

ARCHIE
LOOKS DIFFERENT

NOT-SAD DESK SALAD

WEAR
A BETTER POLO

RUSSELL SIMMONS'S
CAREER

ETC

The



Solution

A cosmetics startup knows that live microbes are the secret to healthier skin. Will anyone believe that?
By Caroline Winter

ost startups have a fridge full of beer. At AOBiome in Cambridge, Mass., there's no room for booze. The shelves are loaded with bottles of the biotech company's signature product, a live-bacteria solution to spritz on the face and body. The spray is intended

to help reduce a user's dependence on soap, deodorant, and moisturizer. "It's a challenging concept," says Jasmina Aganovic, AOBiome's general manager for consumer products. "We live in a world with Purell on every corner."

To make spray-on bacteria more appealing, AOBiome is reintroducing its line this summer under a new name, Mother Dirt, a reference to the soil from which the key ingredient is derived. The company also created playful packaging and is releasing bacteria-friendly shampoo and cleanser. "We've been glued to our computer screens watching the response online," Aganovic says on relaunch day in early July. She's standing in AOBiome's office, a windowless room with red walls near the Massachusetts Institute of Technology. "This is our best day ever," she adds. Hundreds of orders have come in, sometimes as many as 10 per minute. Almost half are from new customers.

The idea behind the \$49 mist goes back to the late 1990s, when the company's founding scientist, David Whitlock, an MIT-trained chemical engineer, went on a date with a bubbly fifth-grade teacher, who asked him why her horse liked rolling in the dirt. Hoping to impress her, Whitlock began brainstorming and eventually realized that ammonia-oxidizing bacteria (AOB) in the soil must be helping the animal clean itself. "I read a few hundred papers and realized if horses evolved this behavior, it must be important," he says.

Romance never blossomed with the teacher, but Whitlock continued reading up on biology, gathering soil samples, and growing bacteria in his basement. AOBs, he learned, convert the urea and ammonia in sweat—which is abrasive to the skin, causing acne and irritation—into nitrite, which fights most bad bacteria, and nitric oxide, which has anti-inflammatory properties. Whitlock concluded that the useful bacteria once lived on humans, too, at least until we began sterilizing our body with countless lotions and potions.

AOBiome is the first cosmetics company to

market a product that purposely contains live bacteria—they don't cause illness, even if ingested—which sets Mother Dirt apart from the glut of recent scientific skin-care items. Other companies, including giants L'Oréal and Estée Lauder, are also investigating the role of bacteria in healthy skin. Clinique advertises "probiotic technology," though its products contain preservatives that may kill living strains. (Clinique didn't respond to requests for comment.) Earlier this year, scientists at New York University Langone Medical Center published an inventory of bacteria living on members of the isolated Yanomami tribe in Venezuela's Amazon. Its members don't use Western hygiene products or antibiotics—and incidentally have few skin problems.

Topical bacteria products are aimed at a culture that's increasingly all-natural. "It wasn't too long ago that the parents who gave their babies organic baby food were considered extremist," says David Finkel, an investor in AOBiome. "Today, if you don't do that, you're considered a bad parent." Larry Weiss, the company's chief medical officer, points to the American obsession with yogurt containing live cultures. "Look, if I told you 10 years ago that major food companies would be selling that," he says, "you'd have been shocked."

On a hunch in 2000, Whitlock began adding AOB to water and dousing himself daily. He dispensed with all modern hygiene, because soaps, even natural ones, kill the microbes, as do the preservatives in most products. As he suspected, the bacteria kept him clean and odor-free. It's been about 12 years since Whitlock's last shower. His skin looks great, and he smells perfectly fine.

He never intended to sell his tonic as a beauty product. But in 2010, he won a broad-ranging patent for all application of AOBs to the human body. Three years later, Whitlock co-founded AOBiome as a pharmaceutical company focused on getting U.S. Food and Drug Administration approval for bacteria-based prescription therapies for acne, eczema, rosacea, wound healing, and more. The team raised two rounds of seed funding from more than a dozen



The old packaging concept...



...and a dramatization of it

"It wasn't too long ago that the parents who gave their babies organic baby food were considered extremist"

← Aganovic on relaunch day

angel investors for undisclosed sums. Then they began developing a cosmetic spray to test the concept outside the lab, reasoning that skin-care products are cheaper to get on the market than medications.

They recruited subjects to try the mist for a month. Their product went viral after one guinea pig, *New York Times* writer Julia Scott, wrote about cutting out her personal-care regime. After suffering through an initial phase of greasy hair and smelliness, she fell for the idea. "For the first time ever, my pores seemed to shrink," she wrote. But the product wasn't officially for sale yet. Preorders flew in, and the company, which employed four people at the time, was backlogged for months.

Early adopters were largely urban professionals, not tree-huggers. "They're young people who take an active role in their health and don't necessarily think their doctor knows best," AOBiome's Aganovic says. Men and women ordered the product in equal numbers; many were the type who take probiotics and follow a paleo-style diet. "We have a lot of entrepreneurs," she says. "People have called us the Soylent of skin care."

I was one of these people. I've been using the spray on my face for a year. I still bathe every day—the company doesn't bill itself as a replacement for showers—and wash with regular facial cleanser occasionally, plus wear bacteria-killing sunscreen now that it's summer. But I rely on the mist. Over the winter my skin, which normally turns horribly dry even while using serious moisturizers, was noticeably less irritated.

When friends comment that my complexion looks nice, I tell them about the spray. None have adopted it. One famous makeup blogger looked at me with sheer disbelief, and perhaps horror, when I told her I put bacteria on my face. Many other users refrain from telling anyone at all they're hooked on bacteria. It didn't help that the original spray had a sterile, scientific look, with an awkwardly protruding nozzle.

Hence the rebranding. Aganovic, 28, with a degree in chemical biological engineering from MIT, came up with new tag lines—"Rethink Clean" and "Go Ahead, Get a Little Dirty"—that she says sounded "edgy but not alienating." They chose the name Mother Dirt to highlight the nurturing side of soil. ("Dirt is magic," she adds.) At one point, Aganovic and creative director Mark Drury considered using dreamy images of people dancing through a cloud of dust for the package design. But the resulting test photos, staged using all-purpose flour and the two of them in their undies, were dismissed as too feminine. The end product looks like something you'd find on the shelves of REI, with a logo featuring a small androgynous blob. "We call him



From top: Whitlock in his office; testers at a Brooklyn event; the rebranded products



could fix California's drought problem," he jokes. Most customers are more interested in fixing their face. "I've been waiting for a product like this for years," says Dave Kliman, 49, an app developer. "It's like having a little molecular army of guys cleaning me, little maintenance men. I'm getting cleaner just sitting here." **B**

Mr. Speck, as in speck of dirt," Drury says.

In July, on relaunch day, Whitlock sits at his desk wearing his usual uniform: wire-rimmed glasses, flannel button-down, jeans, and hiking boots. He's often lost in thought. For his 60th birthday in January, his entire staff came to work dressed like him—he didn't even notice. His desk is littered with empty cardboard boxes, a container of latex gloves, and a coffee mug, emblazoned with the logo of the antidepressant Sertraline. "I've been on it for 20 years," he says. After a pause, he adds: "Putting this bacteria on my skin did more for my mental health in terms of depression, PTSD, anxiety, and Asperger's than 20 years of Sertraline and psychotherapy." Because of federal regulations, the company makes no claims about the spray's potential mental or cosmetic benefits.

But Whitlock's personal results are what drives his interest in the work. "We need to do clinical trials," he says. "My biggest fear is the FDA shutting us down if they think we're making false claims."

The team, now 11 people, hopes to make pharmaceutical breakthroughs and earn revenue from existing and new patents. This spring the FDA gave the company the go-ahead for a Phase II study to develop an AOB-based acne medication.

If all goes well, it will be available by 2017. The startup remains unprofitable, though it has enough capital from investors to conduct expensive pharma trials. And if enough people start buying supplies of mist, shampoo, and cleanser—a monthly regime that retails for \$69—Mother Dirt's profits will help fund that medical work. So far, Aganovic says, "several thousands" have tried the spray and become repeat customers.

Two days after the relaunch, AOBiome hosted a dinner for 60 fans in Brooklyn, N.Y., home

to its largest user base. The crowd, gathered at a chic farm-to-table restaurant, includes several entrepreneurs, a lawyer, a stockbroker, and at least one young hedge fund manager who regularly sprays himself and his four young children. "I was expecting people to be a little more hippy-dippy," says Leslie Engel, 38, a redhead who works in philanthropy and uses the mist as the finishing touch of a conventional cosmetic routine that includes deodorant, shampoo, face wash, and makeup. Not that there aren't some oddballs in attendance. "I hate taking showers, because I'm very lazy, and I like to save water," says Hugh Loebner, the former chief executive officer of a metal-parts manufacturer. "This



PREVIOUS PAGE AND BOTTOM RIGHT: PHOTOGRAPH BY BREA SODERS FOR BLOOMBERG BUSINESSWEEK; BACTERIA: GREBCHA/DREAMTIME

THIS PAGE AND OPPOSITE: PHOTOGRAPHS BY DINA LITOVSKY FOR BLOOMBERG BUSINESSWEEK