

# Neuroscientist's spinout develops a nasal spray to reduce brain swelling after concussion

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As a number of [former athletes](#) come forward with stories of long-term brain damage resulting from blows to the head, the [stigma around concussions is changing](#). And that's opening the door for better diagnostics and treatments for traumatic brain injuries, says neuroscientist Jake VanLandingham.

VanLandingham is an assistant professor at the Florida State University Department of Biomedical Sciences and director of research for the Memory Disorder Clinic at [Tallahassee Memorial Healthcare](#). He and a team of collaborators are doing preclinical work on a drug to reduce inflammation in the brain after a traumatic brain injury.

His drug development [story starts nearly two decades ago](#), when as an undergraduate at Florida State University he experienced a fluke head injury that left him with [three blood clots in his brain](#). He was already studying neurology and physical therapy, but after the injury, his studies took on a whole new meaning.

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Fast-forward to June 2012, when VanLandingham and his team licensed their work from Florida State University and started a company called Prevacus. The company's drug, Prevasol, is a

neurosteroid that in animal models has reduced edema, inflammation and oxidative stress after brain trauma. VanLandingham said it works through a receptor that's in both the neurons of the brain and also at the blood-brain barrier.

"It upregulates three different proteins — one that's critical in removing blood from the brain, another that's reducing inflammatory-mediated cell death in the brain, and a third is important in stabilizing the function of mitochondria inside the brain," he said.

They've created a formulation of the drug that would allow it to be given nasally for as many as 30 days to people who sustain concussions.

The Centers for Disease Control and Prevention estimates that 1.7 million Americans experience a traumatic brain injury each year. But those are just the ones who are treated. One of the challenges with treating concussions is that they're not always detected initially and often go untreated, either because people don't know they have them or [don't want to seek help](#). But that's changing, according to VanLandingham.

"We're seeing a really big shift, at least here in the U.S., where there's [better diagnostics](#) now, and that's helpful for our cause," he said. "But there's also so much more awareness about the long-term poor outcomes of concussion."

Another problem is that current treatments are limited, especially after the so-called "golden hour." For many, rest, surgery or rehabilitation are the recommended interventions. But public attention from [sports](#) and [military](#) communities has created interest around new diagnostics and therapies.

Clinicaltrials.gov lists more than 200 open trials focused on traumatic brain injury. Many of them are observational studies, but interventions like [progesterone](#), [erythropoietin](#) and [cranial nerve noninvasive neuromodulation](#) delivered by a device that's placed on the tongue are being studied.

"It's a market that needed to be tapped into, and everything just came together at the right time for us," VanLandingham said of Prevacus.

Thus far, the company has had no trouble finding support. It's done all of its fundraising locally in the Tallahassee area and has recruited an executive team comprising a chief scientific officer with more than three decades of experience in drug development and a CEO who's also head of the [Florida Institute for the Commercialization of Public Research](#).

The startup is headquartered at [Innovation Park of Tallahassee](#), with an in-house lab at [Sid Martin Biotechnology Incubator](#) at the University of Florida.

VanLandingham said he hopes to have the drug in the clinic by 2014.

Read more: <http://medcitynews.com/2013/02/neuroscientists-spinout-develops-a-nasal-spray-to-reduce-brain-swelling-after-concussion/#ixzz2LSNt7PZU>