

Food Babe flops on BRCA mutations: Understand genetics or go home

Part of the reason so many writers vilify charlatans like Food Babe, Dr. Oz, Joseph Mercola, and Vandana Shiva is that they represent everything disgraceful about unscientific propaganda.

Cancer misinformation is among the most tragic unscientific rhetoric. First, it deigns to blame the cancer victim for bringing the disease onto him or herself, when in fact many cases of cancer are not preventable. Second, promoting naturopathy as an alternative to evidence-based treatment or preventative measures is misleading. When an unsuspecting cancer patient forgoes evidence-based medicine, the result is often death.

Case in point: This is an [old post](#) that a reader brought to my attention. This woman has a BRCA mutation, so it hits close to home for her, and so many others with BRCA mutations that are bombarded with non evidence-based advice.

Facebook screenshot- Food Babe speculates about BRCA mutations

I was stunned. Talking about an entire scientific field of study that you clearly know zilch about is astounding. I responded as follows on my public [Facebook](#) page:

*"This is why ignorance from people like Food Babe makes me so angry. Spouting so called "puzzlement" and "concern" about cancer while you obviously have no idea what you're talking about is deplorable. First of all, one doesn't test "positive for the BRCA gene." *Everyone* has BRCA1 and BRCA2 genes. Both of these genes code for tumor suppressor proteins. When there is a defective mutant allele in certain region of these genes, the tumor suppressor proteins aren't produced, or don't function correctly. Still, everyone has a copy of these genes inherited from each parent, so the un-mutated copy produces the proper proteins, thus compensating for the deleterious mutation on the other copy.*

*The problem is it's much more likely, almost certain that a mutation will occur in one cell on the "good" version, so now both copies are messed up eventually leading to cancer. For someone without one of these inherited mutations, a somatic mutation would have to occur on *both* copies of the gene in the same cell. Statistically, it's very unlikely that this will happen, so this specific, nasty form of breast cancer will not occur in a person without a mutation inherited from mom or dad. So statistically, a person that has inherited one of these problem alleles is pretty much screwed. (This is a very simplified explanation.) Sorry Food Babe, all the organic kale and healthy smoothies in the world don't change that. Shame on you. Stick with what you know. And no, you don't "know" anything about agriculture, chemistry, or biology worth the sugar in my toxic morning coffee."*

To put it simply, there are two main types of genes associated with cancer: Proto-oncogenes and tumor suppressor genes. Proto-oncogenes code for proteins that regulate cell growth. When these proteins are synthesized properly, some tell cells when they should grow (e.g. during fetal development.) Other proto-

oncogenes help synthesize proteins that tell cells when to take one for the team and die. Certain mutations in these genes can lead to cells growing out of control, AKA cancer.

BRCA genes are tumor suppressor genes. The relevant deleterious mutations in BRCA1 and BRCA2 demonstrate the “two-hit” tumor suppressor carcinogenesis model, also known as the [Knudson Hypothesis](#). We each get two copies of all twenty-two somatic chromosomes, one from each parent, plus one sex chromosome from each parent, an X from mom, and an X or Y from dad. We inherit two copies of every gene, including BRCA1 and BRCA2. These genes produce proteins that help repair a specific type of DNA damage. The likelihood of both copies sustaining deleterious mutations in the *same cell* (two somatic hits) is relatively low.

Let’s say one of the copies someone inherits from either parent is mutated in a way that makes this protein either not work, or not get synthesized at all. (A mutation from a parent is called a “germline” mutation; germ cells make sperm and egg cells. Mutations that happen in the body after conception are called “somatic.”) In this case, the baby is born with one hit in *every single cell* already. All it takes is for the second copy to get mutated anywhere (along with other complex events I won’t describe today,) and the unfortunate individual is on the road to cancer. Thus, when someone is born with one of these BRCA mutations, s/he is [far more likely](#) to develop breast or ovarian cancer – up to a 65% or more lifetime chance of breast cancer. In addition, a parent with an inherited mutation has a 50% chance of passing it to each offspring.

Pair of dice

Image not found or type unknown

Cancer is often like this

Imagine a situation in which most people get to roll two dice, and rolling two 3s means a likely cancer sentence. People born with these mutations have two dice, but one die has 3s on all sides.

You see Food Babe, there is much that scientists have to learn about cancer. Cancer is not one disease with one cure, but a plethora of diseases with a high level of heterogeneity, even within a single patient. Nevertheless, there is much that science *already knows*. While my explanation is extremely abridged, it is embarrassingly obvious that you DON’T UNDERSTAND WHAT YOU’RE TALKING ABOUT. It’s painfully clear that you are “puzzled.” Not for the snarky reason you imply, but because you have no idea how these type of cancers happen. If you did, you would realize that eating the “best foods” or avoiding toxins

won't "prevent cancer naturally."

Yes, cancers are immeasurably more complex than I've described them here. Yes, healthy diet and lifestyle are important. But what you deem "healthy" and what experts deem healthy are vastly different. Environmental factors that cause cancer include smoking, obesity, certain viral infections, and [radon gas](#). Factors that [don't cause cancer](#) include GMO foods, vaccines, sugar, and caramel coloring in lattes. Things that don't prevent or treat cancer include organic foods, herbal remedies, or green juice. What you're doing boils down to victim-blaming and fear-mongering.

In case you haven't noticed, the pro-science community has had enough. Extraordinary claims require extraordinary evidence. Put up or shut up.

This piece was adapted from: ["Food Babe, Stop Giving Cancer Advice. It Makes You Seem Reckless."](#)

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Additional Resources:

- [Beyond family history: Should all women be screened for BRCA breast cancer genes?](#)
- [Breast cancer genes: Beyond BRCA1 and BRCA2](#)