

Novo Nordisk and animal experimentation

Experiments on living animals are a necessary part of the discovery and development of new drugs. The use of experimental animals is, however, a source of concern for many people.

We cannot replace all animal experiments in the foreseeable future, but we can continuously refine the care and use of animals and develop procedures that reduce and/or replace animal experiments. Experiments on living animals should only be carried out when no other suitable alternative methods are available and the expected benefits to human should outweigh the costs to the animals.

It is important for Novo Nordisk to act with due respect for the animals by establishing and ensuring high ethical and welfare standards. Novo Nordisk supports transparency and openness about animal experimentation and will continue to report on our use of experimental animals.

Novo Nordisk has for decades focused on a broad stakeholder engagement in relation to animal experimentation and will continue to engage in dialogue and partnerships with key stakeholders such as animal welfare organisations.

Novo Nordisk's position

- Novo Nordisk supports the principles of the Three Rs (Reduce, Refine and Replace) and is integrating these principles in all our processes and procedures
- Novo Nordisk supports high ethical standards in relation to animal experimentation and performs an internal ethical review of all new types of experiments on animals
- Novo Nordisk acknowledges its responsibilities in relation to experiments on living animals carried out by external parties on behalf of Novo Nordisk and supports high ethical and welfare standards at our external partners, contract research organisations and suppliers and monitors their performance
- Novo Nordisk acknowledges the specific concern about the use of non-human primates and supports that all experiments on non-human primates are thoroughly evaluated and special attention is paid to the housing, training and socialisation as well as the source of non-human primates
- Novo Nordisk supports high animal welfare standards in relation to the housing, care and use of experimental animals and will house the animals according to their needs, provide appropriate training and socialisation of the animals
- Novo Nordisk is aware of the specific concern about the use of animal models of human disease including the use of transgenic animals and the importance of considering and minimising the welfare impact on the animals
- Novo Nordisk supports the principle that experiments on living animals are properly regulated, and that the ethical and welfare aspects of the use of experimental animal are adequately addressed in national and international legislation

Novo Nordisk's use of experimental animals

New drugs need to be investigated in animals for efficacy and safety before they are studied in humans. It is not yet possible to examine the complex interactions in a living organism solely by the use of e.g. cell cultures and tissues.

However, the use of animals in the early phases of our drug discovery and development has been reduced by applying computer simulation, tissue cultures and cell based methods. Novo Nordisk has over the last decade reduced the number of experimental animals due to these improvements in screening methods. Animal experiments are an integral part of our efforts to examine the efficacy and possible side-effects of new drug candidates and the pharmacokinetics and metabolism of the compounds before they are investigated in humans. Animals are also used in our research efforts to establish the causes of diseases. Some animal experiments are performed as part of the requirement by the authorities for the product control of selected products.

Novo Nordisk reviews animal models on a continuous basis for replacement with in vitro methods and uses human cells and tissues instead of living animals wherever possible. Novo Nordisk supports and participates in initiatives on the development of valid alternatives to animal experimentation. It is expected that our use of experimental animals needed to develop a drug within a given disease area will continue to decline over the next decades as new emerging technologies will make it possible to obtain even more important information without the use of living animals.

***Novo Nordisk principles on the use of animals**

Novo Nordisk considers the use of animals to be essential for the discovery, development and production of pharmaceutical and medical products.

Ethical considerations and animal welfare are given high priority at Novo Nordisk. As an integral part of our approach to animal testing, we are constantly looking for new ways to replace, reduce and refine the use of animals for testing.

Animals will be used only where no available and acceptable alternatives exist.

To ensure uniform standards the following principles must be adhered to throughout Novo Nordisk and all our external collaborators including contract laboratories, research laboratories, partners and suppliers:

- All activities involving animals must be conducted strictly in accordance with present legislation
- Alternatives to animal experiments must be used whenever possible
- Transgenic animals may be used for testing and experiments when this model is justified
- Animals bred specifically for experimental purposes must be used unless special conditions are in evidence

- Housing, husbandry and transportation of animals must as a minimum comply with internationally approved standards
- Housing conditions must take into consideration the special needs for the animals species in question
- Housing, husbandry and care of animals must be undertaken by personnel having received adequate and relevant education. The level of education must be documented
- Health control should be supervised by a veterinary officer experienced in regard to laboratory animals
- Transportation of animals must be as lenient as possible, taking into consideration the special needs for the animal species in question
- All precautions must be taken to reduce suffering and distress.
- Procedures for monitoring and evaluation of the well being of the animals as well as treatment must be implemented
- At Novo Nordisk records are kept updated on the type of experiment, animal species and number of animals used in accordance with the authorities' and the requirements of Novo Nordisk. The number of animals used internally as well as on facilities run by external collaborators will be published in the annual Novo Nordisk Annual Report

*Note: Any planned deviations from these principles must be approved in advance by the Novo Nordisk Environment & Bioethics Committee

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