

# Chinese company makes mini pigs, but can these little piggies go to market?

By Los Angeles Times, adapted by Newsela staff

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BEIJING, China — Have you been longing for a “teacup” pig but worried that the petite porcine pet might grow as big as your bathtub? A Chinese biotech company says it now has the answer: a genetically modified swine that tops out around 33 pounds.

## Little Pigs Make A Big Splash

BGI recently announced that it intends to start selling the \$1,600 miniature pigs that it initially created as laboratory models for studying human ailments. The company is based in Shenzhen, in the south of China. The city is known for its work with human, plant and animal DNA, which controls how every cell in the human body develops and functions.

The pigs created a splash late last month when BGI showed them at the Shenzhen International Biotech Leaders Summit. The pint-size porkers were created through a process known as gene editing. Rather than introduce another organism’s DNA into the pigs, scientists “edit” the swine’s own genetic material. They turned off a copy of a gene so cells do not get a signal to grow.

Swine-loving celebrities will have to wait for pigs they can truly carry in the purses. Miley Cyrus’ Bubba Sue and Paris Hilton’s Princess Piglette have grown almost too pig to carry, while George Clooney’s 18-year companion, Max, grew to 250 pounds before he died in 2006.

## Good Pets, If They Don't Grow

But animal breeders and advocates say that even a 33-pound pig could reduce the problem of people abandoning pet swine that grow too large. Curt Mills, a board member of the Southern California Association for Miniature Pot-Bellied Pigs, says four regional shelters for the animals are all full. About 150 oinkers are looking for homes.

“Pigs are good pets, but a lot of issue is the size,” said Patty Morrisroe, a pig breeder in Dallas, Oregon. She says she has spent 30 years breeding swine to produce pigs that can be around 39 pounds fully grown. But with just four breeding sows, her litters are limited — about 20 piglets per year — and she charges \$2,500 to \$5,500 per animal.

“If you could immediately make a small pig, it would be very cool, but there are still a lot of questions,” she said.

## Health And Safety Questions

Kenneth Bondioli is a professor of animal sciences at Louisiana State University. She said BGI’s micro pigs would need to be evaluated to see if they develop healthily and whether they could harm the environment or other livestock if they got out. It is unclear whether BGI intends to offer its pigs for sale outside China. If Americans wanted them, the United States government would have to determine whether they could be imported.

Alison Van Eenennaam, a biotechnology specialist at the University of California, Davis visited BGI about three months ago and saw their micro pigs. She said the fact that the company is marketing them as pets, not meat, reflects the problem many see in using gene-edited animals for food production and other more serious purposes.

“Genome editing is a powerful technology that can be used for many beneficial applications ... such as producing disease-resistant animals and other things that would have real benefits for the sustainability of food production,” she said. But worldwide, she said, no genetically engineered animal has been approved for the dinner table. Only a few

medical products made from genetically engineered animals have been approved for humans. That, she believes, is making companies hesitant to invest in the technology.

### **GloFish Are Friends, Not Food**

Bioengineered pets, though, have found easier acceptance. A florescent fish, marketed under the brand GloFish, has been popular for a number of years in the United States. The fish were created by Singaporean researchers who inserted jellyfish and sea anemone genes into zebrafish eggs.

"People are happy to have them in their aquarium," Van Eenennaam said. "But it's when it's on their dinner plate that they have a different attitude."

A company called AquaBounty has been seeking for more than 20 years to win Food and Drug Administration (FDA) approval to bring a genetically modified fast-growing salmon to supermarkets. The FDA is the U.S. government agency that regulates food and medicines.

### **Designer Genes**

However, the technique used by BGI to create its micro pigs is different. It presents a new problem if they were to be imported to the United States.

Instead of DNA added to their genomes, the micro pig was made by removing just a few letters of DNA, said Max Rothschild, an agriculture professor at Iowa State University.

It's not just pigs that have been gene-edited. The technique has been demonstrated in cattle as a way to add muscle, and to ensure dairy cows do not grow horns. But those methods are not used for commercial purposes or in animals sold to the public, Van Eenennaam said.

What rules should apply to gene editing is an increasingly pressing question. Not only agencies like the FDA but also scientists themselves and medical ethicists have debated over where to draw the line.

### **What Color Pig Do You Want?**

For several years, scientists have been using editing to modify genes in adult human cells. For example, they have changed bone marrow cells to make people resistant to HIV, the virus that causes the potentially deadly AIDS disease. But this spring, a team of Chinese researchers caused an international stir. They announced that they had used gene editing to alter DNA in human embryos in an attempt to repair a defect that causes a potentially fatal blood disorder.

BGI agrees there is a need to make rules around gene editing both for creating pets as well as for medical research. Yong Li, a technical director of BGI, said that any profits from BGI's pet micro pigs would be put into medical research. BGI believes it can use gene-editing not just to control size but also to give consumers a choice of colors.

"We plan to take orders from customers now," he said, "and see what the scale of the demand is."