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Human health research still partly depends on the use of animals

**Inter-academic press release: French National Academy of Medicine,
French National Academy of Sciences, French National Academy of
Pharmacy and French Veterinary Academy**

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On September 16, 2021, the European Parliament adopted a Resolution (2021/2784(RSP) calling on the Commission to draw up an action plan, with the aim of eliminating procedures involving live animals in scientific research, tests related to regulatory requirements, in particular with a view to an authorization of use of health products, as well as in education, while accelerating the development of alternative methods and technologies.

The French National Academy of Medicine, the French Academy of Sciences, the French National Academy of Pharmacy and the French Veterinary Academy recall (1) that animal experiments are now strictly regulated in Europe and meet rigorous ethical criteria (European Directive 2010/63/UE). Any scientific, or regulatory requirement experimentation that involves animals, must be evaluated by independent committees and carried out by trained staff holding an authorization issued, in France, by the Ministry in charge of Research.

In recent years, people involved in biology and health research have considerably reduced the use of animal models. Alternative methods to animal experimentation have been the subject of significant research and led to alternative solutions commonly used in laboratories: *in vitro* modeling (2D, 3D cell cultures and organoids); and *in silico* modeling (bioinformatics simulation and artificial intelligence), teaching on educational models (mannequins, simulators, etc.).

However, in the current state of scientific knowledge, these surrogate models cannot recapitulate the complexity of a living organism and integrate all the biological parameters involved in the normal and pathological function as well as interactions of cells, organs and in the end of a living being. Thus, the vast majority of research on human pathophysiology is dependent on animal models, particularly in behavioral neurosciences and in infectious, inflammatory,

metabolic and cancerous diseases. Similarly, research and development of new drugs, while benefiting from the development of alternative models, cannot avoid protocols that comply the regulatory requirements using experimental animal models, in particular for preclinical and toxicological studies. The same applies to the development of some medical devices as well as surgical or interventional medicine techniques. These requirements for the use of animal experiments in human health research also exist in the context of animal medicine research.

In response to the European Parliament's Resolution aiming to accelerate the transition to animal-free innovation in research, the four Academies wish to emphasize that:

- Important alternatives, reductions or improvements have already been found regarding the use of animals in research and constant efforts are being made in this direction;
- Although such other solutions can undoubtedly still be discovered, the use of animals remains essential in several sectors of research in biology and health, because this use conditions the progress of care in humans and animals or is imposed, in particular by the regulations of medicinal products for human and veterinary use within the European Union as well as at international level (ICH guidelines). Given these regulations, the suppression of the use of animals within the European Union would require its relocation abroad.

The French Academy of Medicine, the French Academy of Sciences, the French Academy of Pharmacy and the French Veterinary Academy recommend that, on the occasion of the French presidency of the European Union, an independent expertise be carried out to identify all the fields in which the elimination of the use of animals in research could have significant negative consequences and lead to a lowering of the level of protection of human or animal health.

1. Protection of animals used for scientific purposes. About the 2017 revision of Directive 2010/63/EU. Inter-academic Press release (French National Academy of Medicine; French Academy of Sciences; French National Academy of Pharmacy; French Veterinary Academy of France), June 29, 2017