

Office of Science Policy
National Institutes of Health
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I would like to comment concerning the possible NIH funding of research into combining human and animal genes.

We are having great difficulty in solving current ethical questions. Most of these questions would be amplified greatly if the study were to be allowed. Questions such as:

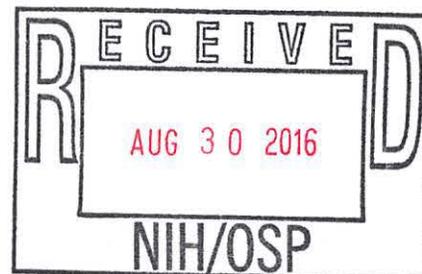
- a) We do not have equal health care and availability for all of us now. The disparity is heightened with every technological advance. We need to solve this issue first.
- b) Our health care costs are out of control. If the research leads to new technology, the added costs would be staggering. We cannot afford what we have already.
- c) We argue now over what is to be considered ethical treatment of farm animals. We need to decide this issue before we even consider a human/animal "farm".
- d) Whose human genes would be used to grow these human/animal products? Who decides?
- e) We could not even get a provision in the Affordable Care Act to provide a one time payment for a doctor to counsel a patient regarding end of life issues. How, then, would patients be counseled regarding the wisdom and personal preference in the event this research provided the anticipated technological advances? Our political climate is far too heated to consider these issues wisely.
- f) Who would decide who would be a candidate for receiving a product obtained from this research if it is successful? The insurance companies? One's own doctor? A board of advisors--and who would be on that board?
- g) I am concerned that there would be an increased potential for cross-species transmission of diseases. There would be only one way to find out for sure, and by then it would be too late.
- h) We cannot agree on the use of genetically modified food crops from plants, much less the potential for harvesting and studying human/animals.
- i) How would research be done for the neurological diseases such as dementia without using human brain cells in an animal? Since the ability to think is one of the differences between humans and animals, what would you do with that human brain in an animal once the research is done with it?
- j) Let's say that the research is successful and a human heart can now be grown in a cow. We harvest the heart, and then what? Eat the meat of this human/animal?
- k) Again, the research is successful, it's time to set up operations. Who gets to set up operations? Because there would be enormous start up costs involved, only the very biggest companies would be able to afford to start it. We argue now over the 99% issue, and the issue would be even worse in such a scenario.
- l) We cannot decide when a fetus becomes a baby. So if we have human genes in an animal, is that a human? Part human? Can you kill it? When it dies, do you eat it or bury it?
- m) I am concluding with this point because it is the most important point. Leviticus 19:19 forbids combining species of plants and animals. Certainly the combining of humans and animals is even more appalling. God settled this issue long ago. Leave it alone.

To summarize, I believe we have far too many unanswered and possibly unanswerable ethical issues already on the table without raising the stakes by attempting to combine human and animal genes. Let us find answers to the questions we have now, if we even can.

Sincerely,



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