

China Uses CRISPR To Create Hulked-Out Animals

By ACSH Staff — November 19, 2015



[1]
Two beagles (Hercules, left, and Tangou, right) were genetically-modified in a lab in China to be more muscular. Courtesy of Zou Qingjian and Lai Liangxue at the Guangzhou Institutes of Biomedicine and Health, Chinese Academy of Sciences.

Genome editing in humans and animals has been the basis for many works of fiction; but now there is fear among some regarding genome editing, and the possibility of it being used to change traits in humans.

Some experiments have already raised eye-brows. Modified dogs, goats, and monkeys have been constructed at a research station in China and that has conjured worries about what may be done with humans.

At the Shaanxi Provincial Engineering and Technology Research Center for Shaanbei Cashmere Goats, scientists [have created a new kind of goat, with bigger muscles and longer hair than the archetypal goat](#) [2]. The goats were made by direct manipulation of animal DNA rather than the less precise breeding method used for thousands of years. The Shannbei cashmere goat is a cultivated dual-purpose breed that provides both meat and fibers (fine cashmere). In September, geneticist Lei Qu and colleagues successfully deleted two genes that suppressed both hair and muscle growth. The results showed 10 goat kids revealing both larger muscles and longer fur without any presentable abnormalities.

In America, we have optimized [apples](#) [3], [potatoes](#) [4] and now [salmon](#) [5], so why not a goat?

But that is not all. Recent experiments done by Chinese scientists describe CRISPR-modified sheep, pigs, monkeys, and dogs. In October, researchers discussed work focused on creating unusually [muscled beagles](#) [6] in the *Journal of Molecular Cell Biology*.

Unlike past gene therapies, changes made to zygotes or embryos using CRISPR can become permanent, which means it will be passed on to future generations, so what really got people talking was when a Chinese team published a piece in the journal *Protein & Cell* explaining attempts to use CRISPR to modify nonviable human embryos. Their aim focused on [deleting a gene linked to blood disorder called beta-thalassemia](#) [7] without creating other mutations.

The experiment failed on 85 attempts but the controversial nature of it is the story, and that is a story the Chinese scientists involved say is overblown. To them, it is simply basic research, much like human embryonic stem cell research (hESC) in the United States. The goal of human editing, they said, was to learn about human disease through CRISPR experiments and believe that the knowledge acquired from the experiments and studies will be very important in order to understand how a healthy human embryo develops. But not all scientists will be ethical, critics note.

The debate about the ethics of editing DNA will go on, here and in China and elsewhere.

What do you think? Please leave a comment and let us know.

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[2] <http://www.nature.com/articles/srep13878>

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[6] <http://www.technologyreview.com/news/542616/first-gene-edited-dogs-reported-in-china/>

[7] <http://www.theguardian.com/science/2015/apr/23/scientists-genetically-modify-human-embryos-in-controversial-world-first>