

Attention: Scientific Advisory Committee on Alternative Toxicological Methods Meeting

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Private Citizen

Comment: "Animal models play a vital role in biomedical research, including toxicology studies. I am a working biomedical scientist, and I feel that public engagement on this topic is often dominated by anti-animal research groups and politicians or administrators who either have no experience with or are not actively involved in the types of research that most critically rely on animal models. It is vitally important to include and listen to the voices of working scientists who have the expertise to evaluate the role of animal and non-animal models in each field. As scientists, we are always interested in innovations that will advance our work, and in the cases where non-animal models can do this, they are being enthusiastically embraced by the scientific community. But there are many areas, especially in systems biology, where non-animal models, such as organoids, are simply not adequate and eliminating animal models will result in risks to human health and an end to new insights and discoveries for future cures. For instance, you can't understand the full interactions of an integrated immune system in liver cells grown in a dish. You can't understand how the brain produces behavior from a brain organoid that doesn't behave. Computational models are important tools in biomedical research, but they are primarily hypothesis-generating. The only way to know for sure whether the predictions of a model are true is to test it in a biological system. As a scientist with medical training, I would never feel comfortable giving a novel compound to a human based only on predictions of a computational model. It simply is not ethical or moral.

The public should feel comfortable with animal research and testing because it is highly regulated. All studies must follow the 3Rs (replacement, reduction, refinement). This is part of the training of all animal researchers and ensures that the research undertaken is (1) necessary - it can't be accomplished by other means, (2) humane - so that animal subjects are not subjected to any unnecessary stress or discomfort. Animals remain essential for understanding complex biological processes that cannot be fully replicated in any of these alternative models. They have helped us achieve previously unimaginable medical advances, and there are so many ways that learning from animal models will continue to advance both human and veterinary medicine in the future."