

## Impossible Burger blowback: Will irrational fears of biotechnology block introduction of sustainable foods?

Two entities that seem like they should be on the same page — a coalition of environmental groups and a plant-based food company — are at odds.

And the flash point is a veggie burger.

Impossible Foods ... is facing scrutiny about the safety of a key ingredient in its trademark Impossible Burger, commonly known as “the veggie burger that bleeds.”

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The controversy arose ... when the [New York Times](#) published an article highlighting correspondence between the FDA and Impossible Foods that environmental groups say indicates that the protein had not met the agency’s approval before going to market about a year ago.

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“Currently our FDA, EPA and USDA regulations are falling behind the very quickly moving development of new technologies, and one of the ways that our regulatory agencies are falling behind is they are not assessing the process of genetically engineering these ingredients,” said Dana Perls of Friends of the Earth, one of the groups that raised concerns about Impossible Foods’ safety testing.

***[Read the GLP’s [profile](#) on Friends of the Earth.]***

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[The company’s CEO and founder, Patrick Brown] said the groups’ objections are more about the use of biotechnology than the product itself.

“The vast majority of their effort is an antiscience, anti-GMO crusade,” Brown said. “Their strategy has tended to be to try to effectively take down any company that is using biotechnology by whatever means they can come up with.”

***[Editor’s note: Below is a letter by Impossible Burger CEO and founder Patrick Brown, republished in full with permission from the company.]***

The New York Times published an Aug. 8 article falsely implying that Impossible Foods is trying to evade US Food and Drug Administration regulations and putting consumers at risk by selling a product (the Impossible Burger) containing soy leghemoglobin. The article was chock full of factual errors and misrepresentations and was instigated by an extremist anti-science group with the deliberate intention of damaging our reputation.

Here's the truth:

The greatest threat the world faces today is the enormously destructive impact that our use of animals as a food technology has on climate, water, wildlife and biodiversity, global food security and political stability. Although little known to the public and almost completely ignored by the news media, this threat is well recognized by environmental and climate scientists and organizations including the [UN Environmental Program](#), the [UN Food and Agriculture Organization](#), and the [Union of Concerned Scientists](#), among many others. The problem is not going to be solved by asking that people give up, or even reduce, consumption of the animal-derived foods they love; the demand for meat, fish and dairy foods is growing even faster than the human population. Nothing is more important to the planet our children and future generations will inherit, or their quality of life, than finding a solution to this dilemma.

That's why I founded Impossible Foods. Our singular mission is to enable the world to continue to enjoy the foods they love and increasingly demand, without catastrophic damage to the environment. Our strategy was simple: invent a better way to transform plants into delicious, nutritious, safe and affordable meat, fish and dairy foods that consumers love. Then let consumers choose. If we do our job right, the market will take care of the rest. Commitment to the health, nutrition and safety of our customers is an inseparable part of our mission; it's at the heart of why we exist, embedded in our ethos and everything we do.

With support from investors who understand and believe in our mission, we built a team of scientists who have worked tirelessly on this problem, understanding meat – what underlies its flavor, texture and all its physical properties – far better than it was ever understood. One of many discoveries they made, perhaps the most important, is that a molecule called heme is what makes meat taste like meat. Without heme, you can't make meat that will satisfy the billions of people who love meat.

Heme is an iron-containing molecule that's essential for life on Earth. It's found in every living organism. It's the magic molecule that enables the cells in our bodies and in every living being on Earth to benefit from the oxygen in our atmosphere. It's the molecule that carries oxygen in our blood, makes our blood red and our lips pink. Because it's in every plant and animal, humans have been eating heme every day since the first human walked on Earth. The reason that animal tissues (meat) tastes like meat and unlike any vegetable, is that animal tissues contain hundreds to thousands-fold more heme than plant tissues.

To accomplish our essential mission, we needed to find a safe way to produce heme without using animals. We used yeast cells, into which we introduced a plant gene encoding a protein called soy leghemoglobin that's naturally found in the roots of soy plants. The heme in the Impossible Burger is atom-for-atom identical to the heme found in meat, fish, plants and other foods. Soy leghemoglobin carries the heme

molecule in the same way a very similar protein, myoglobin, carries heme in muscle tissue (meat). Myoglobin is just one of the thousands of different heme proteins we all consume safely in our diets every day.

The health and safety of our customers is our first priority. The foods in our diet and the molecules and ingredients they contain are by default presumed to be safe, but only a minuscule fraction have ever been scientifically tested for their safety. Although there was never a reason to suspect that soy leghemoglobin would pose any more risk than myoglobin, or any of the new proteins we encounter in our diet all the time, we started four years ago to do a deep scientific study of its safety, including any potential for toxicity or allergenicity. The data we collected and our analyses were documented and reviewed by three independent food-safety experts in toxicology, allergenicity and yeast. In 2014, this expert panel unanimously concluded based on all the evidence that the protein is generally recognized as safe ("GRAS") for human consumption. This is the approach followed by thousands of food companies to meet the FDA requirement that foods be generally recognized as safe. But we did more.

There is no legal or regulatory requirement that a company's finding of GRAS be submitted to the FDA for review. And it's frequently not done. In fact, a total of only 709 have been submitted since the GRAS Notification system was put in place almost 20 years ago in 1998. But we did it — because we recognize and respect the value of the FDA as guardian of the safety of the American food supply, one of the safest in the world.

We wanted the FDA to review our GRAS determination, to have the added benefit of their expertise, and to assure consumers that our testing of leghemoglobin has passed the most rigorous scrutiny. After submitting our GRAS determination, the FDA reviewed it, and had some questions. To address them, we conducted additional tests. And the tests turned out just as we expected: no adverse effects in rats consuming leghemoglobin every day for a month at levels more than 200 times what an average American would consume if all the ground beef in their diet were the Impossible Burger, and very low risk of allergenicity. A panel of the world's leading experts in food safety and allergenicity has reviewed the new data, as well as the data originally submitted.

The expert panel has again unanimously concluded that soy leghemoglobin is safe; it is GRAS.

Impossible Foods has always worked constructively with the FDA, whose role as guardian of food safety for the nation we deeply respect. We will be submitting the additional data, along with the expert panel's analysis of it, to the FDA this month. And FDA will make Impossible Foods's submission — hundreds of pages of safety and allergenicity test results and the expert analysis of those results — publicly available on its web site soon thereafter. In addition, in an abundance of caution, we clearly label our product as containing potential allergens: wheat and soy — also in compliance with federal regulations. Finally, restaurants where the Impossible Burger is sold also comply with federal regulations about labeling.

*Impossible Foods is proud of the safety of its first product, the Impossible Burger, and is committed to the health and safety of our customers. That's why we've gone far beyond merely complying with food safety regulations, and we always will. I am confident in saying that the Impossible Burger is the safest and most thoroughly safety-tested burger in history. In striking contrast, the alternative, animal-derived burger is [one of the least safe](#) and [most inadequately tested](#) foods on the market.*

*And we're committed to solving the most urgent threat the world faces today: the use of animals in the food system. Since the small-scale launch of the Impossible Burger, with just 50,000 lbs sold to date (10 billion lbs of ground beef were sold in the same time period), and working with our great restaurant partners, the Impossible Burger has already had an outsized impact: we've had an overwhelmingly positive response from consumers, and we've reduced greenhouse gases emissions by the equivalent of removing 246 American cars from the road for a year, reduced the land footprint of meat production by an area half the size of New York's Central Park, saved as much fresh water as 50,000 average Americans drink in a year, and saved more than 100 cows from slaughter. We can't solve this problem unless people love our burger.*

*Impossible Foods intends to be the most open and transparent company in the world. We welcome every opportunity to answer questions from the public and media, and share our answers on our social media channels. Before deciding how you feel about Impossible Foods or the Impossible Burger, read our story and then decide for yourself.*

**The GLP aggregated and excerpted this article to reflect the diversity of news, opinion and analysis. Read full, original post: [Impossible Foods gets heat from environmentalists over safety](#)**