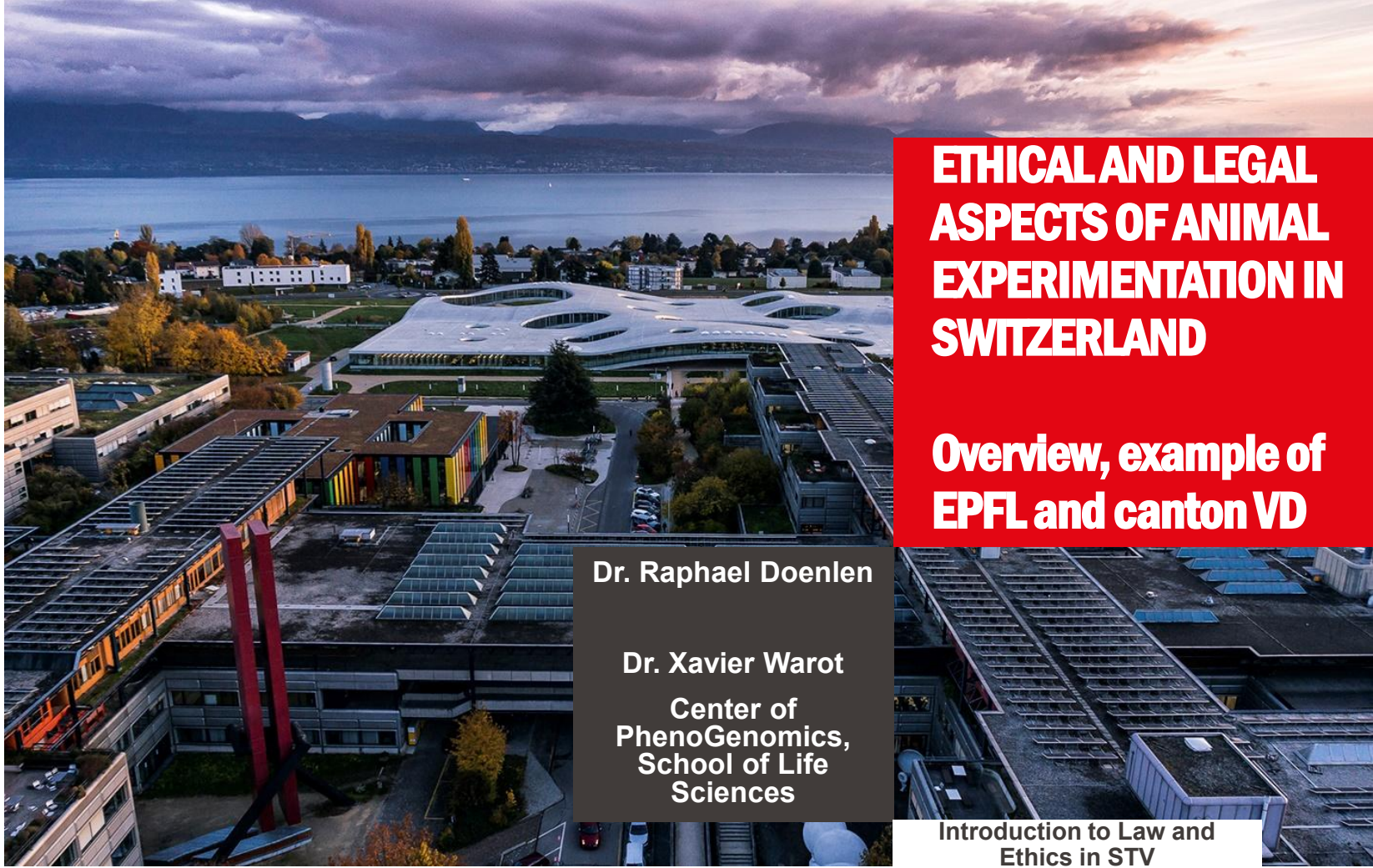


ETHICAL AND LEGAL ASPECTS OF ANIMAL EXPERIMENTATION IN SWITZERLAND

Overview, example of EPFL and canton VD

Dr. Raphael Doenlen

Dr. Xavier Warot

Center of PhenoGenomics, School of Life Sciences

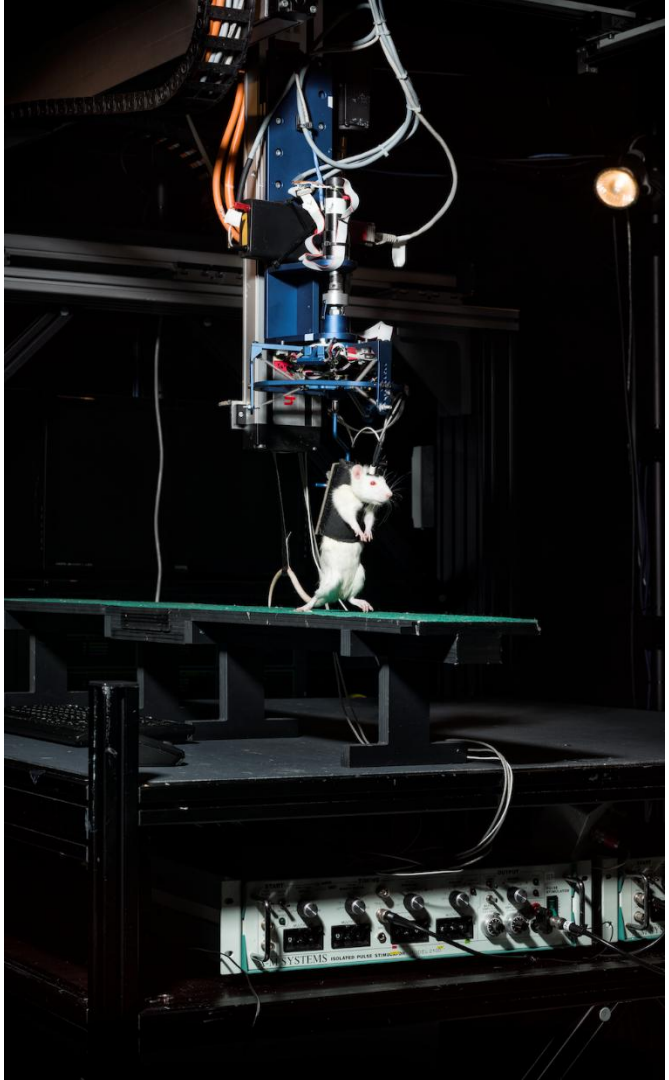
Introduction to Law and Ethics in STV

November 25th, 2025

Dr. Xavier Warot

Research with animals

- Legal and Ethical Aspects of Animal Experimentation in Switzerland
- Organisation of Animal Experimentation at EPFL
- Organisation of Animal Experimentation in the Canton de Vaud



Dr. Xavier Warot

Legal and Ethical Aspects of Animal Experimentation in Switzerland

Dr. Xavier Warot

Historical perspective

- 1973: Constitution, animal welfare is a federal matter
- 1978: Animal Welfare Act (AniWA, SR 455), introduced in 1981
- 1981: Animal Welfare Ordinance (AniPO, SR 455.1)
- 2005: Full revision of AniWA
- 2005/06: Full revision of AniPO
- 2010: Ordinance on Animal Experimentation (SR 455.163)
- 2012/14: Revision of AniWA and full revision of AniPO
- 2018: Revision of AniPO – institutional Animal Welfare Officer
- 2025: Revision of AniPO and Ordinance on Animal Experimentation

Dr. Xavier Warot

Aims and principles of legislation on Animal Protection

- Art. 80 of the Federal Constitution indicates that animal welfare is a federal concern (1973)
- The legislation is federal, its application is “cantonal”
- Art. 1 - Animal Welfare Act (AniWA, SR 455): Protection of dignity and welfare of animals
- Responsibility of each person involved in the handling, keeping, dealing, breeding…of animals and of each person performing animal experiments

The Swiss Animal Welfare Act (AniWA)[3] provides the legal framework to protect both the welfare and the dignity of animals. It is the only legislation worldwide that recognizes the concept of animal dignity. The Act states that, when dealing with an animal, its dignity, i.e. its inherent worth, must be respected. This also means that animals must not be exposed to anxiety or humiliation, there may not be any major interference with their appearance or abilities, and they may not be excessively instrumentalised. Any experiment involving animals must be authorised by the cantonal veterinary authorities. The aim of the Swiss authorisation procedure is to ensure that animal experiments that cause harm are restricted to those which are essential.

swissuniversities

Dr. Xavier Warot

Aims and principles of legislation on Animal Protection

Definition of the rules of conduct between humans and animals

Protection of the individual animal against unjustified exposure

- Animals shall be treated in the manner which best complies with their needs
- No one shall unjustifiably expose animals to pain, suffering, physical injury or fear
- No one shall disdain the dignity of an animal

How is Animal Protection achieved ?

- Every animal experimentation has to be authorized (stringent evaluation process)
- Persons conducting an experiment shall be qualified (specific and continuing education)
- Cantonal Veterinary Authorities inspect the animal experiments and facilities

Dr. Xavier Warot

Roles & responsibilities in Animal Experimentation

Six roles defined in the law

- Experimenter
- Director of Experiments (DEX)
- Resource Manager (or “Directeur.trice de l’Expérimentation Animale”, DEA)
- Animal Welfare Officer (since March 2018)
- Animal Facility Manager
- Caretakers

Experimenter

- Performs the studies on animals
- Is responsible for the animal welfare during the studies

- Accreditation by the cantonal veterinary authorities
  - Theoretical and practical training (40h – module 1)
  - Courses given by the Swiss Network for Education in Laboratory Animal Science (LTK and ResAL)

- Continuing education

Director of Experiments (DEX)

- Plans and supervises the studies and is responsible of the animal welfare during the experiments
- Organizes, informs & controls the work of the experimenters
- Controls the implementation of adequate care of the animals during the study

- Accreditation by the cantonal veterinary authorities
  - Qualification in biology
  - 3 years of experience as experimenter (40h – module 1)
  - Theoretical and practical training (40h – module 2)
  - Courses given by the Swiss Network for Education in Laboratory Animal Science (LTK and ResAL)

- Continuing education

Ethical evaluation

Dr. Xavier Warot

- In the Swiss legislation one finds a mix of different ethical views:
  - **Utilitarianism**: sentience, balancing interests (Animal Welfare, pathocentric approach)
  - More than sentience to the life of animals and the inherent value of animals (Animal rights, deontological approach): **the dignity of the living organisms**

Limitation to the indispensable minimum
(Art. 17 AniWA)

Experiments with animals which cause them pain, suffering, injury, intensive fear or significantly disturb their general condition or disdain their dignity in another way must be limited to the indispensable extent.

Limitation to the indispensable minimum
(Art. 137 AniPO)

Benefit

- Preservation or protection of the life and health of human beings and animals
- **New insights into essential phenomena of life**
- Protection of the environment
- Replacement of animal experiments, Reduction of the number of experimental animals, or Reduction of the stress associated with these experiments

No other way than to use animals to achieve objective

Minimizing costs to the animals

- Methods appropriate to achieve objectives following state of the art
- Designing of experiments according to the 3Rs (Replace, Reduce, Refine – Russell & Burch, 1959)

Evaluation of interests

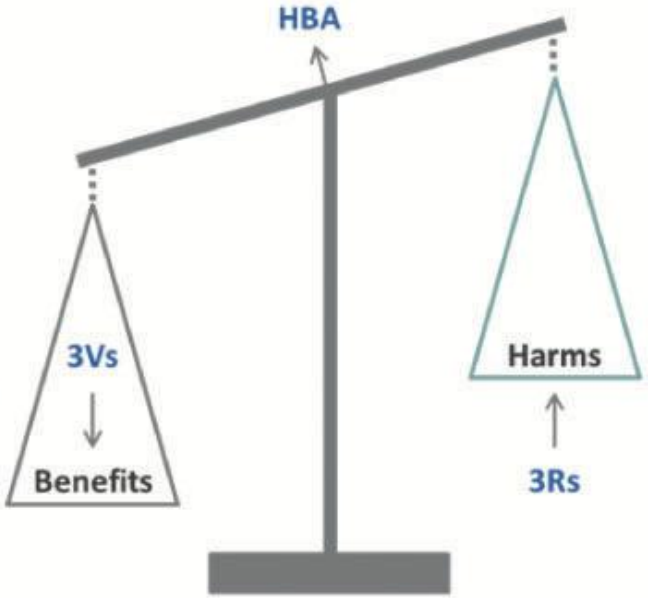
Is the study protocol

1. suitable? → scientifically valid (3Vs)
- *construct validity: quality of animal model*
- *internal validity: validity of cause and effect*
- *external validity: extent of inference space*

2. necessary? → no alternative methods (3Rs)
- *replace: no non-animal methods*
- *reduce: justification of sample size*
- *refine: minimal harm and suffering*

3. reasonable? → positive harm-benefit analysis (HBA)
- *harm: weight of harm to animals*
- *benefit: weight of benefit to society*
- *HBA: benefit to society outweighs harm to animals*

for achieving the study aim(s)?



Eggel and Würbel, Laboratory Animals, 2021, vol. 55(3), 233

The 3Rs principles

- Concept developed in 1959 by W. Russell and R. Burch (*Principles of Humane Experimental Technique*)

- Replace
- Reduce
- Refine

- https://swiss3rcc.org/

The 3Rs principles

	Standard	Contemporary
Replacement	Methods which avoid or replace the use of animals	Accelerating the development and use of models and tools, based on the latest science and technologies, to address important scientific questions without the use of animals
Reduction	Methods which minimise the number of animals used per experiment	Appropriately designed and analysed animal experiments that are robust and reproducible, and truly add to the knowledge base
Refinement	Methods which minimise animal suffering and improve welfare	Advancing research animal welfare by exploiting the latest *in vivo* technologies and by improving understanding of the impact of welfare on scientific outcomes

Dr. Xavier Warot

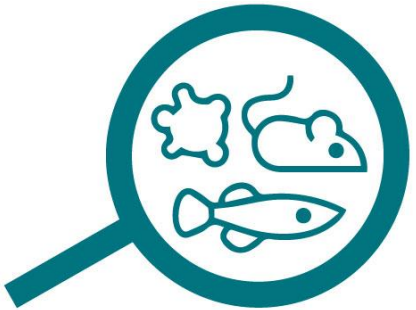
Organisation of Animal Experimentation at EPFL

Dr. Xavier Warot

Center of PhenoGenomics

Center specialized in animal experimentation and its alternatives, which:

- supports the scientific community through tailored services and advice
- allows high quality scientific research by best practices in animal care and welfare
- ensures the welfare of laboratory animals in compliance with laws and ethics



https://www.epfl.ch/research/experimentation-research-with-animals/
https://www.epfl.ch/research/facilities/cpg/

Dr. Xavier Warot

CPG services

Laboratory rodents (mice and rats) husbandry

Zebra fish husbandry

Regulatory affairs and veterinary services

Animal Welfare

3Rs

Animal Research Ethics Committee (EPFL evaluation of research carried out abroad)

Technology platforms

- CPG-TCF: Transgenesis & embryo manipulation
- CPG-UDP: Phenotyping
- CPG-ZF: Zebra Fish experimental unit
- SCOL: Stem Cell and Organoid Laboratory

Advices for all aspects of animal breeding and experimentation

Communication about Animal Experimentation

Roles & responsibilities in Animal Experimentation at EPFL

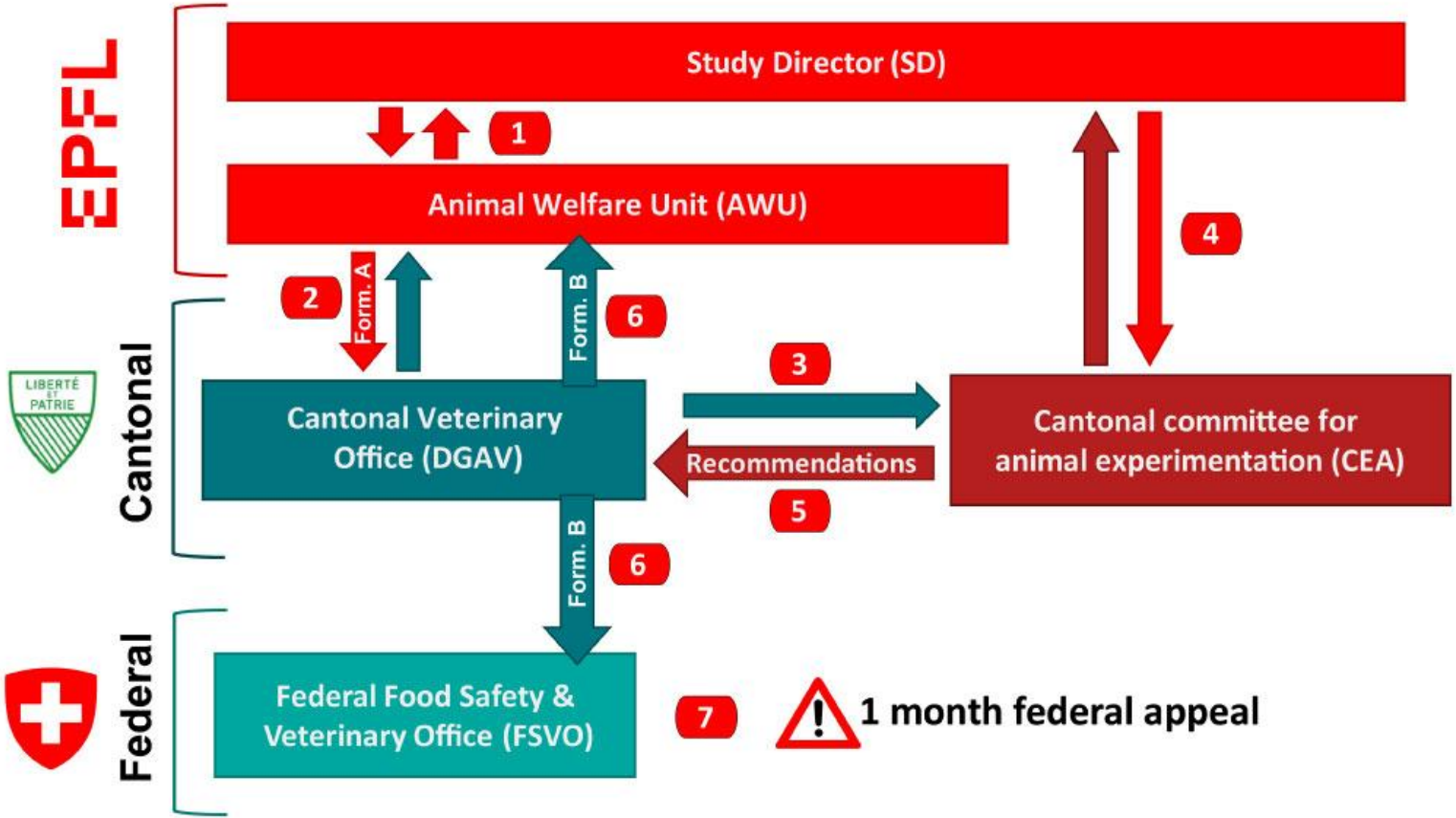
- Resource Manager (or “Directeur.trice de l’Expérimentation Animale”, DEA), Prof. Gisou van der Goot
- Animal Welfare Officers (Dr. Isabelle Barde, Dr. Julie Parchet-Piccand)
- Animal Facility Managers (Dr. Raphaël Doenlen, Dr. Emilie Gesina, Dr. Guillaume Valentin)
- Veterinarian (D.M.V. Arthur Humbert)
- 3RCC coordinator (Dr. Alexandre Widmer)
- Team of 54 persons in total (technicians, animal caretakers, logistics, management)

- Contacts: xavier.warot@epfl.ch, animal.research@epfl.ch

Dr. Raphael Doenlen

Organisation of Animal Experimentation at the level of Canton de Vaud

Licensing procedure



Dr. Raphael Doenlen

How does it work practically?

Duties of the Cantonal committee for animal experimentation (CEA)

- Review of applications received from the cantonal veterinary office
- Inspections together with the cantonal veterinary office (animal facilities and specific experiments)

Objectives of the CEA evaluation

- Scientifically valid, following the 3Vs
- Application of the 3Rs (especially Refinement & Reduction)
- Costs / Benefits assessment (animal constraint versus scientific gain)
- Delivery of a positive/negative notification to the cantonal veterinary office

CEA composition in Vaud

- 3 scientists (2 UNIL, 1 EPFL), 2 delegates of animal protection associations, 1 delegate of nature protection association, one statistician/ethicist, one veterinarian, chairperson (usually former scientist)

Dr. Raphael Doenlen

Workflow of the requests

Dr. Raphael Doenlen

Request processing depends of the prospective overall degree of severity (SD) of the studies

- SD0 → Authorities only, committee informed
- SD1&2 → Subcommittee (2 members, never two scientists or two “protectionists” together)
- SD3 → Whole committee

Committee composition / Subcommittee supervise requests from SD1 to SD3

Chairperson supervises all requests from SD1 to SD3

Degrees of severity (SD)

The scale range from 0 to 3, from no to severe constraint

How to assess the SD of a project

- The SD is prospective at the time of the project
- The SD of the project is based on the worst-case scenario
- The grading of the SD is based on a catalogue of examples illustrating different domains of research. The grading is made by analogy
- Switzerland was the first in the world to build such catalogue (1993)

Dr. Raphael Doenlen

Examples of Degrees of Severity

Technical information Animal experimentation

Severity degrees 1.04

Housing – Degree of severity 0

Housing	Housing meeting the minimum requirements of animal welfare legislation **Examples** Preference studies with various qualities of litter (for improvements in housing conditions) Housing of rats in accordance with animal welfare legislation for ethological observations

Dr. Raphael Doenlen

Housing – Degree of severity 1

Housing	Housing falling slightly short of the minimum requirements of animal welfare legislation, no other deviations from the minimum requirements **Examples** Solitary holding without sensory deprivation max. 7 days Mice and rats in groups in metabolic cages (e.g. grid floor or below the minimum area) with possibility of withdrawal and occupation max. 7 days Dogs in suspension belt for up to 4 hours Holding of dogs in groups without exercise for max. two weeks

Dr. Raphael Doenlen

Housing – Degree of severity 2

Housing	Housing falling distinctly short of the minimum requirements of animal welfare legislation, or falling slightly short over an extended period **Examples** Isolation housing with sensory deprivation max. 7 days Mice and rats in groups in metabolic cages with possibility of withdrawal and occupation max. 14 days Housing of pigs without occupation max. 2 weeks

Dr. Raphael Doenlen

Figures: number of animals/licenses

Number of animals in experiment	2021	2022	2023	2024
Suisse	574'673	585'991	595'305	522'636
Canton de Vaud	88'396	100'173	85'399	76'283 *
EPFL	32'083	29'147	29'271	24'657

* Number of animals used for the first time

Number of experimentation licenses	2021			2022			2023			2024		
	Suisse	VD+VS+NE	EPFL	Suisse	VD+VS+NE	EPFL	Suisse	VD+VS+NE	EPFL	Suisse	VD+VS+NE	EPFL
Valid	3'348	565	148	3'399	543	155	3'331	532	155	3'194	*NA*	152
New	880	150	35	932	129	40	828	141	40	837	144	34
DG0	148	20	6	146	18	5	133	19	7	144	29	26
DG1	165	32	8	168	18	3	163	23	8	154	29	22
DG2	390	76	16	417	66	23	361	73	18	363	60	79
DG3	177	22	5	201	27	9	171	26	7	176	26	25
Rejected	0	0	0	3	0	0	4	0	0	0	0	0

In Summary

- Each research project is examined by the competent cantonal authority and, with the exception of those with degree of severity 0, by an independent cantonal commission on animal experimentation.
- Federal authorities also review applications on a random basis and can ask additional questions or impose conditions during the appeal period.
- An experiment involving animals will only be authorised if no alternative methods can achieve the research goal.
- Each application for an animal experiment is subject to a weighing of interests between the burden caused to the animal and the knowledge which is expected to be gained for the society or the environment.
- The competent cantonal authorities as well as the independent cantonal commissions on animal experimentation may carry out unannounced inspections of animal facilities, laboratories and ongoing experiments.
- Any infringements of the Animal Welfare Act's provisions may lead to a ban on keeping, breeding or handling animals.

Dr. Raphael Doenlen

Animal Protection in Switzerland

Switzerland has been pioneer for many aspects of Animal Protection

- Important involvement of the State
- State Ethical Boards
- Education and Continuing Professional Development
- Degrees of severity

But time passes…

Dr. Raphael Doenlen

What is the status of animal protection in Switzerland today?

To have been the pioneer with a stringent law is one thing, to check how it is applied is another one

- Do the ethical boards work well?
- How are the legal requirements requested by the competent authorities implemented in the institutions?

Science is global. Why not work in a less restrictive country?

- Animal Research Ethics Committee (AREC) of EPFL

Merci

Dr. Raphael Doenlen

Dr. Xavier Warot