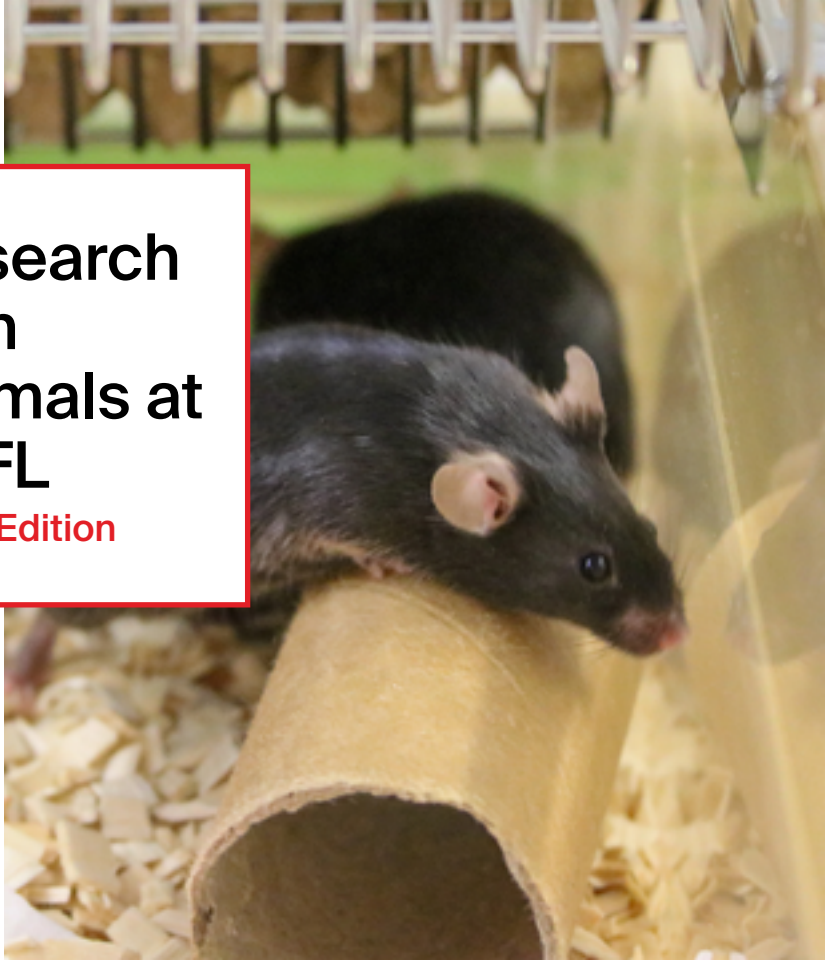


Research with animals at EPFL

2025 Edition





Laboratory animals are still an indispensable model for advancing research

To address scientific questions, life scientists often need to simulate and/or model complex systems. Depending on their research field, they might work with computer simulation (*in silico*), with cells in culture (*in vitro*), or with live animals (*in vivo*). Some of EPFL's research areas involve animals as a **complementary approach** for understanding and modelling biological processes in basic and applied research.

EPFL is aware of society's sensitivity towards animals' rights. **We remain attentive to societal debates and respect everyone's opinion on the issue of research with animals.** We are committed to high-quality research while fully respecting and advancing current ethical and legal standards. Sensitive to the welfare of animals and the responsibility it has towards them, EPFL implements an internal policy with strict rules based on the 3R principles: **Replace,**

Reduce, Refine. The involvement of animals in research at EPFL is not systematic, and takes place only when there is no alternative. We make sure to **keep the number of animal experiments as low as possible**, for example by using organoids rather than animal organs or whole animals for testing drugs or understanding complex physiological mechanisms. We use only the number of animals deemed necessary to obtain conclusive scientific results, while ensuring that any distress they might experience is kept to an absolute minimum.

Our facilities house mice as well as rats, zebrafish, and tadpoles. Many of our research groups work actively on enhancing the replacement of animal use with *in vitro* and *in silico* models.

Cover photo : A black laboratory mouse in its homcage at EPFL.

OUR FACILITIES

The EPFL Center of PhenoGenomics (CPG) contributes to research through tailored services in animal experimentation and its alternatives and ensures the welfare of animals in compliance with law and ethics. The CPG manages state-of-the-art, accredited animal facilities.

It employs a highly qualified team of collaborators who promote and ensure use of best practice in animal research, including two animal welfare officers, a veterinarian, several husbandry managers and animal caretakers, and a 3R coordinator.



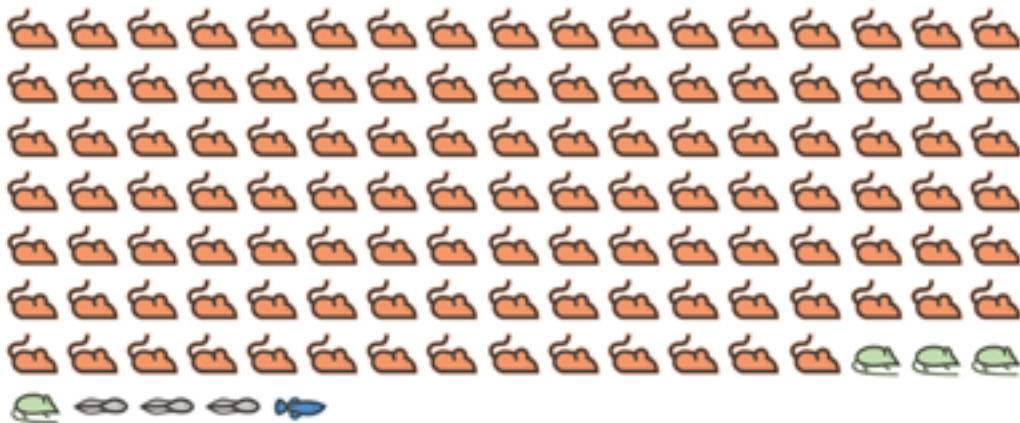
WE ENSURE THAT...



- Animals are treated in a responsible and ethical manner according to the most up-to-date approaches;
- Alternative methods are used whenever possible, and research with animals is only conducted when absolutely necessary;
- Every person involved in research with animals receives proper qualifying training and continuing education;
- Experiments are carefully designed using all possibilities to reduce the number of animals and potential stress they might experience.



In 2024, EPFL conducted research with 24,657 animals, of which 94% were mice.

Key figures



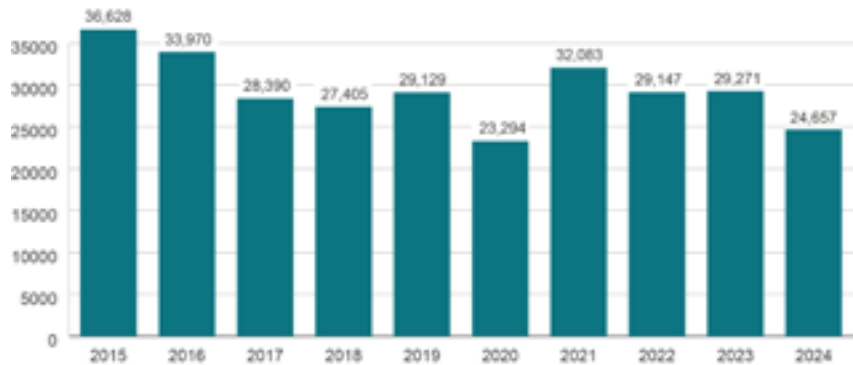
 Mice: 23,222 |  Rats: 732 |  Tadpoles: 638 |  Fish*: 59 |  Primates**: 6

*The number of fish is low, as most of the experiments are performed on fish embryos which are by law not reported in the statistics.

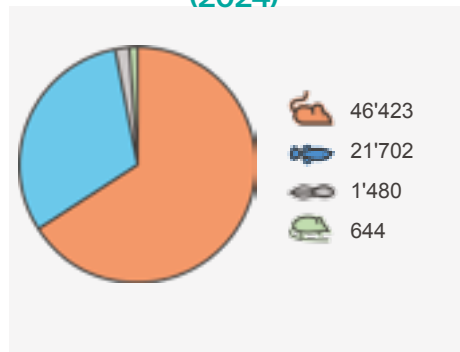
** Experiments with primates were carried out in collaboration with another Swiss university.

EXPERIMENTAL ANIMALS AT EPFL SINCE 2015

Figures from 2021 onwards include the research activities of EPFL's associated campuses.



BRED AND IMPORTED ANIMALS (2024)



DEGREE OF SEVERITY (2024)

Weighing the need to learn, discover, and cure against the potential for animal suffering is a central concern. The constraints caused by interventions or measures carried out in an experiment are classified according to their degree of severity (SD):

SD 0	25,6 %	No constraint
SD 1	16 %	Slight constraint
SD 2	47 %	Moderate constraint
SD 3	11,4 %	Severe constraint



Some of our research projects

A NECESSARY RESEARCH MODEL

Although not identical, humans and animals are relatively similar, both anatomically and genetically; for example, humans share over 90% of their genes with rodents, the most common laboratory animals. The way they perform many vital functions, like breathing, digestion or sight, is identical to us. As a result, animals are powerful models to study human diseases, especially given the actual legal and ethical framework, and the inadequacy of alternative methods to address society's requirements.



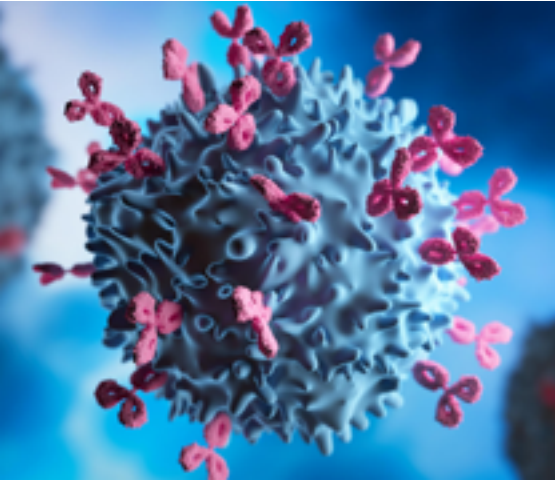
NOVEL APPROACH TO COMBAT FATTY LIVER DISEASE

A team of scientists led by Johan Auwerx at EPFL has now shown that inhibiting an enzyme called ACMSD, mainly found in the liver and kidneys, can significantly reduce damage caused by metabolic liver disease.

The researchers used several models, including rodent liver cells and human liver organoids—lab-grown mini-livers. They also fed mice a Western-style diet high in fat to mimic the conditions that cause the metabolic liver disease in humans.

PROTEIN MODIFICATIONS INFLUENCE NEURODEGENERATIVE DISEASES

Exploring the modifications of a key protein in Parkinson's disease, scientists led by Hilal Lashuel at EPFL and Matthew R. Pratt at USC (California) have uncovered potential pathways for future therapies in neurodegenerative diseases. The team has notably resorted to cell and mice models to study how the modification of the protein affects the pathogenic properties of alpha-synuclein, which is linked to the formation of amyloid fibrils in Parkinson's disease.



A NEW PATH FOR CANCER THERAPY

Scientists from Professors Elisa Oricchio and Bruno Correia's labs have developed a novel approach to treat cancer, using antibody-peptide inhibitor conjugates to target specific cell types and block the activity of cancer-promoting enzymes. This method ensures that the inhibitors are delivered specifically to cancer cells, thereby reducing systemic side effects and increasing therapeutic efficacy in both cell lines and mouse models.



Noteworthy events

NEW POPULAR INITIATIVE TO BAN ANIMAL TESTING

Submitted in November, the initiative “Yes to a future without animal experimentation” aims to ban animal experimentation in Switzerland and should be put to vote in the coming years. The Federal Council recommended to reject it, arguing that such a ban would have serious consequences, particularly in terms of health, as animal experimentation remains the only option in many areas of research today. At EPFL, research with animals remains critical for many scientific groups.



LAUNCH OF SCOL

The Center of PhenoGenomics and the School of Life Sciences have opened the Stem Cell and Organoid Laboratory (SCOL) in September 2024. This shared space, accessible to all research groups, enables the culture of organoids and induced pluripotent stem cells.

Organoids play an increasingly important role in biomedical research and represent a promising breakthrough, particularly in developmental biology and personalized medicine, while reducing the need for animal experimentation.

SCIENTASTIC

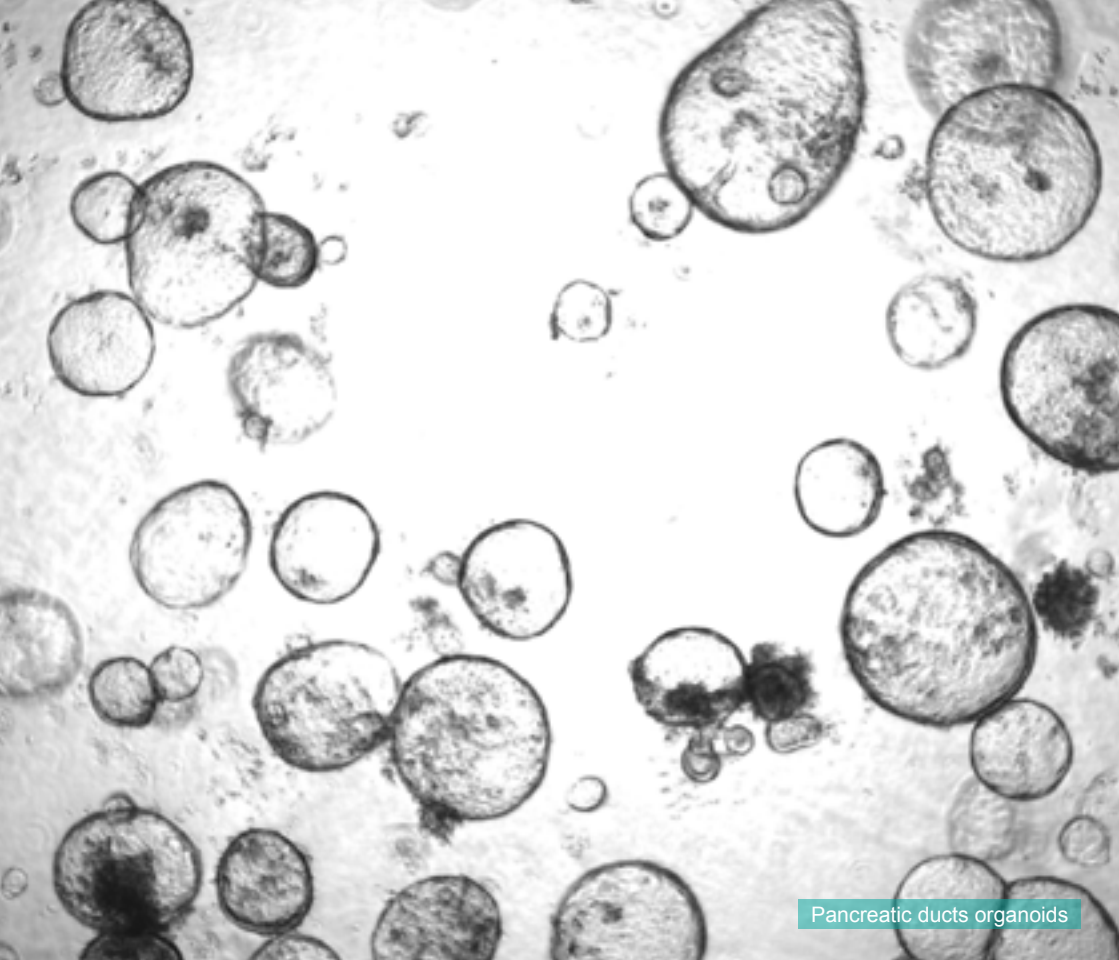
For the first time, the Center of PhenoGenomics took part in EPFL's science festival, Scientastic. Through tours and presentation stands, the young public has the opportunity each year to meet EPFL researchers, understand the scientific challenges at the heart of their research, and participate in numerous activities related to the workings of science. The CPG explained why animals are still necessary for science, how research is conducted, and what alternatives exist.



UAR OPENNESS CONFERENCE

Understanding Animal Research, the British society that explains why animals are necessary in medical and scientific research, held its first conference dedicated to openness in March 2024. The Center of PhenoGenomics was there to present its efforts to promote transparency and improve laboratory animal welfare.

In particular, the importance of public visits to the animal facilities to inform the reality of this environment was highlighted.

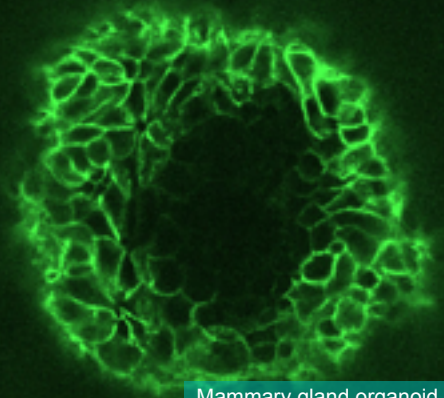


Pancreatic ducts organoids

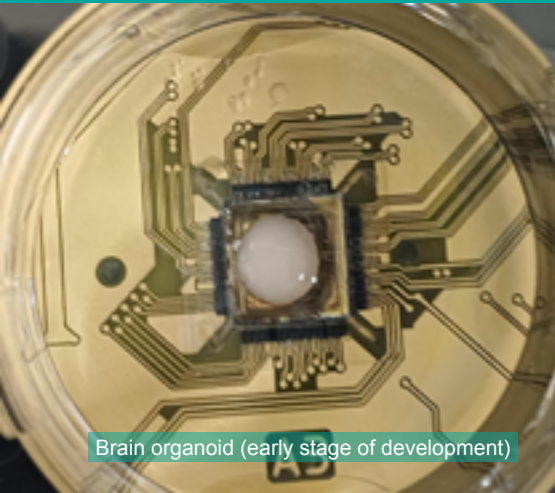
ORGANOIDS

Organoids are a promising breakthrough that scientists have been exploring over the past 15 years. These three-dimensional tissue cultures can be grown from mouse or human stem cells and stand to revolutionize some aspects of biomedical research, but they won't do away entirely with the need for animal research.

Check this link to know more about this model: https://go.epfl.ch/organoids_en



Mammary gland organoid



Brain organoid (early stage of development)



Gliospheres

To learn more
and to follow
the latest
news related
to animal
research,
please visit:

go.epfl.ch/research-animals



Contact us at:
animal.research@epfl.ch



Albino laboratory rat in its homepage at EPFL.