Vienna (AKH) allows it to be close to human patients, which is essential for any comparative study. The group is involved in excellence networks such as the newly founded Immunology Research Cluster (IRC) – Allergy, Inflammation & Infection, the research cluster of the Comprehensive Cancer Center on tumour immunology, as well as research clusters resulting from the special research focus (SFB) allergy and the doctoral programmes.

Clever Log Lab

After an extension in 2013 (see p. 95), the Clever Dog Lab is now 380 square metres in size and consists of eight testing rooms (200 square metres in total), two offices, a deposit and several side rooms. It is located on the first floor of building AD at the Vetmeduni Vienna campus. All testing rooms are equipped with state-of-the-art multi-camera surveillance systems to record the behaviour and analyse the performance of pet dogs in behavioural tests. Furthermore, there are three computer-controlled touch screens to test learning and logical reasoning abilities, as well as an eye-tracker system (EyeLink®). The Clever Dog Lab team consists of a (still growing) group of dedicated researchers, from senior scientists to Diploma/Master students and interns, two lab managers and several research and student assistants. The Clever Dog Lab society, founded by Zsófia Virányi, Friederike Range and Ludwig Huber, supports the lab. It helps to get into contact with dog owners in and around Vienna, serves as an information platform and promotes transfer of knowledge, originating from basic science into practice and societal-political practice.

Two keas performing a cooperation task

Research Station Haidlhof

This unique research station at the Haidlhof estate of the Teaching and Research Farm Kremesberg (LFG) provides excellent infrastructure for research into bird cognition and bioacoustics in mammals. The station consists of four aviaries: one for keas (mountain parrots from New Zealand) and woodpeckers and three for corvids, connected by wire mesh alleyways. There is a multifunctional testing building for behavioural and acoustics research next to the aviaries. The farm building houses a bioacoustics lab, equipped with x-ray video, ultrasound, and endoscopy. There are also stables for cattle, pigs and chickens, a workshop, a food preparation kitchen, as well as offices, a kitchen, a lounge and bathroom/toilet for the researchers. The joint efforts of two universities (University of Vienna – Department of Cognitive Biology and Vetmeduni Vienna – Messerli Research Institute) to develop the infrastructure have made several excellent projects possible since its start in 2010. The station will be modernised and expanded (infrastructure and personnel) from 2014 to 2016, thanks to a generous infrastructure grant by the Austrian Ministry of Science, Research and Economy (see p. 47).

Bird view: the kea aviary (front), the three corvid aviaries (back) and the wooden lab building at the Research Station Haidlhof

Wolf Science Center

The Wolf Science Center and its associated scientific association were founded in 2008 by Zsófia Virányi and Friederike Range, both from the Messerli Research Institute, and Kurt Kotrschal from the University of Vienna. It is part of Wildlife Park Ernstbrunn. Wolves and dogs are raised in the same way and kept in (separated) packs. The Wolf Science Center aims to scientifically analyse canine behaviour and cognition in order to better understand the effects of domestication. Several publications were published on this topic this year, gaining worldwide attention (see p. 92). Due to the ERC project launched in 2013 and several other projects, a second testing area has been built to extend the capacities for scientific studies. Furthermore, four new enclosures for dogs and wolves have been built to raise new puppies in 2014.

Institute of Philosophy at the University of Vienna

There is intensive and regular exchange concerning teaching with the Institute of Philosophy at the University of Vienna due to Herwig Grimm's double appointment and Martin Huth's teaching as an external lecturer. The institute is big as compared to international standards and benefits from the staff's broad range of competences. Members of the institute teach classes on various highly specialised topics.

Coordinating authority for dog trainers in accordance with animal welfare

After implementation and publication of the guidelines for the directive by the Austrian Federal Ministry of Health, regarding detailed regulations of dog training in accordance with animal welfare, 65 dog trainers have taken the exam since March 2013. 46 of them passed it and are now allowed to hold the quality seal "Dog trainer in accordance with animal welfare standards".

All curricula for dog training courses in Austria refer to the education directive and the guidelines. Thus, it can be stated that the coordinating authority sets the standards for modern dog training in Austria. Germany is also interested in this way of introducing the standards set by the directive.

The seal for "Dog trainer in accordance with animal welfare standards" is also fortunately being integrated into the legislation of the Austria's federal provinces. This goal has already been achieved in Styria. Discussions with other federal provinces are in progress.

The implementation of these guidelines was a major step towards dog training and dog keeping in line with animal welfare standards.

Animal Law at the Messerli Research Institute

Animal Law is part of the teaching and research at the Messerli Research Institute, focusing on general animal welfare legislation and animal testing legislation. The Unit of Ethics and Human-Animal Studies and the Unit of Comparative Medicine, in particular, have several areas of interdisciplinary collaboration. This collaboration comprises mainly teaching in the Master's programme IMHAI and the scientific discussion of questions arising from current publications. The normative foundations of the various forms of human-animal interactions and their relationship to empirical findings in natural science are analysed together with the Unit of Ethics and Human-Animal Studies. In 2013, the focus of research and publications was on the new Animal Testing Act (book "Wissenschaftliche Verantwortung im Tierversuch: Ein Handbuch für die Praxis"; consulting on the development of a set of criteria according to 31 Abs. 4 TVG 2012; contributions to the brochure "Tierversuche: Aktuelles und Wissenswertes zu Tierversuchen").

Zwei Keas beim Spiel

Cooperation with our partner universities

University of Veterinary Medicine, Vienna

- Clinical Unit of Anaesthesiology and perioperative Intensive-Care Medicine (Y. Moens)
- Clinical Unit of Diagnostic Imaging (S. Kneissl)
- Clinical Unit of Equine Surgery (S. Brandt, B. Bratscher, E. Hainisch)
- Institute of Anatomy, Histology and Embryology (G. Forstenpointner)
- Institute of Animal Husbandry and Animal Welfare (J. Baumgartner, R. Binder, V. Heizmann, S. Lürzel, K. Niebuhr, C. Rouha-Mülleder, J. Troxler, S. Waiblinger)
- Institute of Medical Biochemistry (E. Möstl, R. Palme, M. Stöwe)
- Institute of Pharmacology and Toxicology (V. Sexl)
- Institute of Virology (K. Möstl, N. Nowotny, T. Rümenapf)
- Konrad Lorenz Institute of Ethology (M. Griggio, D. Penn, H. Winkler)
- Unit of Physiology and Biophysics (G. Schauberger, A. Schmalwieser)
- University Clinic for Poultry and Fish Medicine (A.-C. Häbich, Z. Knotik)
- University Clinic for Ruminants (T. Wittek)
- University Clinic for Small Animals (M. Leschnik, B. Litschauer, L. Panakova, J. Thalhammer, M. Willmann)
- University Clinic for Swine (I. Hennig-Pauka, M. Viehmann)
- VetCore (M. Glösmann, K. Hummel, D. Klein, K. Nöbauer, E. Razzazi-Fazeli)

University of Vienna

- Cognitive Science Platform (F.-M. Peschl)
- Department of Behavioural Biology and Research Group Human-Animal Interactions (K. Kotrschal, E. Millesi, I. Schöberl)
- Department of Cognitive Biology (T. Bugnyar, T. Fitch)
- Department of Evolutionary Biology (W. Hödl, E. Ringler)
- Department of Pharmaceutical Technology and Biopharmaceutics (F. Gabor)
- Faculty of Psychology (U. Ansorge, N. Heise, C. Lamm, H. Leder)
- Institute of History (M. Tschiggerl)
- Institute of Philosophy (A. Kallhoff, E. Lengauer, H. B. Schmid)

Medical University of Vienna

- Center for Biomedical Engineering and Physics (W. Drexler, E. Moser, R. Sladky, C. Windischberger)
- Center for Public Health, Institute of Environmental Hygiene (M. Kundi, W. Spiegel)
- Clinical Department of Laboratory Medicine (C. Mannhalter)
- Clinical Institute of Pathology (R. Horvat, O. Koperek, F. Wrba)
- Department of Biomedical Imaging and Image-Guided Therapy (S. Trattnig)
- Department of Dermatology (T. Kinaciyan, R. Kirnbauer, T. Kopp, H. Maier, M. Mildner, E. Tschachler)
- Department of Medicine I (E. Hadzijusufovic, P. Valent)
- Department of Pathophysiology and Allergy Research (B. Bohle, H. Breiteneder, M. Bublin, K. Hoffmann-Sommergruber, P. Pietschmann, R. Valenta, S. Vrtala)

- Department of Psychiatry and Psychotherapy (R. Lanzenberger)
- Department of Radiotherapy (E. Selzer)
- Department of Surgery (M. Bergmann und Team)

Further national partners

- Catholic-Theological Private University Linz, Institute of Moral Theology (M. Rosenberger)
- Ce-M-M Research Center for Molecular Medicine of the Austrian Academy of Sciences (C. J. Binder, S. Knapp)
- Institute of Molecular Pathology, Campus Vienna Biocenter (A. Straw)
- Karl Franzens University of Graz, Institute for Molecular Biosciences (W. Keller)
- Karl Franzens University of Graz, Institute of Pharmaceutical Sciences (A. Zimmer)
- Medical University of Graz, Institute of Biophysics (R. Prassl)
- Medical University of Graz, Institute of Pathophysiology and Immunology (R. Pfragner)
- Paris Lodron University of Salzburg, Department of Molecular Biology (G. Achatz-Straussberger)
- University of Natural Resources and Life Sciences Vienna, Institute of Applied Microbiology (R. Kunert und Team)
- University of Natural Resources and Life Sciences Vienna, Institute of Forest Engineering (K. Stampfer)
- University of Natural Resources and Life Sciences Vienna, Institute of Forest Entomology, Forest Pathology and Forest Protection (A. Schopf)
- Zoo Schönbrunn (F. Balfanz, A. Eder, D. Schratter)

Further international partners (selection)

- Agricultural University, Tokyo, Japan (H. Matsuda, A. Tanaka)
- Canterbury Christchurch University, New Zealand (A. Greer, R. Jackson, X. Nelson, S. Parsons)
- Christian Albrechts University Kiel, Zoological Institute, Kiel, Germany (T. Röder)
- Czech Academy of Sciences (J. Janda)
- Duke University, USA (B. Hare)
- Eötvös Loránd University Budapest, Hungary (A. Miklósi)
- European Science Foundation (ESF) “Comparative Cognition” (CompCog)
- Harvard Medical School, Children’s University Hospital Boston, USA (E. Fiebiger)
- Institut Pasteur de Lille, France (M. Capron)
- Institute Technology-Theology-Natural Sciences of the Ludwig Maximilians University of Munich, Germany
- Istituto Dermopatico dell’Immacolata, Centro Allergologia Moleculare, Rome, Italy (A. Mari)
- Istituto di Scienze e Tecnologie della Cognizione, CNR, Rome, Italy (E. Visalberghi)
- Keio University, Tokyo, Japan (H. Miyata, S. Watanabe)
- King’s College London, Randall Division of Cell & Molecular Biophysicis, London, UK (A. J. Beavil, H. J. Gould)
- King’s College London, St. John’s Institute of Dermatology, London, UK (S. N. Karagiannis)
- Københavns Universitet, Gentofte Hospital, Copenhagen, Denmark (L. K. Poulsen)

- Medical Small Animals Clinics, Munich, Germany (R. Müller)
- Monash University, Department of Immunology, Melbourne, Australia (R. E. O'Hehir)
- Philipps University Marburg, Biomedical Research Center, Marburg, Germany (H. Garn, H. Renz)
- Research Center Borstel, Germany (H. Fehrenbach)
- Semmelweis University, Budapest, Hungary (Z. Ronai)
- Servicio de Alergia, IIS-Fundación Jiménez Díaz, Madrid, Spain (J. Custaz)
- Swiss Institute of Allergy Research (Siaf), Davos, Switzerland (C. Rhyner)
- Stanford University, School of Medicine, Department of Pathology, Stanford, USA (S. J. Galli)
- T. S. Ingenieros Agrónomos, UPM, Madrid Unidad de Bioquímica, Departamento de Biotecnología, Madrid, Spain (A. Díaz-Perales)
- Università degli Studi di Milano, Italy (E. Prato-Previde)
- Università degli Studi di Parma, Italy (P. Ferrari)
- Universiteit Gent, Ghent, Belgium (C. Bachert, M. Brass)
- University of Auckland, Department of Psychology, Auckland, New Zealand (R. Gray)
- University of Bern, Vetsuisse-Faculty, Switzerland (E. Marti)
- University of California, David Geffen School of Medicine and Jonsson Comprehensive Cancer Center, Los Angeles, USA (M. Penichet)
- University of Cincinnati, Cincinnati Children's Hospital, Cincinnati, USA (F. Finkelmann, D. Krishnamurthy)
- University of Hamburg, Institute for Biochemistry and Molecular Biology, Hamburg, Germany (E. Spillner and team)
- University of Lübeck, Institute of Anatomy, Lübeck, Germany (P. König, M. Pieber)
- University of Minnesota, USA (D. Mech)
- University of Nebraska, Lincoln, USA (A. Bond, A. Kamil, M. Pesendorfer)
- University of Oxford, UK (C. Heyes, A. Kacelnik, A. v. Bayern)

Cooperation with networks and societies:

ESF Network Programme "Comparative Cognition"

Members of the Unit of Comparative Cognition participated in the European research network programme "The Evolution of Social Cognition: Comparisons and integration across a wide range of human and non-human animal species". Ludwig Huber was the Austrian representative in the Steering Committee. Zsófia Virányi was the General Manager. This five-year programme comprised 29 leading research groups from 11 European countries and was funded by the Standing Committee for the Social Sciences and the Standing Committee for Life, Earth, and Environmental Sciences of the European Science foundation (ESF). It ended in July 2013 with the summarising and closing conference in Vienna (see p. 28).

FITT – Forschungsinitiative Tiertheorien

FITT (Research Initiative Animal Theories) was founded at the University of Constance in 2012. The aim of this initiative is to analyse the cultural and social principles of human-animal interaction systematically and further develop theoretical approaches and methods in interdisciplinary discourse. Herwig Grimm was a founding member of the initiative. There were workshops in Basel and Würzburg in 2013.

Stiftung Bündnis Mensch & Tier (Munich)

Stiftung Bündnis Mensch & Tier (Foundation Alliance Humans & Animals) was founded in 2009. The foundation advocates species-specific animal husbandry and the respectful treatment of animals. The aim is to improve interaction between humans and animals in a sustainable way. The promotion of interdisciplinary cooperation in the Interdisciplinary Work Group Human-Animal Relationship is essential. Herwig Grimm is a member of this work group. The foundation organised a conference in Eferding in September 2013, in which Herwig Grimm and Judith Benz-Schwarzburg participated.

Young Scientists Association – YSA

The Unit of Comparative Medicine especially promotes communication between PhD students of the Medical University of Vienna and the University of Veterinary Medicine, Vienna. Therefore, the unit collaborates with the Young Scientists Association (YSA), an important communication platform for postgraduate students (www.ysa-muv.org).

Rector Hammerschmid, Erika Jensen-Jarolim, Rector Schütz

Cooperation with associations:

Association "Tierschutz macht Schule"

"Tierschutz macht Schule" is committed to improving living conditions for pets, livestock, test and wild animals in our society. The animal, as a fellow being, should be treated and kept according to its needs. The Unit of Ethics and Human-Animal Studies and the association cooperate in knowledge transfer, animal welfare communication and training of teachers. Herwig Grimm is a member of the scientific advisory board.

Association Red Paw – Cancer Research for Animals

The association Red Paw – Cancer Research for Animals was founded by Erika Jensen-Jarolim (president), Michael Willmann (finance officer), Edgar Selzer (secretary), and Katja Wolf from the Austrian Association of Cynologists (ÖKV) and has been very active since then. The Austrian Donation Seal (Spendengütesiegel) was extended in 2013, after careful examination. After the move to the Unit of Comparative Cognition at the Messerli Research Institute, the association could better connect events at the campus with its activities. At the opening of the Comparative Medicine Lab on May 7, for instance, the three Science Communication Awards were given to Judit Fazekas, Bettina Huber and Abhishek Aggarwal.

The Red Paw highlight 2013 required a lot of effort: the charity event "Cartoons & Clarinet swing". Rector Sonja Hammerschmid generously supported the event by providing the main auditorium and promotion. She and Rector Wolfgang Schütz from the Medical University of Vienna visited the event and gave approving welcome speeches.

The association Red Paw – Cancer Research for Animals has supported research into Comparative Medicine in the last few years, focusing on Comparative Oncology. This is in accordance with the Messerli idea. This strategy is supposed to make animal patients benefit from findings in modern medicine.

The winners of the Red Paw Science Comunication Award with the Rectors and Erika Jensen-Jarolim

Guest Researchers at the Messerli Research Institute

Comparative Cognition

- Catarina Espanca Bacelar (ISPA – Institute for Psychology, Social and Life Sciences, Lisbon, Portugal): Erasmus programme and Master's project (April 2–September 30, 2013)
- Giulia Cimarelli (Università degli Studi di Firenze, Florence, Italy): Master's project (September 1, 2012–June 30, 2013)
- Charlotte Duranton (Université de Paris XIII Cité Sorbonne, France): Master's project (January 6–May 29, 2013)
- Rebecca Hassler (University Course Applied Cynology, Vetmeduni Vienna): Thesis
- Ági Hudecz (Eötvös Loránd University Budapest, Hungary): several short visits in spring 2013, Oxytocin project
- Megan Hughes (University of Exeter, UK): Internship (January 7–March 31, 2013)
- Kristina Kovács (Eötvös Loránd University Budapest, Hungary): several short visits in spring 2013, Oxytocin project
- Paolo Mongillo (Department of Comparative Biomedicine and Food Science, Università degli Studi di Padova, Italy): CompCog Short Visit Grant (January 14–February 15, 2013)
- Elisa Pitteri (Department of Comparative Biomedicine and Food Science, Università degli Studi di Padova, Italy): PhD Project (February 1–July 31, 2013)
- Dania Randi (Faculty of Science, University of Zagreb, Croatia): Master's project (February 15–October 6, 2013)
- Ludo Smeets (HAS University of Applied Sciences Hertogenbosch, Netherlands): Internship (June 10–September 12, 2013)
- Miriam Stach (University of Gießen, Germany): Internship (May 6–August 9, 2013)
- Dora Szabó (Eötvös Loránd University Budapest, Hungary): Scholarship for Excellent Studentship Abroad (National Excellence Programme – Elaborating and operating an inland student and researcher personal support system) (September 2013–June 2014)
- Borbála Turcsán (Department of Ethology, Eötvös Loránd University Budapest, Hungary): CompCog exchange visit (February 1–April 30, 2013)

Comparative Medicine

- Emilie Blixt (Sweden): Molecular characterisation of allergens. Erasmus programme (since October 1, 2013)
- Cristina Gomez Casado (Universidad Carlos III de Madrid, Spain): Plant food allergens in comparative medicine. Spanish Scholarships (August 1–31, 2013)
- Anna Moskovskich (Sweden/Lithuania): Establishment of behavioural studies of food allergy avoidance in comparative medicine. Erasmus programme (September 1–30, 2013)
- Kumiko Oida, DVM, PhD student (Japan, March 1, 2012–March 31, 2014)

Ethics and Human-Animal Studies

- Philipp von Gall (Humboldt University Berlin, Germany): PhD project (March–September 2013)

Society & Public Relations

The Messerli Research Institute is committed to continuous knowledge transfer to the public sphere and politics, in line with its principles as defined in its mission statement. The institute promotes discussion and debate with selected multipliers and cooperation partners. Such partners do not only include international academic research colleagues, but also non-university research institutes, vets, medical doctors, associations, companies, societies and schools. The institute's experts are available for social dialogue and scientific policy consultancy to promote a scientifically based and ethically justifiable interaction with animals. The following criteria are applied:

- **Knowledge transfer in scientific independence**

  The most important criterion in favour of or against cooperation with a research institute is to ensure scientific independence. This not only means that the work at the Messerli Research Institute has to meet good scientific practice standards, but also provide knowledge as scientific expertise in social or political debates.

- **Distance from socio-political positioning**

  Credibility is a very valuable – maybe the most valuable – asset for a research institute, especially if it is working in a field as controversial as human-animal interaction. This asset must not be put at risk. Therefore, the members of the institute, in particular the heads of the units, try to keep a distance from socio-political positioning. The members of the institute support the process of opinion formation in society, not single positions, in line with the institute's principles. However, the knowledge gained and published at the institute will, of course, be used and is meant to be used by people in society and in politics.

Children's university at the Vetmeduni Vienna

Talks

Ludwig Huber

- *Neurobiologie und Willensfreiheit*. Lecture series *Philosophie – Theologie – Biologie,* University of Vienna, May 23, 2013.
- *Sparkling Science* – Dog and pig cognition. Seminar Sachsenbrunn, Kirchberg/Wechsel, Austria, June 20, 2013.
- *Kluge Hunde – Neues aus der Welt der Wissenschaft*. Vienna Research Festival, September 14, 2013.
- *Kognitionsbiologie – Tierethik – Mensch-Tier-Beziehung*. Rotary Club Neunkirchen, Austria, September 24, 2013.
- *Der evolvierte Wille – Grade der Verhaltenssteuerung und Intentionalität bei Tieren und Menschen*. Lecture series *Philosophie – Theologie – Biologie*, University of Vienna, October 24, 2013.
- *Jane Goodall and the Messerli Research Institute*. AudiMax at the Vienna University of Economics and Business, December 12, 2013.

Friederike Range

- *Lernfähigkeit von Hunden, ihre Wahrnehmung der Umwelt und ihre Beziehungen zu Menschen*. Veterinary medical training for medical officers, German armed forces (June 19–21, 2013). Munich, Germany, June 20, 2013.
- *Lernfähigkeit von Hunden, ihre Wahrnehmung der Umwelt und ihre Beziehungen zu Menschen*. Austrian Association of Small Animal Surgeons. Steyr, Austria, October 19, 2013.

Corsin Müller

- *Kluge Hunde — Neues aus der Welt der Wissenschaft*. Vienna Research Festival, September 13, 2013.
- *Hundeforschung am Clever Dog Lab*. Visit of the Association “Tiere helfen im Leben” in the Clever Dog Lab. Vienna, November 16, 2013.

Stefanie Riemer

- *Verhaltenstherapie, wie sieht die Zukunft aus?* Pet Seminar, Vetmeduni Vienna, October 19, 2013.

Erika Jensen-Jarolim

- Talk at the open day at Zoo Schönbrunn, Vienna, June 15, 2013.
- Talk at the Animal Festival on Danube Island. Vienna, September 14, 2013.

Lisa-Maria Glenk

- *Therapeuten auf vier Pfoten - wie können Tiere heilen helfen?* Children’s university at the Vetmeduni Vienna, July 19, 2013.

Herwig Grimm

- *Ethik der Mensch-Tier-Beziehung: Wer trägt die Verantwortung in der Nutztierhaltung.* Ökosoziales Forum: Conference on poultry production. Hatzendorf, Austria, January 23, 2013.
- *Ist alles Denkbare machbar?* – Tierhaltung mit Verantwortung. Bio Austria: Bauerntage 2013. Puchberg castle, Wels, Austria, January 30, 2013.
- *Die Ethik des Tötens.* ÖVA: 13th Advanced training meeting. Gaschurn/Montafon, Austria, May 2, 2013.

The next generation in the Clever Dog Lab

- *Mut zur Transparenz: Tierhaltung zwischen realen Zwängen und idealen Vorstellungen*. International conference 2013 on organic sheep and goats, Bio Austria, December 9–11, 2013. Puchberg castle, Wels, Austria, December 10, 2013.

Norbert Alzmann

- *Kriterienkataloge als Hilfsmittel zur Beurteilung der ethischen Vertretbarkeit.* Internal expert talk "Ethische Vertretbarkeit von Tierversuchen" of the Party BÜNDNIS 90/DIE GRÜNEN at the German Bundestag. Berlin, Germany, May 17, 2013

Kerstin Weich

- *Euthanasie in der Kleintierpraxis – Ergebnisse der TierärtzInnenbefragung.* Arbeitskreis Mensch-Tier-Beziehung, Messerli Research Institute, April 18, 2013

Media Highlights

Media reports Comparative Cognition (selection):

- Wienbuch 2013 – Wissenschaft und Innovation, January 2013: "Ludwig Huber. Betreibt Vergleichende Kognitionsforschung"
- ORF *Heute Leben*, January 30, 2013: "Schicksal: Hundegefühle"
- Weekend Magazin, January 18/19, 2013: "Tierisch gut – Wie clever sind Tiere?"
- Corriere del Ticino, February 14, 2013: "Il cane? È intelligente"
- Universum Magazin Nr. 3, March 2013: "Tierische Erkenntnis"
- ORF Radio *Mahlzeit Burgenland*, April 26, 2013: "Portrait Ludwig Huber"
- Die Presse, September 13, 2013: Interview with Ludwig Huber
- ORF *NÖ Heute – Verrückt nach Tier*, September 7, 2013: "Hunde sehen fern"
- ORF *Universum*, October 8, 2013: "Jagdkumpane"
- BBC Documentary by Kirsty Wilson, November 19, 2013: "Hunde oder Katzen"
- Several media reports on Jane Goodall's visit, December 12, 2013, and afterwards, e.g. Die Presse, December 14, 2013: "Jane Goodall in Österreich"
- Wissen schafft Wert – Third report by the Vienna Representative of Universities and Research, December 2013: "Clever Dog Lab – den kognitiven und emotionalen Fähigkeiten von Hunden auf der Spur"

Three events in the Clever Dog Lab and in the Wolf Science Center raised particular media attention in 2013:

- Talk *The role of motivation in canine social cognitive skills*: five reports, e.g. Die Presse, derStandard.at, news.sciencemag.org
- Publication *Wolf howling is mediated by relationship quality rather than underlying emotional stress*: over 30 reports, e.g. news.sciencemag.org, science.orf.at, Die Presse, science.apa.at, Salzburger Nachrichten, Der Standard, pakistantoday.com, timesofmalta.com, earthweek.com
- Publication *Social learning from humans or conspecifics: differences and similarities between wolves and dogs*: over 10 reports, z. B. news.sciencesmag.org, sciencedaily.com, nbcnews.com, derStandard.at, tierwelt.ch, science.orf.at, thetimes.co.uk, skynews.com

The Kea Lab was also subject to media reports (selection):

- Badener Bezirkszeitung, February 14, 2013: “Haidlhof: Papageien und Raben denken anders. Was sich tatsächlich in den Köpfen der Vögel verbirgt”
- Arte, October 17, 2013: “Superhirn im Federkleid; Kluge Vögel im Duell”
- Video publications of the Otto Koenig Society, 2013: “Die Evolution von Konflikt und Kooperation”. Director: Bernhart Ruso

Media reports Comparative Medicine (selection):

- Labormedizin Austria, January 2013: “Biomarker relevant für die Komparative Medizin”
- Universum Magazin, March 2013 (cover story): “Gelebt, gehegt, gepflegt”
- Profil, April 15, 2013: “Aus für Allergien, Teil 1. Durchbruch im Kampf gegen die quälenden Überempfindlichkeiten”
- Profil, April 22, 2013: “Aus für Allergien, Teil 2”
- ARD/MDR, August 15, 2013: “Hauptsache gesund. Sodbrennen”
- Forschen und Entdecken, September 2, 2013: “Mensch und Tier. Wiener Forscherinnen definieren vergleichende Forschung neu und erzielen damit erste Erfolge”
- 3sat, September 25, 2013: “Die Akte Aluminium”
- Arte, September 26 and October 11, 2013: “X:enius. Allergien bei Kindern – Neue Hoffnung bei Betroffenen?”
- Russia-2 TV channel, by United Media Group, October 26, 2013: “Allergie: Einfluss auf das Leben?”
- Mein Haustier, September/October 2013: “Tiergestützte Therapie aus der Hundeperspektive”
- derStandard.at, November 13, 2013: “Was mich nicht umbringt, macht mich stärker”
- Falter, Heureka, 3/2013: “Was sagen S‘, Frau Doktor, i soll zu an Tierarzt geh‘n?”
- Falter, Heureka, 3/2013: “Anfang Mai eröffnete das Labor für Komparative Medizin an der Vetmeduni Wien“”
- News.at, November 13, 2013: “Rote Pfote Charity Event für die Krebsforschung: Die Volkskrankheit Krebs macht auch vor unseren vierbeinigen Lieblingen nicht Halt”
- ORF *Menschen und Mächte*, November 27, 2013: “Die Tricks der Pharmaindustrie”
- VetMagazin, 4/2013: “Krebsforschung für das Tier fördern”
- Mein Haustier, November/December 2013: “Vergleichende Krebsforschung – Tier und Mensch als gleichberechtigte Partner”

Media reports Ethics and Human-Animal Studies:

- Profil, January 28, 2013: “Edelmischung”
- VetMagazin, 03/2013: “Klare Regeln für alle”
- ZIB Magazin, April 11, 2013: “Wer will Pferdefleisch?”
- ORF *Report*, April 16, 2013: “Klimaschutz im Rinderstall”
- ORF *Zeit im Bild*, July 24, 2013: Comment on humanising dogs
- Neue Zürcher Zeitung, August 22, 2013: “Sind klügere Tiere schützenswerter?” (Review of “Verwandte im Geiste, Fremde im Recht” by Markus Wild)
- Rbb Radio Berlin, December 25, 2013: “Wissenswerte: Der Hund als Patient”

Infrastructure

Opening of the Comparative Medicine Lab

The new Comparative Medicine Lab of the Messerli Research Institute was officially opened on May 7, 2013. Headed by Erika Jensen-Jarolim, the research lab dedicates itself to Comparative Medicine of humans and animals, aiming at the faster development of pharmaceuticals for human and animal patients. The focus is on allergy and cancer research. First experiments in the new lab have been started. The lab strengthens the bridge between veterinary and human medicine. Cooperation with other research groups at the campus will be facilitated.

After welcome addresses by the Rectors of the universities involved with the Messerli Research Institute and by Erika Jensen-Jarolim, the guests had the opportunity to see the lab and its modern equipment. The TissueFAX enables exact analysis of tissue samples. In the field of allergies, microchip diagnosis for pets is advanced in the new lab. A very small amount of blood is sufficient for a complete allergy profile gained from a chip. The so-called ImmunoCAP ISAC Test was developed in Vienna and has only since recently been used in human medicine. In the future, it will also be applied in veterinary medicine.

There was a lot of media attention after the opening. Several film teams filmed in the lab and reported on the work by the Unit of Comparative Medicine, among them ORF, WDR and Russia 1.

Opening of the Comparative Medicine Lab

Extension of the Clever Dog Lab

The existing facilities were not sufficient anymore due to the large projects by Friederike Range and Zsófia Virányi launched in 2012 and 2013 (among them an ERC Starting Grant, a project funded by Royal Canin, and two new FWF projects, see also p. 44–45). The Rectorate offered the lab four new rooms for temporary use. One of the new rooms became the new eye-tracker test room. All new rooms were renovated and equipped in the same way as the former rooms.

New office for the institute

The mentioned dog research projects and new projects in the Unit of Ethics and Human-Animal Interaction brought new staff members to the institute, which led to a lack of space in the Messerli house. Fortunately, the Rectorate and the staff and infrastructure management found a (temporary) solution. A big office in the main building at the Vetmeduni Vienna campus was cleared. Seven workplaces were equipped. This solved the most urgent lack of space.

The new eye-tracker room in the Clever Dog Lab

Social Events 2013

Excursion to Schneeberg

The Unit of Comparative Medicine baking cookies before Christmas

Christmas party

Evening at a Heurigen after the retreat on August 29, 2013

Appendix 1: Publications

Vergleichende Kognitionsforschung

Gajdon, G. K./Ortner, T. M./Wolf, C. C./Huber, L. (2013): How to solve a mechanical problem: the relevance of visible and unobservable functionality for kea. Animal Cognition 16, 483–492.

Horn, L./Huber, L./Range, F. (2013) The Importance of the Secure Base Effect for Domestic Dogs – Evidence from a Manipulative Problem-Solving Task. PLoS ONE 8(5), 65296.

Horn, L./Marshall-Pescini, S./Virányi, Z./Range, F. (2013): Cross-cultural differences in domestic dogs' interactions with humans – preliminary results from ainsworth's strange situation test; Journal of Veterinary Behavior: Clinical Applications and Research, 8(4), 39.

Horn, L./Range, F./Huber, L. (2013): Dogs' attention towards humans depends on their relationship, not only on social familiarity. Animal Cognition 16, 435–443.

Huber, L. (2013): Zur Evolution von Erkenntnis und Moral aus der Sicht der Kognitionsbiologie. In: H. P. Weber, R. Langthaler (eds.): Evolutionstheorie und Schöpfungsglaube. Neue Perspektiven der Debatte. Göttingen: Vienna University Press bei V&R unipress, 303–332.

Huber, L./Racca, A./Scaf, B./Virányi, Z./Range, F. (2013): Discrimination of familiar human faces in dogs (Canis familiaris). Learning and Motivation, 44(4), 258–269.

Kortekaas, K./Range, F./Virányi, Z./Kotrschal, K. (2013): Heart rate and heart rate variability of dogs (Canis lupus familiaris) during physical and mental activities; Journal of Veterinary Behavior: Clinical Applications and Research 8(4), 45–46.

Marmota, T./Virányi, Z./Range, F./Huber, L. (2013): Imitation recognition and its effect on subsequent interactions between pet dogs (Canis familiaris); Journal of Veterinary Behavior: Clinical Applications and Research, 8(4), 39–40.

Mazzini, F./Townsend, S. W./Virányi, Z./Range, F. (2013): Wolf Howling Is Mediated by Relationship Quality Rather Than Underlying Emotional Stress. Current Biology, 23(17), 1677–1680.

Müller, C. A./Riemer S./Range, F./Huber, L. (2013): Dogs' use of the solidity principle: revisited. Animal Cognition, Epub November 20, 2013.

Racca, A./Range, F./Virányi, Z./Huber, L. (2013): Discrimination of familiar human faces in domestic dogs. Journal of Veterinary Behavior: Clinical Applications and Research, 8(4), 46.

Range, F./Virányi, Z. (2013): Social learning from humans or conspecifics: differences and similarities between wolves and dogs. Frontiers in Psychology, 4, 868.

Riemer, S./Müller, C. A./Virányi, Z./Huber, L./Range, F. (2013): Choice of conflict resolution strategy is linked to sociability in dog puppies. Applied Animal Behaviour Science 149, 36–44.

Riemer, S./Müller, C. A./Range F./Huber L. (2013): Dogs (Canis familiaris) can learn to attend to connectivity in string pulling tasks. Journal of Comparative Psychology, Epub July 22, 2013.

Riemer, S./Müller, C. A./Virányi, Z./Range, F./Huber, L. (2013): String pulling in dogs revisited: spontaneous performance and learning in novel setups. Journal of Veterinary Behavior: Clinical Applications and Research 8(4), 34.

Stephan, C./Wilkinson, A./Huber, L. (2013): Pigeons discriminate objects on the basis of abstract familiarity. Animal Cognition, 16(6), 983–992.

Wilkinson, A./Mueller-Paul, J./Huber, L. (2013): Picture-object recognition in the tortoise Chelonoidis carbonaria. Animal Cognition, 16(1), 99–107.

Wallis, L./Range, R./Müller, C. A./Serisier, S./Huber, L./Virányi, Z. (2013): Age effects on interspecific communicative abilities of domestic dogs. Journal of Veterinary Behavior, (8), 4 e31.

Komparative Medizin

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Appendix 2: Scientific events

ESF Network Program „Comparative Cognition“: Workshop „Concepts and methodologies in the field of intertemporal choices“, Messerli Research Institute, March 20, 2013

Speakers:

- Gerhard Sorger (Uni Wien, Institut für Volkswirtschaftslehre): Introductory overview of intertemporal choice from economics perspective
- Jeffrey Stevens (Lincoln, USA): Introduction to psychology of intertemporal choice
- Elsa Addessi (Consiglio Nazionale delle Ricerche, Istituto di Scienze e Tecnologie della Cognizione, Rom, Italien): The intertemporal choice task
- Michael Beran (Language Research Center, Decatur, USA): The delay tolerance task
- Valerie Dufour (Evolutionary Ethology at the IPHC (CNRS), Straßburg, Frankreich): The exchange paradigm
- Daniel Mills/Hannah Wright (University of Lincoln, UK): The impulsivity/temporal choice task

ESF Network Program „Comparative Cognition“: 3rd Transfer-of-Knowledge Conference, July 3–5, 2013

Speakers:

- Ludwig Huber (Messerli Research Institute): Welcome and introduction
- Zsófia Virányi (Messerli Research Institute): The 5 years of CompCog
- Dóra Szabó (Eötvös Lóránd University, Budapest, Hungary): Testing the reproducibility of behavioural tests in dogs in three European countries
- Mark O'Hara (University of Vienna): Acquisitional neophilia in birds?
- Ádám Miklósi (Eötvös Lóránd University, Budapest, Hungary): Five years of CompCog: Going around or going ahead – in the needs of new perspectives for comparative cognition (plenary talk)
- Jürgen Pripfl (University of Vienna): Cognitive control of emotion in risky decision making: Hemispheric lateralization of dorsolateral prefrontal cortex function
- Jaak Panksepp (Washington State University, Pullman, WA, USA): The scientific case for emotional feelings in other animals: Do they have emotional experiences and are they homologous to our own? (plenary talk)
- Rui Oliveira (ISPA – Instituto Universitário, Lisbon, Portugal): Cognitive appraisal mediates physiological and genomic responses to social information
- Anna Kis (Eötvös Lóránd University, Budapest, Hungary): Oxytocin receptor gene is accepted with human directed social behaviour in dogs (Canis familiaris)
- Giorgio Vallortigara (Center for Mind/Brain Sciences, Università degli Studi di Trento, Italy): Core knowledge of object, number, and geometry: A comparative and neural approach (plenary talk)
- Zhanna Reznikova (Novosibirsk State University, Russia): Animal intelligence: Ordering learning classes
- Ivo Jacobs (Lunds Universitet, Sweden): Pulling the right strings: A comprehensive review of the string-pulling problem
- Jens Krause (Humboldt University & IGB, Berlin, Germany): Collective behaviour and interactive robots (plenary talk)
- Linda Gerencsér (Eötvös-Lóránd-Universität Budapest, Ungarn): Identification of behaviour in freely moving dogs (Canis familiaris) by accelerometer and gyroscope
- Anna Gergely (Eötvös Lóránd University, Budapest, Hungary): What are you or who are you? The emergence of social interaction between dog and an Unidentified Moving Object (UMO)
- Jóse Halloy (Université Paris Diderot, Paris, France): Towards social bio-hybrid systems of animals and robots generating collective intelligence (plenary talk)
- Sarah Marshall-Pescini (Università degli Studi di Milano, Mailand, Italien): Do humans have goals? A pilot study on dogs' perception of object-directed actions
- Isabella Merola (Università degli Studi di Milano, Milan, Italy): Dogs find familiar people and familiar emotions easier to use in an object-choice task
- Christian Rutz (University of St. Andrews, UK): Investigating tool-use behaviour in wild New Caledonian crows (University of Vienna)
- Jorg Massen (University of Vienna): Third-party interventions and possibly recognition of common ravens (Corvus corax)
- Erica van de Waal (University of St. Andrews, UK): Potent social learning and conformity shape a wild primate's foraging decisions
- Elisabetta Visalberghi (Instituto di Scienze e Tecnologie della Cognizione, CNR, Rome, Italy): Capuchins. What else? (University of Vienna)
- Anastasia Krasheninnikova (University of Hamburg, Germany): Phylogenetic comparative cognition: Does phylogeny predict cognitive abilities in parrots?
- Sofia Panteleeva (Institute of Systematics and Ecology of Animals, Novosibirsk, Russia): Cognitive hunting in the context of risk-reward decision making: Striped field mice go for less
- Anna Wilkinson (University of Lincoln, UK): Cold-blooded cognition

Symposium „Old dog scientists learn new tricks“ at Behaviour 2013: Joint meeting of the 33rd International Ethological Conference (IEC) & the Association for the Study of Animal Behaviour (ASAB), Newcastle, UK, August 4–8, 2013

Speakers:

- Clive Wynne (University of Florida; USA): Ontogeny and Phylogeny in the Sensitivity of Dogs to Humans
- Peter Hepper (Queen‘s University, Kingston, Ontario, Canada): Prenatal Experience Influences Postnatal Behaviour in the Domestic Dog
- Holly Miller (KU Leuven, Netherlands): Too dog-tired to behave: Self-control in humans and dogs is sensitive to fatigue
- John Bradshaw (University of Bristol, UK): Why do adult dogs play?
- Corsin Müller (Messerli Research Institute): Factors influencing problem-solving performance in domestic dogs
- Min Hooi Yong (University of Otago, Dunedin, New Zealand): Dogs‘ cortisol and behavioural response to a crying human infant

Clever Dog Lab Seminar, Messerli Research Institute:

Speakers:

- Megan Hughes (Exeter University, UK): Do dogs attend to global or local features when processing simple visual stimuli. January 9, 2013
- Paolo Mongillo (Università degli Studi di Padova, Italy): Comparing methodologies for the assessment of global local processing of hierarchical stimuli. January 16, 2013
- Charlotte Duranton (Université de Paris XIII Cité Sorbonne, France): Do pet dogs follow communicative and non-communicative human gaze in different context. January 23, 2013
- Elisa Pitteri (Università degli Studi di Padova, Italy): Assessment of global local processing of human faces stimuli in dogs. February 13, 2013
- Borbála Turcsán (Eötvös Lóránd University, Budapest, Hungary): Cross validation of personality tests: a unified phenotyping method for behaviour-genetic analysis. February 27, 2013
- Rebecca Hassler (University Course Applied Cynology, Vetmeduni Vienna): Large versus small – are mini-sized dogs indeed more cautious? Reaction of dogs to unfamiliar and potentially scary objects of different sizes. March 20, 2013
- Elisa Pitteri (Università degli Studi di Padova, Italy): Discrimination of human face pictures in companion dogs: can they discriminate local elements? Which features are more relevant to solve the discrimination?. July 27, 2013
- Catarina Bacelar (Universidade de Lisboa, Lisbon, Portugal): Conspecific Gaze Following in Pet Dogs. September 11, 2013
- Dania Randi (University of Zagreb, Croatia): Comparative study of emotitonal contagion in laboratory and pet dogs. October 2, 2013
- Dóra Szabó (Eötvös Lóránd University, Budapest, Hungary): What influences dogs’ performance in a search task. November 13, 2013

Workshop with Sophia Yin (San Francisco, USA): The Art and Science of Animal Behavior, May 24–28, 2013

- How to think like a dog, cat, horse, giraffe and further talks. May 24, 2013
- The power of Pavlov: how classical conditioning controls an animal’s body and behavior. May 24, 2013
- Recognizing brewing fear and aggression. May 24, 2013
- Rapid reversal of fear and aggression. May 24, 2013
- Dominance vs. leadership: myths and facts about dominance in dogs and other species. May 25, 2013
- Teaching dogs to learn to earn: a fun, quick and safe alternative to the alpha role. May 25, 2013
- Punishment: what science says about why and when it works and what can go wrong. May 25, 2013
- The many faces of fear and aggression: challenging cases. May 25, 2013
- Your mouth’s saying one thing but your body’s saying another. May 26, 2013
- Taming the tiger: understanding and handling human-directed aggression in cats. May 26, 2013
- The hand that bites the feeder: possession aggression in dogs. May 26, 2013
- Low stress livestock herding. May 26, 2013
- Low stress handling of dogs and cats. May 27, 2013
- Carnivore enrichment. May 27, 2013
- Genes and behavior: working against fate?. May 27, 2013
- Barking in dogs: noise or communication?. May 27, 2013

International Comparative Medicine Symposium: Comparative allergology, April 19, 2013

Speakers:

- Jozef Janda (Czech Academy of Sciences): Insect bite hypersensitivity of the horse
- Luis Fernandez Pacios (Universidad Politécnica de Madrid, Spain): Properties of plant food allergens: in silico studies
- Araceli Díaz-Perales (Universidad Politécnica de Madrid, Spain): Molecular mechanisms of plant food allergens
- Ines Swoboda (FH Campus Vienna): Allergic to meat? A novel problem
- Erika Jensen-Jarolim (Messerli Research Institute): News in allergy & food allergy: from molecules to clinic
- Lucia Panakova (Vetmeduni Vienna): Allergy, a common problem in veterinarian patients
- Nicole Luckschander-Zeller (Vetmduni Vienna): Food allergy or IBD – a matter of definition
- Franziska Roth-Walter (Messerli Research Institute): Processing of food changes its allergenic potential!

Satellite Meeting to the International Symposium on Molecular Allergology of the European Academy of Allergy and Clinical Immunology, December 5, 2013

Speakers:

- Erika Jensen-Jarolim: Welcome Address
- Otto Doblhoff-Dier: Welcome Address
- Ralf Müller (Center of Animal Health, Munich, Germany): Allergen-specific immunotherapy in the dog
- Eliane Marti (University of Berne, Vetsuisse Faculty, Switzerland): Icelandic horses: natural model to study sensitization to new allergens and possible preventive immunization
- Jozef Janda (Czech Academy of Sciences): Role of thymic lymphopoetin in allergic diseases of horses and dogs
- Claudio Rhyner (Swiss Institute of Allergy and Asthma Research, Switzerland): Identification and cloning of mite allergens involved in equine insect bite hypersensitivity
- Hiroshi Matsuda (Agricultural University Tokyo, Japan): The benefits of comparative approaches for Atopic Dermatitis

Symposium "Taking Ethical Considerations Into Account? Methods to Carry Out the Harm-Benefit-Analysis According to the EU Directive 2010/63". Messerli Research Institute, March 27–28, 2013

Speakers:

- Norbert Alzmann (Messerli Research Institute): Catalogues of criteria – assistance for the harm-benefit analysis to objectify the assessment of ethical acceptability
- Raymond Anthony (University of Alaska, Philosophy Department, Anchorage, USA): Current Developments in Applied Ethics and Food Animals: A Perspective from the United States
- Regina Binder (Vetmeduni Vienna, Information and Documentation Office for Animal Welfare and Veterinary Law): Balancing competing values in a legal setting: Evaluating harm & benefit of proposed animal experiments
- Tjard de Cock Buning (University of Amsterdam, Faculty of Earth and Life Sciences, Netherlands): Structural aspects of the ethical assessment: assumptions and implications on animal protection and societal distrust
- Vanessa Gerritsen (Stiftung für das Tier im Recht, Switzerland): Evaluation Process for Animal Experiment Applications in Switzerland
- Mickey Gjerris (Københavns Universitet, Institute of Food and Resource Economics, Copenhagen, Denmark): Animal welfare and animal ethics: Doing ethics in landscape of diversity
- Maggy Jennings (Royal Society for the Prevention of Cruelty to Animals, UK): The Harm-Benefit analysis project evaluation – a UK perspective
- Toni Lindl (Institute for Applied Cell Culture, Munich, Germany), Ulrike Gross (Deutscher Tierschutzbund, Academy for Animal Welfare, Germany), Manfred Völkel (Tierschutzkommission Nordbayern of the Government of Unterfranken, Würzburg, Germany): Guidance on Determining Indispensability and Balancing Potential Benefits of Animal Experiments with Costs to the Animals with Specific Consideration of EU Directive 2010/63/EU
- Jörg Luy (Freie Universität Berlin, Institute of Animal Welfare and Behavior, Germany): What do we know about the logic of people's beliefs as to ethically justified harm?
- Franck Meijboom (University of Utrecht, ZENO Research Institute for Philosophy, Netherlands): Tracing developments in Applied Animal Ethics: An analysis of Recent Advisory Documents on Farm Animals, including Framed Fish

- Christoph Maisack (Federal Ministry for the rural area and consumer protection, Baden-Württemberg, Germany): What does „taking ethical considerations into account“ mean?
- Anna Olsson (Institute for Molecular and Cell Biology, Portugal): A matter of importance: considering benefit in animal ethics review
- Helena Röcklinsberg (Swedish Universty of Agricultural Sciences, Uppsala, Sweden): Ethical assessment in Animal Ethics Committees in Sweden. The Swedish transition process of the EU directive EU/2010/63 with regard to harm-benefit analysis in Animal Ethics Committees
- Peter Sandøe (Københavns Universitet, Centre for Bioethics and Risk Assessment, Copenhagen, Denmark): Harms to animals – can we agree on how best to limit them?
- Horst Spielmann (Freie Universität Berlin, Department of Biology, Chemistry and Pharmacy, Germany): Legal and Ethical Aspects of the German Animal Welfare Act
- Frans Stafleu (University of Utrecht, Department of Philosophy/ZENO Research Institute for Philosophy, Netherlands): A Dutch ethical assessment tool to meet the new directive

Working group Human-Animal Interaction:

Speakers:

- Martin Ullrich (Nuremberg, Germany): Tiermusik: Musiktheorie in der Mensch-Tier-Beziehung. March 21, 2013
- Sabrina Brando (Lelystad, Netherlands): How can we improve animal welfare in captivity? May 23, 2013
- Arianna Ferrari (Karlsruhe, Germany): Technologische Verbesserung von Tieren zwischen Tierschutz und Ausbeutung. June 20, 2013
- Peter Kaiser (University of Vienna): Nicht nur (in Begleitung ihrer) Körper: Selbst- und Körperbewusstsein bei Tieren. October 24, 2013
- Christian Nawroth (Martin Luther University Halle-Wittenberg, Germany): Das „dumme“ Schwein in neuem Licht – Wie die vergleichende Psychologie dazu beitragen kann, Nutztiere artgerechter zu halten. November 7, 2013
- Manuela Kuzel (early childhood educator, Vienna): Achatschnecken in der Kindergartenpädagogik. 21.11.2013.
- Friedrich Lachmayer (retired Undersecretary of the BKA, Vienna): Die Substitution der Tiere durch Maschinen. 05.12.2013.

Lecture series “Post-Anthropocentrism” together with the Institute of Philosophy at the University of Vienna:

Speakers:

- Urs Thurnherr (Karlsruhe, Germany): Tierhermeneutik. March 19, 2013
- Markus Wild (Fribourg, Switzerland): Der Geist der Tiere. April 23, 2013
- Andreas Brenner (Basel, Switzerland): Phänomenologische Zugänge zur Tierethik. April 30, 2013
- Rob Boddice (Berlin, Germany): The Moral Worth of Animals. May 28, 2013
- Gary Steiner (Bucknell University PA, USA): Anthropozentrismus im Kreuzfeuer der Tierethik. Research Colloquium at the Messerli Research Institute, May 29, 2013
- Carrie Packwood Freeman (Georgia, USA): Animal Rights and Vegetarianism. June 4, 2013
- Beat Sitter-Liver (Berne, Switzerland): Die Rechte des Tiers – Möglichkeiten und Grenzen. June 18, 2013

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