

A call for recognition of the continued need for animal studies in biomedical research

We, the undersigned Nobel Laureates, call for the recognition of research on living animals as the basis for knowledge in biomedical sciences. Our current knowledge of medicine – the mechanisms of diseases and the interventions that may prevent and treat them – rests on studies in laboratory animals and will continue to do so for decades.

The European Citizens Initiative "Save cruelty-free cosmetics – Commit to a Europe without animal testing" has proposed to the European Commission and Members of the European Parliament to make concrete progress on a roadmap for phasing out all animal testing in biomedical research. While few would object to a ban on animal testing in the cosmetics industry, prohibiting animal studies for basic and medical research would mark the end of biomedical science – including the development of drugs and vaccines for treatment of diseases – in Europe.

While the biosciences should continue efforts to reduce the number of animals in research, and to improve conditions for those animals, decision makers should know that studies in animals will continue to be the primary source of knowledge about how complex living systems, including humans, operate. Contrary to popular belief, animal research cannot be replaced by studies in organoids or computer simulations, although these approaches will play an increasing role as supplements for the reduction of animal studies. Indeed, the development and refinement of organoid biology is the result of and requires animal research.

For continued progress in biosciences, organs such as the brain, must be studied as living systems in animals that perform behavior. The human brain contains some 80 billion neurons forming circuits of enormous complexity from which perception, consciousness, communication and culture emerge, through processes that we are very far from understanding. No organoid or numerical simulation, however sophisticated, can approximate a living brain's functions and enable one to understand most of its dysfunctions. Most human brain functions can be and have been studied in animal model systems. So it goes for all organs, whose designs are the result of over 600 million years of animal evolution on our planet.

Our ability to combat diseases of the body and the brain requires a constant cycling between hypothesis building, computer simulations, reduced or simplified experiments (for example in cultured cells or in organoids), and finally, testing in living animals. Eliminating the last element of this cycle would amount to getting rid of the most critical stage of knowledge building in the biomedical sciences.

We thus urge decision makers to resist any call to eliminate animal research in the biomedical sciences.