

'Drink like there is tomorrow': Inside the quest to prevent hangovers with a GMO probiotic

"Drink like there's tomorrow" that is the company slogan of ZBiotics, the [synthetic biology](#) company selling a probiotic supplement that prevents hangovers. With its recent launch on August 17th, the FDA compliant, patent-pending probiotic drink is the first genetically engineered probiotic to break down a toxic byproduct of alcohol called acetaldehyde, and it works.

I first met ZBiotics CEO and founder, Zack Abbott, at the Silicon Valley seed accelerator [Y Combinator's](#) Demo Day in 2018. He recognized me from my weekly [SynBioBeta newsletter](#) and came up and introduced himself. With a big smile he told me that he was working on a probiotic hangover cure, and handed me a sample. As I was walking away I thought to myself, "That is the stupidest idea I have ever heard of — typical Silicon Valley entrepreneurs, solving first-world problems."

Today, I am an advisor to the company (for full disclosure).

A few months following my first meet with Zack, I met him again and we got to talking about the effects that alcohol has on the body. It turned out that Zack has a Ph.D. in cancer biology and knew the biochemical and physiological effects of alcohol better than anyone I have ever met. Finally, a few months later at an office party, I downed the little ZBiotics bottle containing the magic [hangover](#) cure elixir. The next morning, I woke up feeling much better than I deserved with a guilty smile on my face — it actually worked!

Now, you might be asking yourself, "Why has this not been done before?" After all, our history of drinking alcoholic beverages is [thousands of years old](#), and the idea of a hangover cure is nothing new. But as Zack explains, many of the remedies that have popped up over the years were based mostly on storytelling and brand, rather than actual science. "We had to create something new to address the problem because nature didn't have a solution," Zack says. "If nature had a solution, humanity would've found it before 2019!"



The ZBiotics team pictured (from left to right) John W. Oliver, VP Research & Development, Kat Townsend, VP Marketing, Stephen Lamb, COO & Co-Founder, Zack Abbott, CEO & Co-founder. Image ZBiotics

The idea of using science to tackle the gruesome hangover seemed like a great first step. “We decided to do real science, and purpose-build a product that breaks down acetaldehyde. It’s just one of the known byproducts of alcohol metabolism, but it’s a big one that had yet to really be addressed,” Zack says. With the little ZBiotics bottle, Zack and his team have built the world’s first-ever genetically engineered probiotic to break down acetaldehyde, using an enzyme similar to one your liver naturally uses, to catabolize acetaldehyde and prevent a side effect of drinking.

Genetically engineered? You might be wondering, Is that safe? Well as Zack explains, “The fact that a product is a GMO has very little to do with whether or not it’s safe.” Genetic engineering is a technology that scientists can utilize to create new products by removing, adding, or changing an organism’s DNA and thereby its characteristics.

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Without genetic engineering, we would have a hard time making enough insulin to save the world's diabetic patients, as most insulin today is “GMO”. Genetic engineering also helps scientists study diseases such as Alzheimer's by creating models to test new drugs or to understand the underlying mechanisms behind diseases.

The idea to cure hangovers might seem a bit less pressing — or as in my initial reaction “stupid” — when compared to curing diseases. But beginning with this product, ZBiotics has created a technology platform that enables them to work on “[Probiotics 2.0](#)” — the next steps for engineered probiotics.

“As a start, we're focusing on making bacteria that can help protect you from toxic compounds in the food and water you ingest, or help you absorb nutrients more efficiently, or help you resist infectious diseases,” Zack says. “The possibilities are practically endless.”

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Zack Abbott at the SynBioBeta Conference in 2018. Image: SynBioBeta

With my positive experience in ZBiotics' GMO probiotic saving my “day after” on a few occasions, I ask Zack if he, himself uses it.

“Every time I drink (which honestly is actually quite infrequent these days because the company keeps me pretty busy). It saved my life at my bachelor party last summer. And it made for a pretty awesome wedding party favor for our guests a few months later!”

Engineered probiotics and other microbes provide amazing opportunities for humanity. As Zack puts it: “Human health, agriculture, climate change, materials science, and consumer goods will all see huge innovation and benefit in the next 50 years, thanks to engineered microbes.”

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