



# ECEAE

## THE EUROPEAN COALITION TO END ANIMAL EXPERIMENTS

### ECEAE statement

#### Coronavirus: Faster than animal experiments

24<sup>th</sup> April 2020

**Coronavirus SARS-CoV-2 became a pandemic within a few weeks. We all hope for a fast development of vaccination and antiviral drugs. History has taught us that animal experiments are not the right model to achieve this goal but it is human nature to repeat past mistakes. When will the world finally realize that human-relevant model systems need to be promoted and adequately funded if we want medical research to be effective and fast?**

It is a well-known and major drawback of animal experiments: They are slow – too slow in times of a pandemic such as SARS-CoV-2 that we are currently facing. It has long been criticized by scientists and NGOs that medical research based on animal experimentation is inefficient – in particular when it comes to disease modelling and drug development. Also, it has been discussed for years with numerous stakeholders that human-relevant model systems have to be established, optimized and validated. Many advanced research models have already been developed such as 3-dimensional cell models of the human lung and of the immune system or advanced organ-on-a-chip approaches.

Still, research funding is largely assigned to projects involving animal experiments whereas very little is invested in the optimization and establishment of human-based technologies. Shifting our scientific paradigm towards animal-free research would be wise in order to have human-relevant research models available for future pandemics which will certainly come. Such in vitro models are faster and more efficient compared to animal research because they do not face the problem of species-specific differences. Countless animals are currently suffering in animal experiments related to COVID-19 in order to find “the right animal model” for studying the virus and its infectious properties. Ferrets are now claimed to be an excellent “model”, because they get infected by SARS-CoV-2. However, ferrets do not develop any symptoms of the disease as observed in humans making the approach a dead end road.

This phenomenon is a long-established strategy: Results from animal experiments which will most probably never apply to humans are presented to the public as great success stories. Other animal species are used for COVID-19 research although they do not even get infected, for example mice. Genetically modified mice that have previously been developed to study other corona viruses are now sold as special “tool boxes” to try out if they might be useful for SARS-CoV-2- research. Further approaches include the generation of humanized mice in order to make them susceptible to viral infection upon insertion of human genes into the mouse genome. Apart from a very low chance to succeed, such attempts are unethical and extremely time-consuming. Simply the generation and breeding of genetically modified animals take months, the in vivo experiments span several months or years and the chance to finally obtain human-relevant experimental outcomes is very low.





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History taught us many times that animal experiments are not suitable for successful development of vaccines. The regular process of vaccine development spans many years with costs amounting to hundreds of millions of euros or even more. For numerous viral diseases such as HIV, MERS or other SARS viruses, we failed to develop effective vaccines to date – despite years of extensive research. The first Ebola vaccine entered the market in November 2019, 5 years after the disease outbreak in 2014 - and it remains to be seen how effective this vaccine turns out to be when applied to target populations.

Each pandemic like the one we are exposed to now, is a chance for politicians and decision makers to learn from past mistakes. The next pandemic will come one day and we should be prepared with human-relevant research models that enable a fast and reliable drug development process. For the sake of human safety and for the sake of so many animals which suffer for a research that does not live up to its promise.



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