

Impossible Foods Wins Fake Additive Ruling

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✓ Fact Checked

STORY AT-A-GLANCE

- › Impossible Foods' meatless burgers contain substantial amounts of GE soy leghemoglobin, which humans have never before consumed
- › The FDA approved soy leghemoglobin in 2019, prompting the Center for Food Safety (CFS) to file a lawsuit challenging the approval, which they called "unusually rapid" and risky for public health
- › CFS points out that soy leghemoglobin is produced using synthetic biology, or "genetic engineering on steroids," which constructs new biological parts, devices and systems that do not exist in the natural world
- › Impossible Foods' rat study was not large or long enough to meet minimum FDA requirements, yet still showed some concerning health risks, including disruption of reproductive cycles
- › Many tech big-wigs are invested in fake meat products, which they plan to peddle to feed the masses, but these highly processed junk foods are a disaster for both human health and the environment

Impossible Foods touts its fake meat burgers as health food that's also good for the environment – both myths. Among its highly-processed ingredients is soy leghemoglobin, or heme. This, the company says, is what makes meat taste like meat, and, in plants, leghemoglobin is the protein that carries heme, an iron-containing molecule.

Originally, Impossible Foods harvested leghemoglobin from the roots of soy plants, but deemed that method unsustainable. Instead, they turned to genetic engineering, which they use to insert the DNA from soy plants into yeast, creating genetically engineered (GE) yeast with the gene for soy leghemoglobin.¹

The U.S. Food and Drug Administration approved soy leghemoglobin in 2019, prompting the Center for Food Safety (CFS) to file a lawsuit challenging the approval, which they called “unusually rapid”² and risky for public health.

Unfortunately, the federal appeals court in San Francisco upheld the FDA’s approval, which has allowed Impossible Burgers to hit grocery stores across the U.S.³ and ensures that the potentially hazardous ingredient can remain on the market.

Impossible Foods has even been granted Child Nutrition Labels, paving the way for their products’ use in K-12 schools.⁴ Already, a pilot program has the fake meat being used in U.S. school districts in dishes such as Impossible Street Tacos, Impossible Frito Pie and Spaghetti with Impossible Meat Sauce – a concerning trend considering the novel foods’ absence of long-term safety testing.

GE Heme Is New to the Human Diet

Humans have never before consumed GE heme. To be clear, while Impossible Foods refers to it as “heme,” technically plants produce non-heme iron, and this is technically GE yeast-derived soy leghemoglobin.⁵ Heme iron only occurs in meat and seafood. Impossible Foods’ GE heme is used in “substantial quantities” in their [fake meat burgers](#) as a color additive that makes the product appear to “bleed” like real meat.

Further, more than 12 yeast proteins also exist in the GE heme, the health effects of which are unknown. Because color additives in food are not a substantively beneficial addition but, rather, are used only to improve aesthetics, they’re supposed to be held to a higher standard of safety for approval compared to other food additives.

This wasn’t done, according to CFS, which called the FDA’s approval of GE heme as a color additive “unlawful.” CFS staff attorney Ryan Talbott explained:⁶

"FDA's failure to require Impossible Foods to conduct long-term tests called for in the agency's own authoritative guidelines means it does not have 'convincing evidence' that this color additive, consumed by millions, is safe. The approval of soy leghemoglobin must be revoked, unless and until truly convincing evidence proves it to be safe."

What Are the Possible Health Risks?

In 2015, Impossible Foods first suggested to the FDA that soy leghemoglobin should be given GRAS (generally recognized as safe) status. The FDA didn't agree at the time and, in documents revealed by a Freedom of Information Act request, was concerned about the novelty of the substance and its potential to cause allergic reactions.⁷

In 2017, the company again tried to gain approval for GRAS status, submitting data to the FDA from a rat study they had commissioned.⁸ Bill Freese, CFS science policy analyst, explained:⁹

"... a number of potential adverse effects were detected in [the] short-term rat trial: disruption of reproductive cycles and reduced uterine weights in females, and biomarkers of anemia, reduced clotting ability, and kidney problems."

Impossible Foods brushed off the adverse effects as transient or "non-adverse" because they were not dose-dependent and sometimes went away in a few days, without showing any clear patterns.

The exception was disruptions to the rats' reproductive cycles, which prompted Impossible Foods to commission a second rat feeding study, which did not find that feeding soy leghemoglobin altered the rats' estrus cycle.¹⁰ However, the studies weren't long enough to reveal any long-term effects that may occur after consuming the new-to-humans ingredient for years.¹¹

Impossible Foods Study Didn't Meet FDA Requirements

According to the CFS lawsuit, Impossible Foods' rat study did not meet the FDA's minimum requirements for a subchronic toxicity study, as they contained only 10 rodents per sex per group and were conducted for only 28 days, while guidelines require a minimum of 20 rodents per sex per group fed the test substance for a minimum of 90 days.¹² CFS stated:¹³

"Despite not meeting the minimum requirements for a subchronic toxicity study, FDA relied on this study to support its decision approving soy leghemoglobin as a color additive.

Moreover, even though Impossible Foods' 28-day study did not comply with the minimum requirements for sub-chronic toxicity studies, it still resulted in statistically significant toxicological effects in some rats that should have triggered further testing for longer periods of time and with the appropriate number of test animals.

However, FDA discounted these observed effects stating that because the changes did not occur in both sexes, they were insignificant. There is no basis for this rationale in FDA's toxicity study guidelines."

Freese added:¹⁴

"FDA approved soy leghemoglobin even though it conducted none of the long-term animal studies that are needed to determine whether or not it harms human health. This includes studies for cancer, reproductive impairment, and other adverse effects called for by FDA's Redbook, the Bible of food and color additive testing."

'Genetic Engineering on Steroids'

In their lawsuit, CFS points out that soy leghemoglobin is produced using synthetic biology, or "genetic engineering on steroids," which does not shuffle DNA pieces between species but instead constructs new biological parts, devices and systems that do not exist in the natural world:¹⁵

“This aggressive form of genetic engineering operates ‘in a ‘Wild West’ free-for-all environment with virtually no regulatory oversight.’ It is through this extreme form of genetic engineering that Impossible Foods creates its meatless products.”

The reason why Impossible Foods turned to synthetic biology to produce GE soy leghemoglobin is because it couldn't extract enough of the substance directly from soybean roots to produce its fake meat products on an industrial, mass-produced scale. The FDA GRAS for soy leghemoglobin is 526 pages long, if that gives you any idea of the industrialized complexity of this so-called GRAS “health” food.¹⁶

Despite the fact that this color additive is unlike anything in nature, FDA granted GRAS status, which is supposed to apply to substances that are “generally recognized, among experts qualified by scientific training and experience to evaluate its safety, as having been adequately shown through scientific procedures ... to be safe[.]”¹⁷

In response to the court's ruling that the FDA's approval of soy leghemoglobin would stand, CFS senior attorney Sylvia Wu said in a statement:¹⁸

“We are disappointed by the court's ruling ... which will allow Impossible Burger and other meatless burgers to be made with a novel genetically engineered chemical without conducting any long-term health studies. FDA is supposed to protect consumers from unsafe novel chemicals in our food supply, instead now consumers bear the burden of avoiding these GMO plant-based burgers.”

Gates Invested in This Tech Food to Feed the Masses

Consulting firm Kearney has forecast that animal protein will peak in 2025, while plant-based meat will continue to grow, reaching \$450 billion by 2040, at which point it would represent up to 25% of the meat market — a \$1.8 trillion industry.¹⁹ Many tech big-wigs are invested in fake meat products, which they plan to peddle to feed the masses.

Impossible Foods was co-funded by Google, Jeff Bezos and Bill Gates,^{20,21} and Gates has made it clear that he believes switching to synthetic beef is the solution to reducing

methane emissions that come from animals raised on **concentrated animal feeding operations** (CAFOs).²²

The strong recommendation to **replace beef with fake meat** is made in Gates' book "How to Avoid a Climate Disaster: The Solutions We Have and the Breakthroughs We Need," which was released in February 2021.²³ In an interview with MIT Technology Review, he goes so far as to say that people's behaviors should be changed to learn to like fake meat and, if that doesn't work, regulations could do the trick.²⁴

Gates, by the way, invests in fake meat companies and is **buying up U.S. farmland** at a frenzied pace. Tech billionaire Bill Gates, co-founder and former CEO of Microsoft, may seem a strange fit for the role of America's top farmer.

But he's been quietly amassing massive tracts of U.S. land under the cover of investment firm Cascade Investment, LLC, and now owns a minimum of 242,000 acres of U.S. farmland²⁵ in Washington, Illinois, Iowa, Louisiana, California and multiple other states.

The acreage seems earmarked for GE corn and soy crops – the base foods for what will become an increasingly synthetic, **ultraprocessed food** supply made up of imitation meats.

The plan to get consumers used to replacing their burgers with synthetic fake food has been underway since at least 2014, when a group of powerful agribusiness executives met to organize a PR campaign that would put synthetic biology and GMOs in a more favorable light. Dana Perls, from Friends of the Earth, attended the meeting and later wrote:²⁶

"The meeting was under Chatham House rules – which means I can't disclose who said what. However, I can say that the meeting was an alarming insight into the synthetic biology industry's process of creating a sugar-coated media narrative to confuse the public, ignore the risks, and claim the mantle of 'sustainability' for potentially profitable new synthetic biology products.

Over the course of the day, primarily CEOs, directors and PR people from powerful chemical and synthetic biology companies, bounced around tales of promise, discussed how to position synthetic biology as a 'solution' to world hunger, and made blithe claims of safety that were not backed up by any actual data.

... When I asked how biotech companies will protect small farmers who are producing the truly natural products, I was met with a hard cold stare, silence and a non-answer about needing to meet 'consumer demand.'"

Grass Fed or Lab Fed: Which Is Best?

Impossible Foods claims that they have a better carbon footprint than live animal farms and hired Quantis, a group of scientists and strategists who help their clients take actions based on scientific evidence, to prove their point.

According to the executive summary published on the Impossible Foods website, their product reduced environmental impact between 87% and 96% in the categories studied, including global warming potential, land occupation and water consumption.²⁷ This, however, compares fake meat to meat from CAFOs, which are notoriously destructive to the environment.

White Oak Pastures in Bluffton, Georgia, which produces high-quality grass fed products using regenerative grazing practices, commissioned the same analysis by Quantis and published a 33-page study showing comparisons of White Oaks Pastures emissions against conventional beef production.²⁸

While the manufactured fake meat reduced its carbon footprint up to 96% in some categories, White Oaks had a net total emission in the negative numbers as compared to CAFO-produced meat. Further, grass fed beef from White Oak Pastures had a carbon footprint that was 111% lower than a typical U.S. CAFO and its regenerative system effectively captured soil carbon, which offset the majority of emissions related to beef production.²⁹

“Within our margin of error,” the report noted, “there is potential that WOP [White Oak Pastures] beef production is climate positive. This would be very rare and it is unusual that there is more benefit to producing something than to simply not produce,”³⁰ but it’s within the realm of possibility when it comes to properly raised **grass fed beef**. Fake meat produced in a lab simply can’t compare, both in terms of the **environment and human health**.

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