

Got synbio milk? Bioengineers create lactose-free lab-grown milk

Brace yourself for udderless dairy.

What can science do better than a cow? That's the question a trio of vegan bioengineers are trying to answer with [Muufri](#), synthetic milk made from yeast cultures and dreams.

The Muufir founders, Perumal Gandhi, Isha Datar and Ryan Pandya, say they're trying to address three major issues with milk from commercial dairy farming: contamination from cows, inhumane treatment of the animals at tightly packed industrial farms and emissions from large-scale operations (talkin' about farts).

They say that milk is actually a relatively simple chemical structure to fake. Muufri is a compound of six proteins and eight fatty acids. To make it, they add chemically synthesized cow DNA to yeast cells, then harvest the cultures the yeast grows. (It's kind of like a sourdough starter.) From there, they added things like calcium and potassium and emulsify the mixture into milk. They tinkered with the ratios to create something that tastes and feels like cow's milk, but left out lactose, using a different sugar instead to make it drinkable for the lactose intolerant. They liken it to making beer or penicillin.

Muufri treads the tricky line of bioengineered foods and where they fall in the genetically modified food debates. The yeast is genetically engineered, but they don't actually use the yeast as part of the final product. They harvest the culture it produces and kill the used yeast.

Read full, original article: [Coming Soon From 3 Vegan Scientists: Lab-Grown Milk](#)