

NAMS: ARE WE THERE YET?

A 2026 BEHIND THE HEADLINES UPDATE



What are NAMs?

The term NAM generally is used in the context of biomedical research to mean a “new alternative method” or “novel approach methodology” that can reduce or even replace some animal use in research. Certain individuals use the term NAM to mean any non-animal model. There has not been a universal standardization of terminology. Examples of NAMs include a wide range of approaches, ranging from non-living methods such as computer modeling and simulations, to living models growing *in vitro* (growing outside the living body and in an artificial environment). The *in vitro* models include simple ones such as dishes of individual cells (animal or human), to complex *in vitro* models that allow individual cells to aggregate into tissues and mini-organs, to better recapitulate functions in the body.

Why are NAMs in the news and on everyone’s mind lately? Haven’t we been using alternative methods for many years?

Yes, science always has developed new advances and ever more sophisticated technology, but the last decade has brought progress at an exponential rate with the advent of some new and powerful techniques that have allowed us to make major advances in the aspirational quest to eliminate the use of animals in research and testing. These advances include more powerful computers, machine learning and artificial intelligence to advance non-living NAMs. *In vitro* approaches have benefitted from our ability to grow human cells in complex systems, creating artificial tissues and organs. These include approaches such as organ-on-a-chip, stem cell technology and organoids. The advances in these human-based (and thus termed human-relevant) systems are considered major steps to advance our understanding of human biology and disease using this new toolbox of models.

NAMs also are in the news because the FDA has very recently changed its regulations to allow therapies to be developed without necessarily testing them in animal models. Instead, if appropriate and justified, one can use NAMs as the test systems to demonstrate safety and efficacy. This is because it is very time consuming and expensive to develop therapies (drugs, vaccines and devices) using standard approaches with animal models and there is often a lack of concordance between what works in an animal and what works in people. The hope is that human relevant NAMs will prove to be a superior approach in some instances. Other government agencies such as the EPA and NIH also are trying to move to reduce their dependency on animals.

Can we currently just eliminate animal research now that we have NAMs?

No, while elimination of animals in research remains an aspirational goal for all scientists, the reality is that many important uses of animals cannot be replaced in the near term or perhaps even longer. Animal models still have vital systemic features and complexity that cannot be adequately modeled with NAMs. The power of NAMs will come from integrating these new model systems in conjunction with animal models.

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