# GMO Study Finds Altered Amino Acids May Increase Histamine Reactions

One of the criteria the Food and Drug Administration considers when deciding whether or not to approve a GMO is called "substantial equivalence." This means the nutritional profile and toxicity levels of the modified plant are within the same range as a non-modified plant. When a new strain of corn is similar enough to the original to demonstrate substantial equivalence, the product is free to pass to market with fewer safety checks. A new study looking more closely at the differences between a specific variety of GM corn, Monsanto's NK603, and the non-modified corn it is derived from is challenging that principle.

Substantial equivalence is a standard practice in the industry. The GM crop database notes that

> *…small statistical differences between NK603 and control lines were observed only in: six amino acids (alanine, arginine, glutamic acid, histidine, lysine, and methionine) as measured in grain from European trials (no differences were observed in material from U.S. trials); and stearic (C18:0) acid levels. Overall, these differences were not consistent across all trial sites and they were considered to reflect random variation. All compositional results were within the ranges observed for commercial non-transformed lines."*

Peer reviewed research from Dr. Michael Antionou at King's College in London has found that the differences in those amino acids are more important than Monsanto has considered or is disclosing.

# Amino Acid Differences May Increase Allergic Reactions

In the words of Dr. Antionou,

> *Our study clearly shows that the GM transformation process results in profound compositional differences in NK603, demonstrating that this GMO corn is not substantially equivalent to its non-GMO counterpart. The marked increase in putrescine and especially cadaverine is a concern since these substances are potentially toxic, being reported as enhancers of the effects of histamines, thus heightening allergic reactions, and both have been implicated in the formation of carcinogenic nitrosamines with nitrates in meat products.”*

GMOs have been cited several times as a factor in the increase in allergies worldwide, though many scientists and researchers have remained firm in their conviction that GMOs do not contain any known allergens. The differences in amino acids found in this study suggest that while NK603 may not be derived from a substance known to cause allergies, the specific amino acids it enhances increase the likelihood of allergies occurring. Both putrescine and cadaverine are considered toxic in large doses. One could argue that GMO corn has such small amounts that it doesn’t matter, but does that argument take into account the amount of those compounds accumulating in the body over time? Without knowing the quantity of GMOs being consumed on a daily basis and the amount of chemical compound build up, it’s impossible to rule out the NK603 as a cause in increased allergic reactions.

# GMO Regulation is Missing a Big Puzzle Piece

Getting a GMO approved in the United States involves three

different government agencies, the Environmental Protection Agency, the Food and Drug Administration, and the U.S. Department of Agriculture. It's a tremendous undertaking, with the average development and approval process from four years ago costing 136 million and taking 13 years. Once the company presenting the product has proved "substantial equivalence" though, it is assumed that the crop is safe and ready for market. From that point, there is no longer any incentive to continue safety testing and research. These companies are fundamentally altering the building blocks of the food we eat. Valid, peer-reviewed studies showing the negative effects of these manipulations continue to appear. Saying a product has been safety tested before its initial release is different from saying something is safe when released with incomplete information and saying that it is safe after more than a decade of data has suggested otherwise.

The companies seeing billion dollar profits from the product are left to correct the negative long term effects, often to the detriment of profits. What company is willing to do that? Regulatory systems are allowing one of the necessities of life to be irrevocably altered. A system that does not force a company to at least acknowledge (let alone fix) that alteration and its negative effects is a broken system.

**Recommended Reading:**

- Understanding and Detoxifying Genetically Modified Foods
- *Doctors Against GMOs – Hear From Those Who Have* Done *the Research*
- *GMO Facts and Arguments*
- *GMO Science*
- *How to Avoid GMOs*
- *How To Detoxify and Heal From Vaccinations – For Adults and Children*

**Sources:**


- *New Study Raises Questions About the Safety of Eating GMO Corn* – Alternet
- *GM Crop Database – NK603* – Center for Environmental Risk Assessment
- *Why Are US and EU Policies Towards GMOs so Different?* – AgBioForum
- *Are GMOs Cause of Recent Spike in Food Allergies* – Genetic Literacy Project