



Nano-Tex in Emeryville, California, is one company working on everyday uses for nanotechnology. In a converted former women's fitness center, its scientists spend their days ripping and staining clothes to figure out how to protect them.

David Offord, Nano-Tex's chief scientist, became its first employee after an experiment took an unexpected turn. Offord was working for Alnis Biosciences Inc. in Emeryville and experimenting with repellent shells that would protect enzymes and allow them to function in hostile environments, such as oil spills. In his spare time, Offord figured out how to apply the same protective technology to fabrics by wrapping individual fibers in a coating of fluorine atoms, thereby preventing stains. Offord and David Soane, who'd started Alnis, formed Nano-Tex in July 1998. The company won backing from textile maker Burlington Industries Inc., which invested an undisclosed amount and used

Nano-Tex's technology to create water-repelling cotton fabrics and a stain-resistant silk. Billionaire Wilbur Ross bought a 50 percent stake in Nano-Tex through his \$614 million purchase of Burlington Industries in 2003. Ross created International Textile Group by combining Burlington and Cone Mills Corp. in 2004.

Nano-Tex is counting on Gap Inc., L.L. Bean Inc. and other clothing companies to educate customers about nanotechnology, says Renee Hultin, Nano-Tex's executive vice president of global sales. Gap's Old Navy stores sell stain-resistant children's clothes; closely held L.L. Bean markets slacks with similar stain-fighting characteristics. Both companies tout that the clothes' fibers have been specially treated to resist wrinkles and stains using Nano-Tex's technology. "If our products aren't easily understood, there's no need for them," Hultin says. "That translates pretty easily to an investor."

In Nano-Tex's break room, Offord shows off his handiwork. He buys a can of Hawaiian Punch fruit drink from a vending machine and pours the neon-red liquid into colleague Matt Hurwitz's shirt pocket. It sits in the pocket while Hurwitz sips it out with a straw. The shirt—bought off the rack at a Gap store in San Francisco—is unstained and dry because its fibers were treated with Nano-Tex's chemistry.

Offord, 38, says his scientists are working on ways to make clothes that can fix their own small tears or let the wearer change the fabric's colors. He's intent on pushing the science only into useful places and says he fears a nanotechnology craze may lead investors to fund bad ideas. For nanotech research to make sense, a scientist must have a specific problem in mind, he says. "Otherwise, you've got a hammer in search of a nail," he says.

That tricky balance between gee-whiz science and the art of building a viable business is why few venture capitalists are able to sniff out research projects that will generate helpful products and then stick with them, says JoAnne Feeney, an analyst at Punk Ziegel.

Even Harris & Harris, with its exclusive focus on the tiny, has discovered that things don't always go according to plan when cultivating nanotech companies. Nanosys Inc., a Palo Alto, California-based startup that Harris & Harris invested in, works with tiny amounts of silicon and other materials to make lights and electronic devices. It filed to go public in April 2004. Four months later, it pulled the offering. "The timing of that decision was about the appetite for IPOs," Nanosys Chairman Larry Bock says during an interview at the company's offices less than a mile from Stanford University.