

# Remaking the Peanut to Make Schools Safer

By *Nicholas Staropoli* — October 7, 2015



The war on the P-B and J has been waged in our schools

for some time now. Determining how to handle these sandwiches, and [peanuts in particular as they relate to students with allergies](#) [1], has arguably been one of the most heated battles in school systems across the country. It is certainly up there with the decision to teach evolution, or how to provide instruction on sex ed.

As for nuts, so many schools have decided to kowtow to the concerns of a few, banning all peanut products on school grounds. Others, meanwhile have decided to take extra precautions with the allergy-affected students as a sufficient way to minimize or eliminate the risk of anaphylaxis. But this approach has gotten some schools in trouble for their perceived careless behavior, with [lawsuits filed](#) [2] against several districts as a result.

Experts are split on what the appropriate solution should be. But one is certainly needed, as peanut allergies, if triggered, can be fatal. However, science may soon be able to end the debate once and for all -- by removing the allergens all together. This is not a novel idea, but with new advances in gene editing it's closer to reality than ever.

In the past scientists and farmers have tried to breed out the allergen through breeding/artificial selection. But the ASO technique is very non-selective, and no safer peanut was ever produced. Another attempt involved soaking the nuts in enzymes that were suppose to break down the allergens, but that approach failed as well.

So what has scientists believing they are close now?

They're using a technique to selectively remove the genes that code for the allergens from the peanut genome. It's called [CRISPR-Cas9](#) [3], it's growing in popularity and it's being co-opted into a variety of fields, such as the treatment of genetic diseases, organ transplants, [reducing animal cruelty](#) [4], and as an [alternative to antibiotics](#) [5]. It is easy to design, cheap and highly specific.

[Aranex Biotech](#) [6] is most notably working on these hypoallergenic peanuts, and in just a few months it's made tremendous process. The company has [successfully preformed C](#) [7]RISPR-Cas9

on cells of the plants, and eventually will progress to growing full plants that have the allergenic genes removed.

However, Aranex is facing some obstacles with funding, and officials anticipate having some difficulty with regulations.

The problem Aranex is running into is whether these plants constitute a GMO. The genomes have been edited, but not to add something foreign, like in the case of herbicide tolerant crops. Instead, it's to have something removed.

[CEO Chloe Gui says that financial backers](#) [8] are concerned that GMOs are too risky an investment right now. Furthermore, in the United States at least, if technicians use a bacteria (their current plan) to introduce the CRISPR-Cas9 system into the plants, the nuts would automatically qualify as a GMO. But if they use a gene gun to do so, the genetically modified label is not a necessarily a given.

It's still unclear when these peanuts will be available. But what is clear is that biotechnology and genetic engineering continue to have the potential to improve human life.

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**Links**

[1] <https://cogito.cty.jhu.edu/43517/should-peanuts-be-banned-at-school/>

[2] <http://detroit.cbslocal.com/2013/04/24/mom-demands-school-go-peanut-free-for-allergic-child/>

[3] <http://acsh.org/2015/07/genome-editing-is-now-cheap-and-easy-question-of-who-owns-technology-is-not/>

[4] <http://acsh.org/2015/08/cow-cruelty-condoned-by-anti-gmo-groups/>

[5] <http://www.geneticliteracyproject.org/2015/07/26/swan-song-for-antibiotics-can-phage-therapy-and-gene-editing-fill-the-gap/>

[6] <http://www.aranexbio.com/>

[7] [http://www.theguardian.com/technology/2015/sep/13/future-of-food-what-we-eat?CMP=share\\_btn\\_tw](http://www.theguardian.com/technology/2015/sep/13/future-of-food-what-we-eat?CMP=share_btn_tw)

[8] <https://www.inverse.com/article/6444-aranex-biotech-is-genetically-engineering-a-hypoallergenic-peanut>