



**messerli**  
Research Institute

Annual Report **2011**

**messerli**  
Research Institute

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## Dr. Sonja Hammerschmid

**Rector of the University of Veterinary Medicine, Vienna**

The teaching, research and services provided by the University of Veterinary Medicine, Vienna are focused on animals, in particular their health, well-being and needs. The newly established Messerli Research Institute is not just dedicated to working on human-animal interactions on an intensive, scientific basis, but is also ensuring veterinary medicine benefits from new research findings. After all, it is these findings, whether they come from comparative medicine, cognitive research or ethics, which provide the foundation for new medical therapies, a greater understanding of well-being and improved animal protection.

The role of animals is undergoing a significant change, creating major challenges for society – and, thus, science. The research of human-animal interactions requires an interdisciplinary approach. The new Messerli Research Institute responds to this need by interlinking individual chairs in natural science, medicine and humanities, on the one hand, and by cooperating with the Medical University of Vienna and the University of Vienna, on the other. The new international Master Programme will ensure that research findings will flow directly into teaching and, thus, into society.



There are no longer any further barriers to research and teaching, following an intense period of foundation and development work in 2011. I would like to wish the staff of the new institute all the best in this major undertaking. I would also like to thank all cooperation partners and the Messerli Foundation, in particular Herta Messerli, for the trust that they have put in the University of Veterinary Medicine, Vienna and the science location Austria.

## Univ.Prof. Dr. Dr. h.c. Wolfgang Schütz

### **Rector of the Medical University of Vienna**

Shared mechanisms for diseases found in humans and animals can be discovered more quickly through comparative research at the new Messerli Research Institute – with the aim of developing new therapies. This includes interdisciplinary knowledge transfer between human and veterinary medicine, resulting in extremely positive effects on research at MedUni Vienna, the Vetmeduni Vienna and the University of Vienna.

All this can be summarized by the key phrase “comparative medicine”. This is far more than research conducted on laboratory animals in conventional laboratory situations. The Messerli Research Institute conducts clinical research on animals, primarily domestic pets, the findings of which will have equal significance to the treatment of humans and animals.

The Messerli Research Institute has been built on the fruitful cooperation between three universities. This is unique and represents a successful bridge between human and veterinary medicine, as well as between the humanities, the social sciences and natural sciences. Such an interdisciplinary institution is what has been missing at the research location Vienna and it highlights Vienna’s top international position and excellent reputation in research.



Univ.Prof.  
Dipl.Ing. Dr. Heinz W. Engl

**Rector of the University of Vienna**

The parties involved finalised the interdisciplinary cooperation agreement between the Messerli Foundation, the Medical University of Vienna, the University of Veterinary Medicine, Vienna and the University of Vienna during the official opening of the Messerli Research Institute on March 29, 2012.

This interuniversity cooperation is proving to be particularly productive – since “laying the foundation stone” with the Haidlhof Cooperation in 2010 – as it is helping to expand and further deepen the field of cognitive biology, one of the areas of excellence of the University of Vienna.

The analysis of human-animal interactions in combination with ethical, socially relevant questions is at the core of scientific research at the Messerli Research Institute. This therefore adds another fascinating facet to Vienna’s profile.

As the Rector of the University of Vienna, I am particularly pleased that knowledge transfer between all the international cooperation partners involved can contribute to guaranteeing a profound, basic and application-oriented education for students, as well as provide a uniquely wide research and study field for our future scientists.



## Dr. Heinz Schweizer

### Vice President Messerli Foundation

The Messerli Foundation has supported and conducted more than 100 nature and animal protection projects to date. Our conviction that only scientific findings yielded through interdisciplinary cooperation can ensure the sustainable protection of nature and animals stems from this experience. Ten universities in the German-speaking region were invited to establish a research institute. In the end, the alliance of the Vetmeduni Vienna, MedUni Vienna and University of Vienna was selected because it clearly understood the Foundation's vision best and was prepared to contribute to putting this project into practice.

This impression was more than confirmed in 2011. The cooperation between the Vetmeduni Vienna and the Messerli Foundation has been excellent. All the important questions that arose during the institute's establishment were answered with the highest level of mutual understanding.



## Enterprise and Expectations

**Univ.Prof. Dr. Ludwig Huber**  
Spokesperson Messerli Research Institute

This annual report was designed to meet two targets: firstly, we want – in line with the actual purpose of an annual report – to document what happened in 2011: what left an impression in 2011, which events should be remembered, which people have contributed and what did they do. However, we must also consider that – with one exception – all the people involved could only start working at the institute late in the year, or in other words, the institute had existed only “on paper” and in the heads of the initiators at the time. Several important decisions were made during this period of time which comprised about two thirds of the year and the institute’s “home”, the so-called “Messerli House”, became (almost) reality with the renovation of a historic building. The three chairs were appointed in Autumn/Winter 2011 and the first staff members were employed through a competitive process. They all moved into a provisional office on the campus of Vetmeduni Vienna. Thus, the “annual report” includes only a period of about one third of a year and is de facto a four-month report. However, the report will attempt to show that a large number of remarkable and interesting things happened over this short period of time.



The second aim of this report is to present the institute as a whole, its targets and activities, its organisational structure and the people working here. Finally, we will unveil our plans for research and teaching, our ambitions to convey knowledge and our social mandate. We are well aware that many promises are made in this section and that we will have to deliver on these promises in the years ahead. Nonetheless, we want to fulfill our obligation to openly inform our founders, partners and sponsors, the students and the general public about our plans, and also to correct expectations that were set too high or were mistaken.

The annual report for 2012 will show which promises we will have kept. What is certain is that we will have grown, not only in terms of human resources with new staff members and our first master’s programme students, but hopefully also in our knowledge of the mechanisms and the interactions between humans and animals, as well as potential improvements. According to our motto: Enterprise and Expectations.



University Centre  
of Excellence

Cognition  
**Cognition** **Ethics**

Interdisciplinary Research

Human-Animal Studies

comparative  
**Medicine**

**Animal Welfare**

# Messerli Research Institute at a glance

# 2011

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 research is devoted to the interaction between humans and animals, as well as its theoretical principles in animal cognition and behavior, comparative medicine and ethics.
- Its work is characterized by its broad interdisciplinary approach (biology, human medicine, veterinary medicine, philosophy, psychology, law) and strong international focus.
- Research findings are an integral part of the academic curriculum in a new Master's programme and are also designed to provide guidelines for the responsible and acceptable treatment of animals.
- 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 the ethically acceptable treatment of 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 a high importance on ensuring that principle-oriented debates are constantly kept in mind while following this application-oriented goal.

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

The Messerli Research Institute considers as one of its targets the promotion of human and animal health (e.g. in the fields of cancer research, allergology and nutritional sciences) using comparative medical research projects. 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. This shall promote research on the theme of "One Health" and thereby influence the direction of related subject categories.

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 human-animal interactions, reflect on present laboratory practice in a critical way and improve it 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**

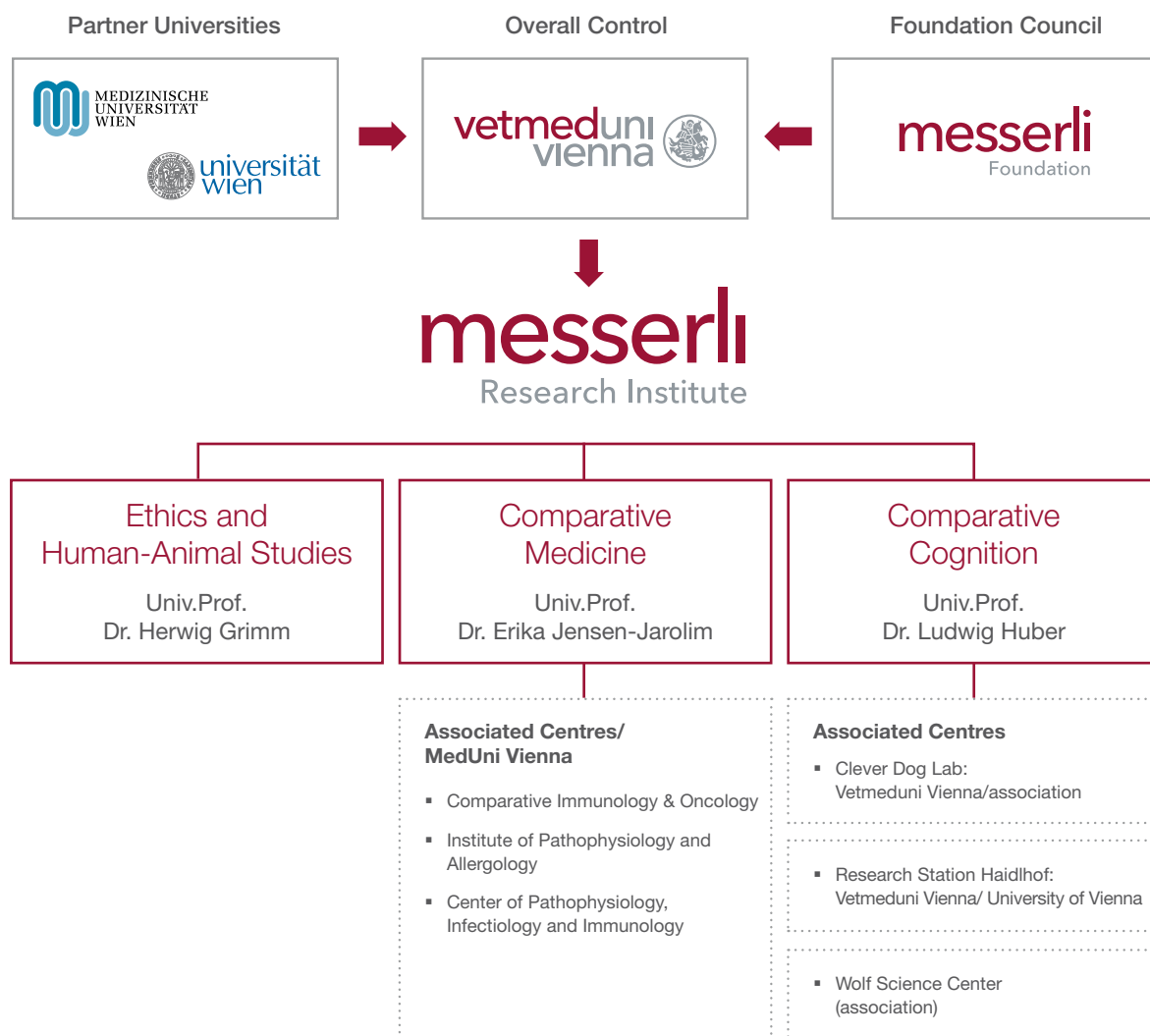
The Messerli Research Institute strives to achieve a balance between excellent basic and applied research. Key findings stemming from scientific work carried out at the Messerli Research Institute are the platform on which human-animal interactions can be examined in a practically oriented manner. For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



## Organisational Chart

The institute comprises three units and several associated centres. The units cover three different aspects of human-animal interactions:

- Comparative Cognition
- Comparative Medicine
- Ethics and Human-Animal Studies



## Team

Each of the three units of the Messerli Research Institute has one chair, scientific assistant positions, one administrative position and – at the two natural science units – technical posts. Furthermore, there is an interdepartmental IT office and a coordination office that cooperates with the rector's office at the Vetmeduni Vienna. Half of the posts were filled by 31st December 2012. Twelve additional staff members were employed by the institute, in addition to the three professors

and the institute's coordinator (see table). Moreover, several staff members from third party-funded projects work at the institute. In addition, the same number of scientists work in close cooperation with the staff members of the Messerli Research Institute at the associated centres.





## Unit of Comparative Cognition



### **Univ. Prof. Dr. Ludwig Huber**

Spokesman for the Institute & Head of Comparative Cognition

Ludwig Huber studied Biology and Philosophy at the University of Vienna, gained his PhD under Rupert Riedl in 1991, became a professor in 2000 and headed the Department of Cognitive Biology until his move to the Messerli Research Institute.



### **Dr. Friederike Range**

Senior Scientist, Head of Clever Dog Lab

Friederike Range is a senior scientist and Head of the Clever Dog Lab and the Wolf Science Center. She received her master's degree at the University of Bayreuth and her PhD at the University of Pennsylvania.



### **Dr. Zsófia Virányi**

Senior Scientist, Head of Clever Dog Lab

Zsófia Virányi is a senior scientist and Co-Head of the Clever Dog Lab and the Wolf Science Center. She gained her PhD on ethology at the Eötvös University Budapest.



### **Dr. Gyula K. Gajdon**

Senior Scientist, Head of Kea Lab

Gyula Gajdon is a senior scientist and Head of the Kea Lab. He studied zoology at the University of Zurich and gained his doctorate at the ETH Zurich.



### **Mag. 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.



### **Wolfgang Berger**

Engineer

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

## Unit of Comparative Medicine



### **Univ.Prof. Dr. 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.



### **Priv.Do. DDr. Isabella Pali**

Senior Scientist, Food Immunology

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.



### **Dr. Franziska Roth-Walter**

Senior Scholar

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



### **Anna-Maria Willensdorfer**

Lab Manager

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



### **Katica 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, deals with human resource issues and also manages projects funded by third parties.



## Unit of Ethics and Human-Animal Studies



### **Univ.Prof. Dr. Herwig Grimm**

Head of Ethics and Human-Animal Studies

Herwig Grimm heads the Unit Ethics and Human-Animal Studies. His research focuses on applied animal ethics and pragmatism in applied ethics. Grimm gained his doctorate at the Munich School of Philosophy in 2010.



### **Dr. Judith Benz-Schwarzburg**

Senior Scholar

Judith Benz-Schwarzburg is a senior scientist in the Unit Ethics and Human-Animal Studies. Her research focuses on animal ethics/animal philosophy and cognition in animals. She studied Linguistics, German Literature, Philosophy and Ethics and gained her doctorate at the University of Tübingen in 2012.



### **Mag. Dr. Martin Huth**

Senior Scholar

Martin Huth is a senior scholar in the Unit Ethics and Human-Animal-Studies. His main fields of research are phenomenology and post-structuralism. Huth studied Philosophy and History and received his doctoral degree at the University of Vienna in 2007.



### **Samuel Camenzind, MA**

Senior Scholar

Samuel Camenzind is a scholar in the Unit Ethics and Human-Animal Studies. He focuses on animal ethics; currently, he is working on his dissertation on “Cloning animals: an ethical evaluation”.



## Coordination



### **Mag. Karl Weissenbacher**

Coordinator Messerli Research Institute

Karl Weissenbacher studied veterinary medicine and is a licensed corporate consultant. He has been involved in the foundation process of the Messerli Research Institute from its onset.



# Our Working Methods

# 2011

## Excellence in Research and Training

The Messerli Research Institute strives to provide its scientists and students with a unique research and learning environment. To achieve this, it cooperates with excellent institutes as well as top-level individual scientists in its fields. Collaboration is most intensive in international research projects.

Cooperation with the Messerli Research Institute is valuable to its partners because of the intensive and individual discussion in an interdisciplinary discourse, a high level of professional expertise and the availability of an excellent infrastructure (such as the field station for cognition and communication research “Haidlhof”, the Clever Dog Lab and a high-tech laboratory at the Institute for Pathophysiology and Allergy Research).

## Fully Integrated Interdisciplinarity

Very few of the sample questions can be answered by a single research discipline. Therefore, taking an interdisciplinary approach to key issues in human-animal interactions is an essential element in the Messerli Research Institute’s work. The appropriate resources will be provided for such cooperation, allowing expertise from individual subjects to be incorporated into interdisciplinary discourse in a structured manner. It is expected that the results can be used in interdisciplinary discourse and will find recognition in individual scientific discourses through this strategy.

## International Visibility

The Messerli Research Institute plans to raise its international visibility and establish itself as a reliable and excellent partner through international research projects and networks, as well as through exchanges of students, scientists and lecturers with other universities.

## Independence

The Messerli Research Institute works in an environment characterized by different interests. In doing so, it attaches great importance to scientific autonomy. The basic funds provided by the Messerli Foundation and its university partners are invaluable. They enable the institute to operate in this dynamic field, and to also raise and discuss socially delicate questions and issues on human-animal interactions academically, independently and openly.



## Our Values

Thanks to its focus, the Messerli Research Institute is a unique platform for dialogue relating to research and teaching. The interdisciplinarity described in this mission statement should become a tangible feature of the institute for external persons, as well as being a strong identification point for its employees. This mutual understanding is fostered in numerous ways, such as through seminars and retreats and by proximity to our partners. Our disregard of the usual hierarchies creates a working atmosphere that enables free exchange, enjoyment and open communication. Our staff work closely with their supervisors and are encouraged to work independently and to develop their own research directions.

Staff with different mentalities, backgrounds and specific needs work together in an international environment. The promotion of women and a family-friendly atmosphere are important to the institute. It supports, for example, home-office days and participation at career-building events such as courses or conferences. The targeted mentoring of students and staff by professors at the Messerli Research Institute is seen as a tool for the support of new talent in achieving excellence. Thus, it is not only in terms of science that the Messerli Research Institute attains and maintains the highest standards. The institute is also conscious of the recommendations and guidelines given by the three cooperating universities.

## Transparency and Knowledge Transfer

The Messerli Research Institute presents its research findings and methods transparently and in a clear and comprehensible way on its website, as well as being active in public-relations work. The institute is open for discussions with interested members of the public and strives for cooperation with non-university institutions of further and higher education. One such partner is the association “Tierschutz macht Schule”, which aims to promote ethical reflection on human-animal interactions in schools and teacher-training colleges. A further partner is the association “Rote Pfote”, with which the Messerli Research Institute holds regular public discussions, as well as working together on research projects on cancer in humans and animals and communicating the results. Science communication is a central activity in which all staff share responsibility.

## Goals

Public and political discussions 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 on human nature. The Messerli Research Institute is making a significant contribution to this field by creating a scientific and transparent basis for answering ethically and socially relevant questions.

Teams from the three units and their associated laboratories performed research into the following general issues in 2011:

- **Comparative Cognition**
- **Comparative Medicine**
- **Ethics and Human-Animal Studies**



### Research in Context

The Messerli Research Institute sees itself as an institute working at the University of Veterinary Medicine, Vienna, which actively integrates the university's existing knowledge and expertise into its own work. The institute then offers its research findings to the University of Veterinary Medicine for the University's own teaching and research. Both veterinary research and teaching benefit from innovative scientific approaches and ethical expertise in human-animal interactions thanks to this fruitful cooperation.

## Research Interests

### Comparative Cognition

Research at the Unit of Comparative Cognition is dedicated to current questions on cognition and emotion in animals, based on a comparative and integrative standpoint. Cognitive abilities are not unique to humans, but can be found in many other animals. The research is not confined to either one or a small number of "model systems", but examines a variety of selected animal species, such as dogs and wolves, mountain parrots, pigeons, woodpeckers and even tortoises. The fact that cognition must be understood as a complex biological phenomenon results in the combination of various biological and psychological methods and approaches, as well as the integration of research at various levels of complexity (genetic, neuronal, individual, social, cultural level). The research is conducted in both natural as well as semi-natural habitats, where the animals' abilities to solve experimental tasks are tested. These tasks are oriented towards natural, species-related problems, not towards IQ tests for humans. To achieve this, particular focus is put on an exclusively non-invasive approach.

### Animal Protection and Human-Animal Interactions

A better understanding of animals' cognitive and emotional abilities, particularly in a social context, has direct consequences for a number of bioethical and applied questions. Thus, the Messerli Research Institute will also focus on livestock (pigs, chickens, etc.) and laboratory animals (rats, monkeys) as part of its future research, in addition to wild animals (keas, woodpeckers and wolves) and domestic animals (dogs). The findings of this (basic) research should help put the (widely exaggerated) self-image of humans and their role in the universe into perspective, recognise their own cognitive and social abilities, strengthen their responsibility and sensibility towards other social, emotional and intelligent animals, as well as improve their diverse relations (and interactions) with animals.

### Cognitive and emotional abilities of dogs and wolves

The goal of this basic research field is to understand the cognitive and emotional abilities of the domestic dog in regards to the four so-called "Tinbergian questions" (or causes). The first question – the phylogenetic cause – should be explored mainly in comparison to the dog's progenitor, the wolf. Domestication plays an essential role in this research. A second important question is that of the ontogenetic development of cognition and emotion, with a strong research focus on the early development and ageing of dogs. Thirdly, experiments will be conducted to find out more on specific mechanisms and functions, as well as, fourthly, their adaptive values. This will include the dog's ability to imitate and feel empathy, as well as cooperation and (gestural and vocal) communication.



The findings of the applied research are expected to have far-reaching effects on human-animal interactions and veterinary medicine. This will particularly affect the interaction between dog owners and their dogs, but also the position of dogs in society.

### **The perceptual, technical and social intelligence of birds**

The second basic research interest of the Unit of Comparative Cognition focuses on Kea parrots. The Kea (*Nestor notabilis*) is a mountain parrot native to New Zealand. It is known internationally to be an extremely explorative, manipulative and technically versed bird. Thus, it is a good model for exploring the evolution of technical intelligence and its associated achievements, such as the use of tools. In addition, Keas are well-suited test subjects for research into the development of innovative behaviour. However, there are also key questions from a cognitive biology point of view, such as the acquisition of understanding causal context, analogical reasoning and abstraction – abilities that characterise us humans, but which have only been researched very limitedly in animals.

### **Comparative Medicine**

The Unit of Comparative Medicine works as a strong bridge between veterinary and human medicine. There are many different definitions of the term “comparative medicine”. Most definitions describe comparative medicine as a collection of strategies to improve the health of laboratory animals in order to develop medication for human medicine in an undisturbed way. The term has now been redefined at the Messerli Research Institute: comparative medicine as a method to accelerate the development of medication for both human and animal patients. To achieve this,

more clinical studies in the field of veterinary medicine are planned.

Thus, animals will also be able to enjoy the benefits of the latest therapies and developments. Therefore, the “Comparative Medicine Trial Consortium (CMTC)” was founded to serve as hub for the Medical University Vienna and the clinics of the University of Veterinary Medicine Vienna (Department for Companion Animals and Horses). Three comparative clinical studies were successfully established in the last few years – not only with animals, but also for them. These studies have proved themselves to be an effective way to put into practice the three Rs (Replacement, Reduction, Refinement), according to “Directive 2010/63/EU on the protection of animals used for scientific purposes”. The three Rs stand for:

- **Replacement** – encouraging the replacement of animal testing with alternative methods as much as possible;
- **Refinement:** refining animal testing methods;
- **Reduction:** reducing the number of animals used in animal testing.

A fourth R can be added, according to the Messerli Research Institute’s mission statement: Responsibility.

The Unit of Comparative Medicine is working on the following research issues, among others:

- How do pets affect human health?
- How do humans and their environment affect pet health?
- How can veterinary medicine benefit from human medicine knowledge and vice versa?

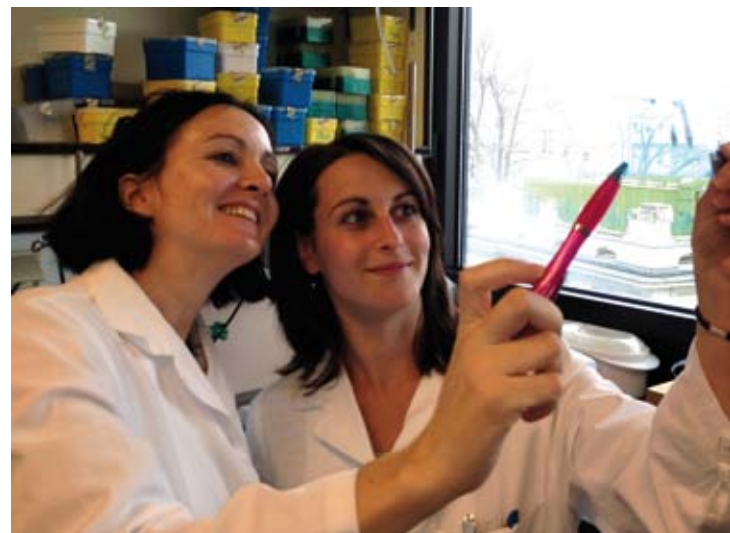
- How can medicines be developed more quickly and contribute to commercially promising treatment concepts for humans and animals?

The team at the Unit of Comparative Medicine works at two locations: at the Messerli Research Institute's Laboratory of Comparative Medicine at Vetmeduni Vienna, as well as at the Laboratory of Comparative Immunology and Oncology at the Institute of Pathophysiology and Allergology, Center of Pathophysiology, Infectiology and Immunology at MedUni Vienna.

At present, 44 scientists are working on questions in the field of comparative medicine at the two laboratories.

### **Ethics and Human-Animal Studies**

Human-animal interactions is currently undergoing change. This involves an increased need for orientation in the various aspects of this relationship. The Unit of Ethics and Human-Animal Studies focuses on posing relevant ethical questions, introducing them into social discourse and developing solutions. Interdisciplinary work is of particular significance at the Unit of Ethics and Human-Animal Studies: natural sciences and humanities are in a permanent exchange. Thus, normative criteria such as the 3R principles combine scientific and ethical interests. The Unit's members collectively dedicate their work to ethical questions in human-animal interactions and animal philosophy through basic and applied research methods.





## Research projects

### Approved and started research projects in 2011 (Excerpt)

#### Like me: imitation, empathy and prosocial behaviour in dogs and humans

The project “Like me: The evolutionary and neuro-cognitive basis of the relation between imitation, empathy and prosocial behaviour in dogs and humans” looks into a rather significant, long-term problem in cognitive sciences: the relationship between cognition and emotion. The project will bring together some of Europe’s leading experts in this field and conduct behavioural tests with dogs, as well as neuro-cognitive tests with humans. What is expected are breakthroughs in the understanding of the mechanisms responsible for the building and maintaining of cooperation and mental well-being. This has significant social and ethical relevance.

**Project Leader:** Univ.Prof. Dr. Ludwig Huber

**Funded by:** WWTF – Wiener Wissenschafts-, Forschungs- und Technologiefonds, Cognitive Sciences Call

#### Talking with eyes and hands

In the project “Talking with eyes and hands: hormonal and cognitive basics of cooperative communications in domestic dogs and wolves” sophisticated technologies – such as measuring eye movement and determining the genotype of the oxytocin receptor in dogs and wolves – are used to explore the cognitive and motivational mechanisms for finding food with the help of eye movements and hand gestures of others. This project is designed to help reconstruct the evolution of human communications and understand how dogs communicate with humans.

**Project Leader:** Dr. Zsófia Virányi

**Funded by:** WWTF – Wiener Wissenschafts-, Forschungs- und Technologiefonds, Cognitive Sciences Call

#### Analogical Thinking in Birds – “no bird brain”

Analogical reasoning is the process of recognising the relationship between objects, as well as the ability to recognise a general principle and use it in new situations in which the individual objects look different, but could be in a similar, comparable relationship (“‘AA’ equals ‘BB’, but is different to ‘CD’”). Language is assumed to play a major role in this capability. However, it has been shown recently that language is not a necessary prerequisite, although it is extremely useful in analogical reasoning. Given the findings that cognition in birds is not merely result of a “bird’s brain”, the project team is planning to research the extent of the development of mental abilities in Kea parrots (also in comparison to the common raven and pigeon), in addition to exploring analogical reasoning.





**Project Leaders:**

Univ.Prof. Dr. Ludwig Huber, Dr. Gyula Gajdon

**Funded by:** FWF – Österreichischer Fonds zur Förderung von Wissenschaft und Forschung, Doktoratskolleg „Cognition and Communication“

**Molecular Allergy Diagnostics in Veterinary Dermatology**

The project “Development of mimotope vaccines for preclinical and comparative medicine studies” is designed to develop vaccines for allergies in domestic dogs. Allergologists have known for many years that dogs not only make perfect models for human allergies and anaphylaxes, but are in fact allergy patients themselves. These animals show increasing and extreme levels of food and skin allergies. The new project will first compare the molecular sensitization profile of dogs and humans, based on decades of experience in the field of molecular allergy research. After this, molecules for new generations of medicines should be developed. This project is being carried out in cooperation with the Department for Companion Animals and Horses at the University of Veterinary Medicine Vienna and, in particular, with veterinary dermatologist Dr. Lucia Panakova and O.Univ.Prof. Dr. Johann Thalhammer.

**Project Leader:**

Univ.Prof. Dr. Erika Jensen-Jarolim,  
DDr. Isabella Pali-Schöll

**Funded by:** FWF – Austrian Science Fund

**Targets for Cancer Immunotherapy in Dogs**

The study “Definition of EGFR Family Members as Targets for Cancer Immunotherapy in Dogs” is designed to create immunoglobulins for passive immunotherapy, which may then be used in tumour therapy. In doing so, the target molecules EGFR and HER-2 were compared at molecular levels between the two species human and dog. Although both are important tumour markers in human medicine, they have not really been considered to be of importance in veterinary medicine. The latest experiments of the Unit Comparative Medicine have shown that the human marker molecules show significant similarities with those of cancer in dogs. Thus, they are ideally suited as targets for passive immunotherapy. At present, the Unit, along with the team of von Prof. Edzard Spillner, University of Hamburg and Prof. Renate Kunert, BOKU Vienna (University of Natural Resources and Life Sciences, Vienna), is working feverishly on the construction of canine antibodies for EGFR to make passive immunotherapy possible for dogs affected by cancer. Therefore, this project is a major cornerstone of the Unit’s research.

**Project Leader:**

Univ.Prof. Dr. Erika Jensen-Jarolim

**Funded by:** FWF – Austrian Science Fund



## Collaborative projects

The Unit of Comparative Medicine was also a partner in Austrian joint research projects in 2011: in the special research field “Molecular and immunological strategies for prevention, diagnosis and treatment of Type I allergies“ (funded by The Austrian Science Fund), which was followed directly by the Special Research Group “Towards prevention and therapy of allergy“ (both projects coordinated by: Univ.Prof. Dr. Rudolf Valenta) awarded in December 2011, in cooperation with the Unit of Comparative Medicine.

### Scientific Responsibility in Animal Testing

The legal framework for animal testing is determined in an EU directive, which will be put into practice at national levels during 2012. Thus, this cooperation project, which will involve the Unit of Ethics and Human-Animal Studies, the Institute of Animal Husbandry and Welfare at the University of Veterinary Medicine, Vienna, the Medical University Vienna and the University of Vienna, is dedicated to designing practice-oriented guidelines for scientists and commission members in order to put norms and standards in the field of animal testing into practice. The results of this project will be published in a practice-oriented guide to support scientific practise. (Working title: “Scientific Responsibility in Animal Testing: A Practical Guide”).

**Project Leader:** Univ.Prof. Dr. Herwig Grimm

**Funded by:** This cooperation project is funded by the University of Veterinary Medicine, Vienna, the Medical University Vienna and the Unit of Ethics of Human Animal Studies.

## Projects finished in 2011 (Excerpts)

### Cognitive Abilities and Emotional Background in the Development of Cooperation

Human cooperative abilities are extraordinary, but only by comparing them with animals does it enable us to understand cooperation mechanisms, their evolutionary origin, their functional relevance, as well as their development. Cooperation is the basis of the social system in canines. Thus, wolves and dogs are an ideal model system for examining cooperation with conspecifics and humans more closely. One of the highlights of this project, which was funded by FWF over a period of three years and led by Dr. Friederike Range, was the finding that wolves have an extraordinary talent of following the eyes of others and using this as a source of information. Human psychology sees this ability as key to interpreting specific mental states – such as alertness or intention – in conspecifics. These pioneering findings were published as an article in the renowned magazine PLoS ONE and generated an enormous media response.

**Project Leader:** Dr. Friederike Range

**Funded by:** FWF – Austrian Science Fund

### How to become a visual expert?

Experience plays a key role in all aspects of perception. The research team has found advanced abilities in the visual perception of configurations in birds, in addition to the understanding of context and abstract concepts in pigeons and, finally, social learning in a reptile, namely the Red-Footed tortoise (*Geochelonia carbonaria*), that leads a solitary lifestyle in the wilderness. The work on the latter has recently been published and generated an enormous media response with reports in Science, Nature, New Scientist, on CBS and in many popular science magazines. Similar public awareness was created with a prior study of these tortoises: the indirect evidence that contagious yawning really might require empathy because the Red-Footed tortoise does not show this. This study was “awarded” the somewhat controversial Ig-Nobel Prize (in the category Physiology).

**Project Leader:** Univ.Prof. Dr. Ludwig Huber

**Period:** May 2008 – December 2011

**Funded by:** FWF – Austrian Science Fund

### Ongoing Projects (Excerpt)

#### The Influence of Early Experience on Physical Cognition in Dogs

Dogs have been shown to interact brilliantly with humans in many studies, but have shown little understanding of causal reasoning. This contradiction is often explained by a specific domestication effect, namely the selection of the ability to cooperate with humans and interpret their communicative signals. However, the cognitive abilities of an individual are not only affected by evolutionary processes, but also by experience gained during an animal’s lifetime. This ongoing project explores the influence of prior experience on the ability of dogs to master physical problems.

**Project Leader:** Univ.Prof. Ludwig Huber, Dr. Friederike Range

**Funded by:** FWF – Austrian Science Fund





### **Cognitive Development and Ageing in Domestic Dogs**

A battery of intelligence tasks (“Vienna Dog Intelligence Test Battery”) was designed to investigate the life-long development of cognition in domestic dogs. It tests the performance of dogs of various ages (from 6 months to 10 years) in a variety of complex technical and social tasks. The project’s results should contribute to understanding cognitive ageing in dogs and, thus, help develop technologies and treatments to decelerate this process.

#### **Project Leader:**

Dr. Zsófia Virányi, Dr. Friederike Range

**Funded by:** Royal Canin

### **Tool Use in Keas**

Using loose objects with the goal of making other objects usable is one of the supreme disciplines of behaviour. Kea parrots kept in an aviary use tools, although their conspecifics in the wilderness are not known as regular tool users. Thus, keas do not have an adapted predisposition for this kind of behaviour. This opens up the opportunity to explore how Keas learn technical intelligence from scratch and how they fare in comparison with species for which the use of tools is natural. It is possible to examine technical cognition in a particularly elegant way and also the influence of observing other members of the Kea group using tools, by means of tool use.

#### **Project Leader:**

Dr. Gyula Gajdon, Univ.Prof. Dr. Ludwig Huber

**Funded by:** FWF – Austrian Science Fund



### Other current projects:

Individual projects, which were administrated by the Medical University of Vienna and managed by Univ.Prof. Dr. Erika Jensen-Jarolim:

- FWF (Austrian Science Fund) doctoral college, CCHD - Cell Communications in Health and Disease W1205-B09: Cellular interactions decisive for immune response to oral antigens. Project leader: Erika Jensen-Jarolim
- FWF F1808-B13: Allergen mimotopes for epitope studies and vaccination. III. Project leader: Erika Jensen-Jarolim
- FFG, Bionanoinitiative Österreich FA648A0202 Nanohealth - NanoVac. Isabella Pali-Schöll, Project leader: Erika Jensen-Jarolim
- Biomedical International R&D GmbH: Proof of Concept-Studien für Mimotop Impfstoffe I. Project leader: Erika Jensen-Jarolim
- Biomedical International R&D GmbH: Proof of Concept-Studien für Mimotop Impfstoffe II. Project leader: Erika Jensen-Jarolim
- FWF APP23398FW: Targeting ERbB-1 and ERbB-2 overexpressed in cancer of dog by passive immunotherapy with IgG versus IgE antibodies. Project leader: Erika Jensen-Jarolim
- FWF F4606-B19: Development of mimotope vaccines for preclinical and comparative medicine studies. Project leader: Erika Jensen-Jarolim, Co-Applicant Isabella Pali-Schöll
- FWF P22200-B11: Is cyp24a1 a proto-oncogene? A novel role for the catabolic vitamin D3 hydroxylase in colorectal tumourigenesis. Project leader: Enikö Kallay
- Herzfelder'sche Familienstiftung AP00422OFF: Is the calcium sensing receptor a tumour suppressor in colorectal cancer? Project leader: Enikö Kallay
- FP7-264663: The role of the Calcium Sensing Receptor (CaSR) in health and diseases, implications for translational medicine. Project leader: Enikö Kallay
- FWF P22441-B13: Activation-induced cytidine deaminase (AID): from inflammation to solid cancer. Project leader: Diana Mechtcheriakova
- FWF P23228-B19: Signature of sphingolipid-related genes in cancer. Project leader: Diana Mechtcheriakova
- FWF, Hertha Firnberg T283-B13: Anti-acids induce food allergy in newborns. Project leader: Isabella Pali
- FWF, B21577-B11: The impact of protein nitration on food allergy induction. Project leader: Eva Untersmayr-Elsenhuber
- FWF, P21884-B11: Microparticles for oral immunotherapy of type I food allergy, Project leader: Eva Untersmayr-Elsenhuber



## **Research Interests Built Up in 2011 (Excerpt):**

### **Socio-Cognitive Abilities in Animals and their Relevance for Animal Ethics and Animal Protection**

This research is dedicated to two key questions: do animals have cognitive abilities which have been only attributed to humans over many years?

If yes, what does this mean for our interaction with animals, if such abilities are lost as clear differentiation criteria? Answers will be sought for questions on culture, language abilities and theory of mind in animals. One key question regarding animal ethics has to be whether socio-cognitive abilities in animals could support and strengthen arguments related to animal ethics. To do this, questions on the moral status of animals and animal rights analogously to human rights will be investigated, as well as on our daily interaction with our “cognitive relatives” in the animal kingdom in the wilderness and in captivity.

#### **Project Leader:**

Dr. Judith Benz-Schwarzburg

### **Phenomenology and Animal Ethics**

The phenomenological approach may represent a new, barely thought of way of approaching ethics in human-animal studies, particularly as very few crossovers exist between phenomenology and animal ethics. The basis of ethical considerations should be the (animal) other in its nature and not the protection of the own (human) in the other. This approach could lead to a new avenue and different interpretation patterns in animal ethics, which would provide alternatives to obviously conflicting and opposing “classic” positions in animal ethics.

The goal is to set up a team and find third-party funds.

**Project Leader:** Dr. Martin Huth



## Research interests and projects prepared in 2011:

### Professional Ethics for Official Veterinarians

Changes in human-animal interactions have led to contradictions that are more than evident in veterinarian and official veterinarian practice and which put official veterinarians in a difficult ethical situation in particular. The project "Professional Ethics for Official Veterinarians: overcoming ethical problems in the conflict area of politics, public, industry and animal protection" has been designed to encourage official vets to develop their own assistance for ethical areas of conflict. Their experience should serve as a basis: ethical key topics will be discussed in expert workshops with expert ethicists. The results will then be published in the appropriate media. In addition, guidelines that are easily comprehensible will support official veterinarians in their daily work and also help them to orient themselves and to develop argumentative abilities, as well as media competence. Finally, these results will be used in an online-supported service for the further training for vets that will be provided in modules at the Messerli Research Institute. Possibly, a corresponding training seminar will be established in the long run.

**Project Leader:** Univ.Prof. Dr. Herwig Grimm

### Rituals in Human-Animal Interactions and Their Ethnic Dimensions

This project will explore the ethical relevance of rituals in human-animal interactions. To that end the Unit of Ethics and Human-Animal Studies will cooperate with the Chair of Moral Theology at the Catholic Private University Linz.

**Project Leader:** Univ.Prof. Dr. Herwig Grimm, Univ.Prof. Dr. Michael Rosenberger



## Interdisciplinary Master in Human-Animal Interactions

The most important target group for the Messerli Research Institute is the students, for whom the institute designed a new master's programme in cooperation with the Institute for Animal Husbandry and Welfare. The Master's degree is designed to educate experts who can reflect ethically and on a scientific basis on how to take responsibility for the development of human-animal interactions.

The new master's programme „Interdisciplinary Master in Human-Animal Interactions“ will start in October 2012. 20 students will be admitted after the aptitude test and interview in spring of 2012.

Students will receive comprehensive, research-oriented training in many areas of human-animal interactions. The course qualifies students for both scientific and non-scientific careers in the field of human-animal interactions.

In view of the fact that the status of animals in (human) society is constantly changing, a scientific approach to human-animal interactions takes on greater significance.





The Master's studies are conducted (mainly) in the English language and place a particular focus on an international context in the field of human-animal interactions as well as connecting students worldwide.

Due to the low number of students, intensive support by faculty is guaranteed.

### Facts & Figures

**Start:** October 2012

**Duration:** 4 Semester (120 ECTS-points, about 70 semester hours)

**Places:** 20 every winter semester

**Multilevel admission procedure:**

Aptitude tests and interviews in June 2012

**Conclusion:** with Master's Thesis

**Academic title:**

Master of Science (MSc)

### Structure of study and curriculum

The interdisciplinary approach to issues of high societal and ethical relevance is a novel challenge for all students. To help them meet the demands of the course, the Messerli Research Institute offers its students the benefits of an attractive research infrastructure, an excellent learning environment and an up-to-date curriculum:

- Introductory courses in philosophy, philosophy of science and ethics
- Advanced courses in animal behavior and cognition; comparative medicine, animal husbandry and animal welfare ethics

- Legal basis of human-animal interactions, animal protection and experimentation laws
- Project practice in small teams and journal clubs
- Further, detailed courses to help students acquire specialist knowledge
- Transfer and acquisition of general skills required for academic careers (such as presentation and publication techniques, scientific English, PR skills, acquisition of third-party funding, project management, marketing skills, commercial expertise and economics knowledge)

### The master's degree is composed of the following modules:

- 4 main (compulsory) modules – 78 ECTS in total
  - Animal behaviour and cognition
  - Comparative Medicine
  - Animal husbandry and welfare, as well as the legal foundations of human-animal interactions
  - Philosophy, philosophy of science and ethics
- 2 elective compulsory modules – 12 ECTS in total
  - General scientific abilities and soft skills
  - Courses to accompany the master thesis
- Master thesis – 30 ECTS

### Resulting competences:

- Detailed knowledge and understanding of fundamental issues (obligatory modules)
- Ability to cope with different scientific practices, languages and traditions



- Ability to participate in interdisciplinary research projects
- Specialized knowledge of one field of human-animal interactions
- Ability in ethical evaluation and systemic reflection of topics of human-animal interactions that are relevant to society
- Independent conduct of research projects

#### **Qualifications and professional fields**

By providing students with theoretical and methodological expertise in the relevant fields of the humanities and natural sciences and by equipping them with the ability to consider information they acquire, the course will improve interactions and relationships between humans and non-human animals. Therefore, graduates will find opportunities in a number of fields:

- Academic (scientific) careers in the life sciences, especially PhD positions
- Managerial positions in institutions related to animal husbandry (zoos, game parks, pet shops, sanctuaries, animal shelters, animal hostels, institutions that house laboratory animals, animal breeding facilities)
- Coaching for animal keepers, both private persons and persons attached to institutes
- Managerial positions in companies offering products or services related to animals
- Positions in authorities, agencies, commissions, counselling centres, animal-related organizations
- Positions in various associations and societies
- Trainers of animal trainers

## Further Courses

#### **At Vetmeduni Vienna:**

Staff members of the Unit of Comparative Cognition have already held lectures for the degree in Veterinary Medicine in autumn 2011.

- Course “Ethology”, as part of the lecture series “Rassenkunde, Tierhaltung und Ethologie” (1st Semester): Univ.Prof. Dr. Ludwig Huber, Dr. Gyula Gajdon, Dr. Friederike Range
- Course “Lernen und Verhalten” as part of the lecture series “Physiology” (4th Semester): Univ.Prof. Dr. Ludwig Huber
- “Vorlesung für die Übungstierbetreuung über Hundeverhalten”: Dr. Friederike Range

#### **At the University of Vienna:**

- Participation of Univ.Prof. Dr. Ludwig Huber as lecturer and tutor in the PhD Programme “Cognition and Communication” (Doctoral programme, FWF); together with professors Univ.Prof. Dr. Thomas Bugnyar, Univ.Prof. Dr. Tecumseh Fitch, Associate Prof. Dr. Walter Hödl and Univ. Prof. Dr. Kurt Kotrschal; every semester
- Participation of Univ.Prof. Dr. Ludwig Huber in the interfaculty course “Philosophisch–theologisch–biologisches Seminar” (Philosophical-Theological-Biological Seminar); together with professors Marianne Popp, Georg Janauer, Angela Kallhoff, Peter Kampits, Andreas Klein, Rudolf Langthaler, Peter Markl, Hannes Paulus and Ulrich Körtner; every semester
- Univ.Prof. Dr. Ludwig Huber as supervisor, Dr. Gyula Gajdon, Dr. Friederike Range and Dr. Zsófia Virányi as co-tutors of

several master's projects (Cimadam, Grabner, Hann, Heufelder, Heyse, Hloch, Kleinhappel, Köck, Leitner, Möslinger, Nobis, Pölzl, Schmidjell, Trawöger) and PhD projects (Auersperg, Heberlein, Horn, Müller, O'Hara, Riemer, Steurer, Wallis)

- Univ.Prof. Dr. Herwig Grimm's participation in teaching at the University of Vienna will start in the summer term 2012, as part of his double appointment.

#### **At the Medical University Vienna:**

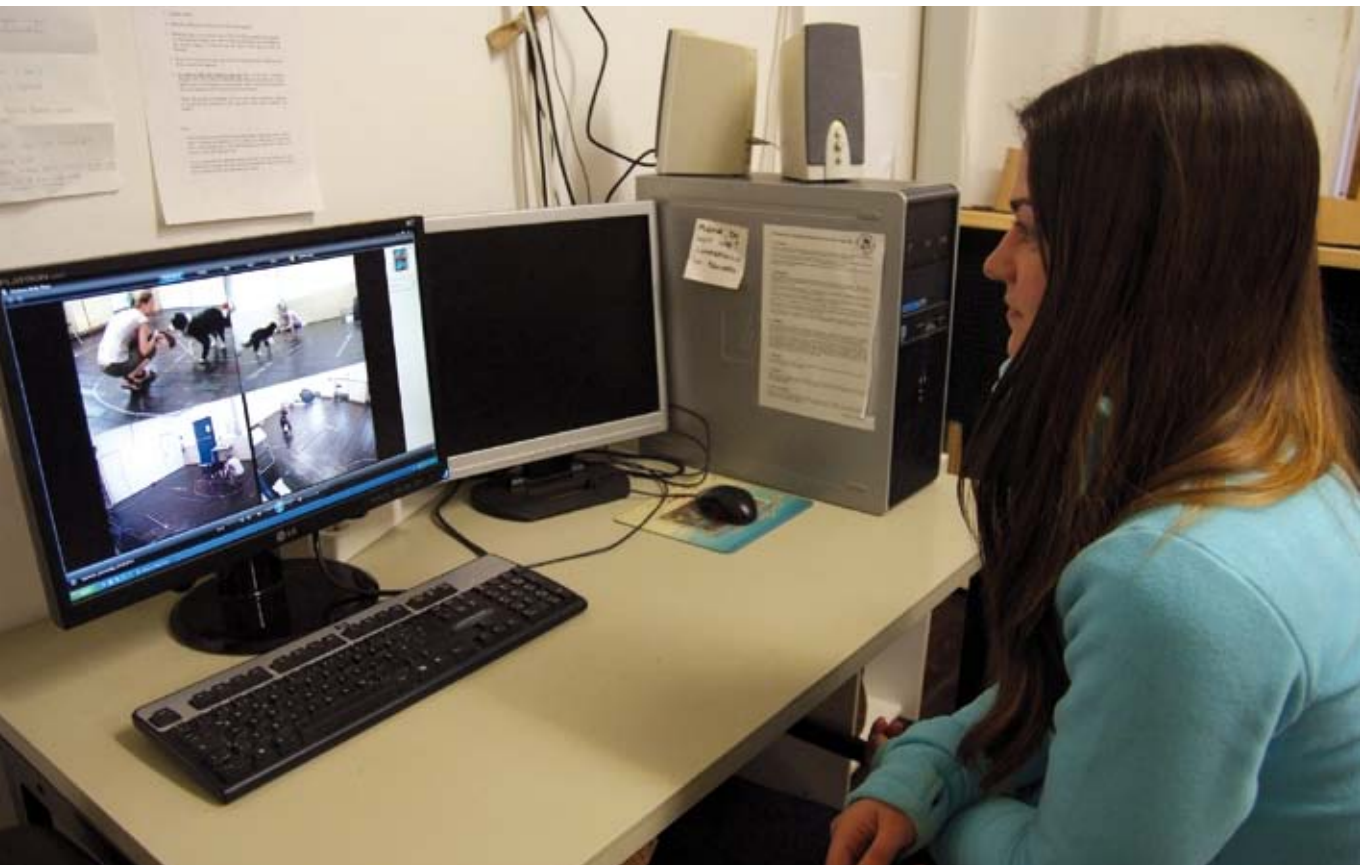
- Ongoing courses were adapted to the field of comparative medicine to the greatest possible extent in 2011; this topic was introduced particularly in PhD and post-graduate courses, but also in lectures for medical students (Block 8: Disease, Cause of Disease and Disease Patterns) and Block 13 (Nutrition).
- An interdisciplinary Journal Club has been started in the winter semester 2011/2012 which includes lecturers from the University of Veterinary Medicine, Vienna (Univ. Prof. Dr. Veronika Sexl, Univ.Prof Dr. Armin Saalmüller and o.Univ.Prof. Dr. Mathias Müller) as well as lecturers from the Medical University Vienna.

#### **At international universities:**

- Univ.Prof. Dr. Ludwig Huber: Guest Professor (since 2005) at Karls University Prague, Czech Republic
- Univ.Prof. Dr. Ludwig Huber: Guest Professor (from Feb. 2012) at the University Salvador da Bahia, Brazil
- Dr. Zsófia Virányi: Guest Lecturer at Eötvös University and Central European University, Budapest, Hungary
- Dr. Gyula Gajdon: Guest Lecturer at the University of Canterbury, Christchurch, New Zealand

## A network of strong partners

The Messerli Research Institute strives to provide its scientists and students with a unique research and learning environment. To achieve this, it cooperates with excellent institutes as well as top-level individual scientists in their fields. Collaboration is most intensive in international research projects. In addition, the researchers of the Institute contribute to specialist international conferences and events on a regular basis, are involved in international networks – sometimes in a leading role, and found and intensify university and transnational exchange programs, as well as they recruit international scientists at a pre-doc and post-doc level.



## Associated Centres

### **Comparative Immunology and Oncology at the MedUni Vienna**

One part of the Unit of Comparative Medicine is located at the Institute for Pathophysiology and Allergy Research at the MedUni Vienna. This sub-unit bears the name “Comparative Immunology and Oncology” due to its main research field. Its location at the General Hospital Vienna (AKH Wien) allows it to be close to human patients, which is essential for any comparative strategy.

### **Clever Dog Lab**

The Clever Dog Lab is a research laboratory in Nussgasse 4 in the 9th district, funded by private sponsors and the University of Vienna (since 2009). It is equipped with two larger and five smaller test rooms, in which the abilities of dogs to solve social and technical tasks are examined, in both the presence and absence of the owner. Professional monitoring systems (video and audio) enable us to record the behaviour of the dogs and analyse it later. Special, partly self-developed apparatuses (Skinner boxes with touch screens, projection and sound playback systems, as well as eye trackers) create controlled and precisely measurable learning environments for the dogs. The Messerli Research Institute will have access to a newer, even more up-to-date Clever Dog Lab at the Vetmeduni Vienna campus in April 2012.

(More at: [www.cleverdoglab.at](http://www.cleverdoglab.at))

### **Research Station Haidlhof**

This research station is located on the Haidlhof estate at the Teaching and Research Farm Kremesberg (LFG) near Bad Vöslau (Lower Austria). It is the result of a cooperation project between the University of Veterinary Medicine, Vienna and the University of Vienna (Department of Cognitive Biology, Prof. Fitch and Prof. Bugnyar) on research into cognition and communication in birds and (in the future) other species (reptiles, mammals). The station is equipped with a multifunctional laboratory for behavioural and bioacoustic tests, in addition to the aviaries for corvids and Keas.

(More at: [cogbio.univie.ac.at/haidlhof](http://cogbio.univie.ac.at/haidlhof))

### **Wolf Science Center**

The Wolf Science Center is part of Wildlife Park Ernstbrunn (Lower Austria), north of Vienna. The centre was founded as an independent research institution by Dr. Zsófia Virányi, Dr. Friederike Range and Univ.Prof. Dr. Kurt Kotrschal in 2010 to keep wolves and dogs in packs. The behaviour and cognition of these animals is analysed scientifically in cooperation with Vetmeduni Vienna and the University of Vienna.

(More at: [www.wolfscience.at](http://www.wolfscience.at))



## Further cooperations

### National research cooperations:

#### Vetmeduni Vienna

- Medical Biochemistry (Ao.Univ.Prof. Dr. E. Möstl)
- Clinical Virology (Ao.Univ.Prof. Dr. N. Nowotny)
- Physiology and Biophysics (Ao.Univ.Prof. Dr. G. Schaubeger, Dr. A. Schmalwieser)
- Pharmacology (Univ.Prof. V. Sexl)
- Avian and Reptile Medicine (Univ.Prof. Z. Knotek, Dr. A. Häbich)
- Konrad-Lorenz-Institute of Comparative Cognition Research (Univ.Prof. Dr. H. Winkler, Dr. M. Griggio)
- Internal Medicine – Small Animals (O.Univ. Prof. Dr. J. Thalhammer, Dr. B. Litschauer, Dr. L. Panakova, Dr. M. Willmann)
- Vetcore (Ao.Univ.Prof. Dieter Klein, Dr. M. Glösmann, Ao. Univ.Prof. Dr. E. Razzazi-Fazeli)

#### University of Vienna

- Cognitive Science Plattform (Ao.Univ.Prof. Dr. M. Peschl, Univ.Prof. Dr. H. Leder)
- Department of Cognitive Biology (Univ.Prof. T. Fitch, PhD, Univ.Prof. Dr. T. Bugnyar)
- Department of Behavioral Biology (Univ.Prof. Dr. K. Kotrschal)
- Department of Evolutionary Biology (Ao.Univ.Prof. Dr. W. Hödl)
- Department of Psychology (Univ.Prof. Dr. C. Lamm, Univ.Prof. Dr. U. Ansorge)
- Department of Pharmaceutical Technology (Ao.Univ.Prof. Dr. F. Gabor)

#### Medical University Vienna

- Institute of Pathophysiology and Allergy Research (Univ.Prof. Dr. H. Breiteneder; Ass.Prof. Dr. K. Hoffmann-Sommergruber; Univ.Prof. Dr. B. Bohle; Univ.Prof. Dr. R. Valenta; Ass.Prof. Dr. S. Vrtala; Ao. Univ. Prof. Dr. P. Pietschmann)
- Department of Paediatrics and Adolescent Medicine (O.Univ.Prof. Dr. A. Pollak; Dr. S. Diesner; Univ.Prof. Dr. Z. Szepefalusi; Ao. Univ.Prof. Dr. E. Förster-Waldl)
- Institute of Specific and Tropical Medicine (Univ.Prof. Dr. U. Wiedermann; Ao.Univ. Prof. Dr. M. Kundi)
- Clinical Institute of Pathology (O.Univ.Prof. Dr. D. Kerjaschki; Ao.Univ.Prof. Dr. F. Wrba; Ass.Prof. Dr. B. Hantusch)
- Department of Dermatology (Univ.Prof. Dr. H. Pehamberger; Ass.Prof. Dr. Prof. T. Kinaciyan; Ao.Univ.Prof. Dr. T. Kopp; Ao. Univ.Prof. Dr. H. Mayer)
- Department of Medicine I (Univ.Prof. Dr. Ch. Zielinski; Ao.Univ.Prof. Dr. M. Krainer; Ao.Univ.Prof. Dr. P. Valent)
- Department of Radiation Oncology (Ao.Univ.Prof. Dr. E. Selzer)
- Clinical Department of Laboratory Medicine (Univ.Prof. Dr. Ch. Mannhalter; Ass. Prof. Dr. H. Esterbauer)
- Clinical Department of Gastroenterology and Hepatology (Ao.Univ.Prof. Dr. H. Vogelsang; Dr. R. Brunner)
- Highfield MR Centre (Univ.Prof. Dr. E. Moser, Priv.Do. C. Windischberger)

**Further national Researchpartner:**

- Allergy Clinic Rennweg (Prim. Dr. W. Emminger)
- Ce-M-M Research Center for Molecular Medicine of the Austrian Academy of Science (Univ.Prof. Dr. Ch. Binder, PhD; Ao.Univ.Prof. Dr. S. Knapp, PhD)
- Floridsdorf Allergy Centre (Univ.Prof. Dr. R. Jarisch)
- Karl Franzens University Graz, Institute of Molecular Biosciences (Ao.Univ.Prof. Dr. W. Keller)
- Karl Franzens University Graz, Department of Pharmaceutical Chemistry (Univ.Prof. Dr. A. Zimmer)
- Hospital Hietzing (Prim. Dr. W. Pohl)
- Austrian Academy of Science, Institute of Biophysics and Nanosystems Research, Graz (Dr. R. Prassl)
- University Salzburg (Ao.Univ.Prof. Dr. G. Achatz; Dr. G. Achatz-Straussberger; Univ. Prof. Dr. A. Duschl; Univ.DoZ. Dr. A. Hartl; Ao.Univ.Prof. Dr. J. Thalhamer)

**International research cooperations:**

- Agricultural University, Tokyo (Prof. H. Matsuda)
- Allergy Therapeutics Ltd, West Sussex, UK (Alan W. Wheeler, PhD)
- MediGene AG Martinsried, Germany, (Weghofer Margit, PhD)
- Charité Universitätsmedizin, Department of Dermatology and Allergy, Berlin, Germany (Prof. Torsten Zuberbier, MD)
- German Cancer Research Center Heidelberg, Immunotherapy and -prevention, Germany (PD Dr. A. Riemer)
- Duke University, USA (Prof. B. Hare)
- European Science Foundation (ESF) “Comparative Cognition” (CompCog) ([www.compcog.org](http://www.compcog.org)) (29 leading research groups from 11 European countries)
- Eötvös Loránd University, Budapest, Hungary (Prof. A. Miklósi)
- E.T.S. Ingenieros Agrónomos, UPM, Madrid Unidad de Bioquímica, Departamento de Biotecnología, Madrid, Spain (Prof. A. Diaz-Perales, PhD)
- Research Center Borstel, Germany (Prof. H. Fehrenbach, PhD)
- University Greifswald, University Hospital Greifswald, University Center for Juvenile and Childrens’ Medicine, Germany (Prof. H. Lode, MD)
- Mount Sinai School of Medicine, New York, US, (Prof. L. Mayer)
- IDI-IRCCS, Center for Molecular Allergology (Head, Adriano Mari, MD)
- Instituto de Investigaciones Medicas-CONICET, Argentina (Prof. M. Bentosela)
- Istituto di Scienze e Tecnologie della Cognizione, CNR (Roma), (Prof. E. Visalberghi)
- Institute of Anatomy, University Lübeck, Germany (Prof. P. König, MD)
- Institute of Technology- Theology-Natural Sciences at the Ludwig Maximilian University Munich
- Harvard Medical School, Children’s Hospital Boston, USA (Prof. E. Fiebiger)
- Keio University, Tokyo (Japan), (Prof. S. Watanabe, Dr. H. Miyata)
- King’s College London, Randall Division of Cell & Molecular Biophysics, UK (Prof. H. J. Gould & A. J. Beavil)
- King’s College London, St John’s Institute of Dermatology, UK (Dr. S. N. Karagiannis)

- Monash University, Department of Immunology, Melbourne, Australia (Prof. R. E. O’Hehir, FRACP, PhD, FRCPath)
- Mount Sinai School of Medicine, Department of Pediatrics, Division of Allergy and Immunology, and the Immunology Institute, New York, NY (Prof. H. A. Sampson, MD)
- University College Dublin (IRE), (Prof. D. Brayden)
- University of Auckland (NZ), (Prof. R. Gray)
- University Hospital of Bern, Inselspital, Institute of Immunology, (Prof. B. M. Stadler, PhD and M. Vogel, PhD)
- University of California Los Angeles, Jonsson Comprehensive Cancer Center, USA (Prof. Manuel L. Penichet)
- University of Canterbury, Christchurch (NZ) (Prof. R. Jackson, Dr. X. Nelson, Dr. S. Parsons, MS. A. Greer, MS. Raoul Schwing)
- University of Copenhagen, Gentofte Hospital, Denmark (Prof. L. K. Poulsen, PhD)
- University of Cincinnati, Department of Pediatrics, Cincinnati Children’s Hospital, (Prof. Finkelmann, MD, PhD)
- University Gent (Belgien) (Prof. M. Brass), Clinics für ENT (Prof. C. Bachert, MD)
- University Hamburg, Institute for Biochemistry and Molecularbiology, Germany (Prof. R. Bredehorst & Prof. E. Spillner)
- University of Hohenheim, Institute for Nutritional Medicine, Germany (Prof. St. Bischoff, MD)
- University Hospital Hamburg-Eppendorf Hamburg, Department of Dermatology and Venereology, Hamburg (Prof. Johanna Brandner, PhD)
- University of Oxford (UK), (Prof. C. Heyes, Prof. A. Kacelnik, Dr. A. v. Bayern)
- University Medical Centre Utrecht, Department of Dermatology/Allergology, Utrecht, Netherlands, (Prof. E. F. Knol, PhD)
- University of Parma, Italy (Prof. Ferrari, Dr S. Cafazzo)
- University of Milan, Italy (Prof. E. Prato-Previde and Dr. S. Marshall-Pescini)
- University Hospital Giessen und Marburg, Laboratory Medicine & Pathobiochemistry, Molek. Diagnostik, Germany (Prof. H. Renz, MD)
- University of Minnesota, USA (Prof. D. Mech)
- University of Nebraska, Lincoln (USA), (Mag. M. Pesendorfer)
- University of Leuven, Molecular and Vascular Biology, (Prof. Saint-Remy J-M, PhD)
- University of Lille, Faculty of Pharmacy, (Prof. Capron M, PhD)
- Stanford University School of Medicine, Department of Pathology, Stanford, California (Prof. St. J. Galli, MD)
- Servicio de Alergia, IIS-Fundación Jiménez Díaz, Madrid, Spain (Prof. Javier Custaz, MD)
- Stallergènes SA, Research and Development, France (Philippe Moingeon, PhD)
- Foundation “Bündnis Mensch und Tier” (Munich)
- Philipps-University Marburg, Biomedical Research Centre of Marburg (Prof. H. Garn, PhD)
- Wolf Park, USA (Prof. Klinghammer)
- Institute of Zoology, Christian-Albrechts University Kiel (Prof. T. Roeder, PhD)



## Partnerships

### 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 species-appropriate needs.

The Messerli Research Institute and the association cooperate in knowledge transfer in the field of animal protection and its scientific basis.

### Society “Red Paw – Cancer Research for Animals”

The society “Red Paw – Cancer Research for Animals” has supported projects in the field of comparative medicine in recent years, enabling young scientists to conduct their research. The society was awarded the Austrian Donation Seal of Quality (Spendengütesiegel) by the Austrian Chamber of Accountants and Auditors No. 05817 as a special reward for its transparent use of donations in 2011. The close association between the “Red Paw” society and the Unit of Comparative Medicine is now visible in the joint organisation of “Comparative Medicine Seminars”. The first seminar of this kind took place on 14<sup>th</sup> November 2011, and included guest lecturer Univ.Prof. Dr. Ludwig Huber, who talked about “Wild Minds – Explorations in Animal Cognition”.



## Honour commitment

### **Kardinal-Innitzer-Förderungspreis (Kardinal Innitzer Promotion Award)**

Isabella Pali-Schöll received the Kardinal Innitzer Promotion Award 2011 on 10th December for her 2007 FASEB Journal publication “Anti-ulcer treatment during pregnancy induces food allergy in mouse mothers and a Th2-bias in their offspring“

### **Ig-Nobel Prize**

The Ig-Nobel Prizes – for improbable research that first make people laugh and then makes them think – were awarded at Harvard University on 29th September 2011. The prize in the category “Physiology” was awarded to a team of Austrian scientists. Ludwig Huber and his team (Anna Wilkinson and Isabella Mandl), as well as Natalie Sebanz, co-author of the study and based in the Netherlands, received the Ig-Nobel Prize for their study showing that yawning is not contagious in the Red-Footed Tortoise. While the title of this study might be initially amusing, it includes important insight into the evolution of empathy. Prof. Huber also received a “periodic table table” from Peter Diamond, 2010 Nobel Prize Winner for Economic Sciences.





## Committed to dialogue

The Messerli Research Institute promotes continuous knowledge transfer and discussion with selected multipliers and cooperation partners to ensure continuous discussion and exchange in both scientific and practical fields. Such partners not only include academic international research colleagues, but also non-university research institutes, vets, medical doctors, societies, companies, associations and schools. Our experts are available for social dialogue and scientific policy consultancy to promote a scientifically based and ethically justifiable interaction with animals while maintaining our scientific independence. This dialogue with the public works particularly well with two associations:

The “Clever Dog Lab Society” is an important bridge to members of the public interested in dogs. This scientific society, founded and managed by Friederike Range, Ludwig Huber and Zsófia Virányi, and supported by Karin Bayer, is closely associated with the Clever Dog Lab. Regular meetings with dog owners and private, as well as industrial, sponsors help this non-profit organisation to ensure scientific success and public awareness of the Clever Dog Lab. (More at: [www.cleverdoglab.at](http://www.cleverdoglab.at))

The society “Red Paw – Cancer Research for Animals” is tightly linked to the Unit of Comparative Medicine, thanks to Erika Jensen-Jarolim, Professor for Comparative Medicine at the Messerli Research Institute and, at the same time, president of this society. (More at: [www.rotepfote.at](http://www.rotepfote.at))



## Presentations

The Messerli Research Institute's ambitions in the endorsement of social dialogue, commitment to creating public awareness for research and scientific findings and willingness to provide scientific advice for politics and society was proven, once again, by a series of events, presentations and public appearances in 2011:

- Univ.Prof. Dr. Ludwig Huber with Jane Goodall at the British Embassy in Vienna: presentation and discussion of "Roots and Shoots" with scholars from Gymnasium Sachsenbrunn, 06.09.2011
- Univ.Prof. Dr. Ludwig Huber receives the Ig-Nobel Prize from six genuine Nobel laureates at the Sanders Theatre, Harvard University, (29.9.2011) and discusses his research with students from the MIT (Massachusetts Institute of Technology), 01.10.2011
- Univ.Prof. Dr. Erika Jensen-Jarolim: Opening of the Vienna Science Lectures, 12.12. 2011
- Univ.Prof. Dr. Erika Jensen-Jarolim: "Comparative strategies to speed up Allergology and AllergoOncology." Seminar at the Istituto Dermopatico Dell'Immacolata (IDI), Rome, Italy, 20.09.2011
- Univ.Prof. Dr. Erika Jensen-Jarolim: "Comparative Medicine – challenge and chance for translational studies." SFB-Transregio22 Symposium, Lübeck, 28.10.2011
- Univ.Prof. Dr. Erika Jensen-Jarolim: "The Messerli Research Institute." 2nd Retreat of the Center of Pathophysiology, Infectiology and Immunology, 27.09.2011
- Univ.Prof. Dr. Erika Jensen-Jarolim: "7. Comparative Medicine – Speeding up drug development." 45. Annual Meeting of the Society of Parasitology and Tropical Medicine. Society of Physicians, Vienna, 17.09.2011
- Univ.Prof. Dr. Erika Jensen-Jarolim: "Eine Medizin für Mensch und Tier. Vergleichende Medizin als Chance." Vienna Science Lecture. Vienna, 23.11.2011
- Univ.Prof. Dr. Herwig Grimm: "Essen, Forschen, Streicheln. Ethische Probleme der Mensch-Tier-Beziehung und ihre Bewältigung." Tierschutz macht Schule, June 2011
- Univ.Prof. Dr. Herwig Grimm: "Ein Hundeleben lang Verantwortung. Ethische Aspekte der Mensch-Tier-Beziehung in der Hundehaltung." Langenwang, November 2011
- Univ.Prof. Dr. Herwig Grimm: "Ich kann Gutachten! Industrielle Tierhaltung." Workshop, Tierschutz macht Schule, November 2011
- Univ.Prof. Dr. Herwig Grimm: "Der Schritt in die Praxis. Zur interdisziplinären Bewältigung ethischer Probleme der Mensch-Tier-Beziehung." Work group Mensch-Tier-Beziehung, November 2011
- Univ.Prof. Dr. Herwig Grimm: "Wer trägt die Verantwortung? Ethik in der Nutztierhaltung." DLG, November 2011
- Univ.Prof. Dr. Herwig Grimm: "Free Farrowing: Transition Process." Moderation of the Workshops on the implementation of free farrowing systems at the University of Veterinary Medicine, Vienna, December 2011

- Dr. Gyula Gajdon: “Über Intelligenz von Papageien.” Talk at the 1st conference of the AZ-AGZ-IG-Langflügelpapageien in the Cologne Zoo, 12.11.2011
- Dr. Gyula Gajdon: Excursion “Christbaumschmücken für Papageien” for school class 4b, Gainfarn, Haidlhof, 13.12.2011



## Media Reports

Numerous publications and media reports helped to create public awareness of and visibility for the Messerli Institute's research in 2011. Press work encourages a dialogue with interested members of the public, offers "food for thought" and maybe even a new way of thinking. It brings about mid- and long-term changes in society's attitude towards animal ethics and human-animal interactions and, finally, provides guidelines for critical and complex questions.

At this point, we would like to mention one research project that represents science and research communications and has received a large media response:

### **Development of a vaccination for the carcinoembryonic antigen in cancer in dogs**

The carcinoembryonic antigen (CEA) is probably the "classic" tumour marker in human and animal patients. The Unit of Comparative Medicine – along with partners of Vetmeduni Vienna (from the Clinic for Small Animals, Dr. Michael Willmann and o.Univ.Prof. Dr. Johann Thalhammer) – conducted an active vaccination study on the tumour marker CEA in dogs with cancer along the milk line (mammary cancer). This study is closely linked to a publication on this molecule, which got a large response from the media in 2011. This publication compared the expression of this molecule family in humans and animals thoroughly, finding considerable differences between human and canine CEAs, but also a striking similarity in the receptor molecules for this tumour marker.



## The new Messerli House

Prof. Peter Czernin of the “DenkWerkstatt Grinzing” presented the renovation and expansion of the former administration and residential building of the Vienna rope factory in Donaufelder Straße 159, 21st District, in a project study in February 2010. The project included plans to use parts of the existing building as premises for the Messerli Research Institute and expand the building by two additional floors, to be used as residential areas for guest scientists and students.





Österreichisches Siedlungswerk (owner of the building) began the renovation work together with Strabag AG in 2011. Despite the very problematic structural situation – the existing building had been erected on alluvial soil and, thus, had to have a new and expensive foundation – the building could be handed over to the owner after only 11 months in February 2012.

**From 1825:**

Petzl & Sohn (rope factory)

**End of 20th century:**

Building in Donaufelder Straße

**1996:**

Vetmeduni Vienna moves to new campus in Floridsdorf

**February 2011:**

Renovation work by “Österreichisches Siedlungswerk”

**10th November 2011:**

Inauguration by Herta Messerli

**1st March 2012:**

Move into Messerli House



## Honoured by the Republic of Austria and Vetmeduni Vienna

Herta Messerli, the founder of the Messerli foundation, received multiple honours on 10<sup>th</sup> November 2011: Austrian Federal Minister Karlheinz Töchterle awarded her the Decoration of Honour for Services to the Republic of Austria as part of an academic ceremony at the University of Veterinary Medicine, Vienna. The Vetmeduni Vienna also recognized her work with the highest distinction of honour awarded by a university, an Honorary Senate Membership.

The Messerli Foundation, established by Herta Messerli in 1982, finances projects that benefit nature and, in particular, the well-being of animals scientifically. Funds from this foundation were also used to establish the Messerli Research Institute in January 2010.



### **The Messerli Foundation: 30 Years of Commitment All Around the Globe**

The Messerli Foundation's headquarters is situated in Entlebuch, Sörenberg (Switzerland), amid a picturesque biosphere reservation. According to its statutes "In Respect of Nature", the foundation has stated that its work is the preservation of the environment and diversity of species, respectful interaction with wildlife and the species-appropriate treatment and use of domestic pets. The foundation supports scientific projects within its home country and abroad. It also focuses on informing the public and young people in particular: one of its targets is to improve general awareness of the importance of animal and species protection. The projects that are funded and supported are those which promise to achieve a sustainable effect in line with the foundation's goals, from the large number of possible scientific projects proposed.

Founder Herta Messerli sees the basis for convincing, efficient and long-term animal protection in animal protection standing up to scientific criteria. These criteria can only be developed in an interdisciplinary approach – such as the one at Messerli Research Institute.

### **Herta Messerli's Life**

Herta Messerli was born in Berlin, before World War I. Her father sent her to the "Lyzeum" (high school) and to finishing school in Geneva. She supported her father in his publishing company and accompanied him on business trips, after leaving school. She met tracing paper manufacturer Arnold Messerli in Zurich and the two got married in 1933. Herta Messerli also obtained Swiss citizenship. When Arnold Messerli died suddenly in 1964, Herta Messerli, who had not been part of the company's management up to this point, continued to run her husband's company at the request of the staff. At that time, the firm employed about 50 staff and produced light sensitive tracing paper under license. By the beginning of the 1990s, Messerli AG employed 800 staff and its product range included various office equipment and stationery. Herta Messerli recognised the challenges that digitalisation was about to bring to this business in the early 1990s and sold the company to her long-term licensor.



## **Imprint**

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