



## **Pirenzia, Inc. University of South Dakota**

*“Our goal is to be out in front of flu mutations, in both humans and livestock.”*

Brian Brandt is a successful and experienced entrepreneur who has been actively involved in more than 100 startups, including within *Fortune 500* companies such as Microsoft. He was recently acting as entrepreneur-in-residence for a South Dakota university and was interested in replicating his work experience launching new products at a local level.

While he was attending a local research conference, Brian learned about technologies that were ready for commercialization at the University of South Dakota (USD). That was the beginning of the journey that became Pirenzia, Inc.

While reviewing the broad range of technologies started at USD, Brian found one technology that stood out. It involved DNA shuffling to develop vaccine designed to trigger an antibody response to flu viruses without the need to be incubated in an egg solution.

DNA shuffling is a way to rapidly propagate beneficial mutations in a directed evolution experiment, which would benefit their idea tremendously. It was a technique with no corollary in modern vaccines, and it was applicable across multiple H1N1 strains. This was fundamentally the way they could successfully stay ahead of any significant mutations in a strain.

The originators of the technology were Dr. Victor Huber and Dr. Ying Fang, both Ph.Ds and currently at the University of South Dakota and University of Illinois respectively. They are now Mr. Brandt’s partners in Pirenzia.

“We were looking for different methods to dispense vaccines and discovered research on wrapping the solution in a nanoparticle shell to create a viable aerosol,” said Brandt. “This was intriguing to us, so we partnered with another startup to incorporate incorporated that idea.”

Brandt negotiated a licensing arrangement with USD that included equity participation for both the university and the inventor group. The current commercialization path for

the company is to license the human variety of their vaccine idea to a large pharmaceutical company; the agricultural side could still become a Pirenzia-branded product that builds overall corporate value.

“We needed to continue doing research while we established the company,” said Brandt. “And that required funding.”

Getting a Small Business Technology Transfer (STTR) grant seemed a logical choice. They chose the National Institutes of Health (NIH) as the agency most likely to support their idea and began the process of preparing a proposal.

At the same time, Mr. Brandt met with Beth Lambeth, Technology Transfer Officer at the University of South Dakota who understood the value of the assistance SHARPhub could bring to Pirenzia. She believed what SHARPhub offered could be invaluable in helping Pirenzia create a successful NIH STTR Phase I proposal.

“In fact, she told me to get in touch with SHARPhub ASAP,” said Brandt.

SHARPhub was able to provide the Pirenzia partners with the resources they needed to better understand what the NIH would be looking for in a proposal and gave them guidance through proposal reviews and editing as well as strong, positive feedback.

“We were constantly realizing ‘we should have thought of that’ when SHARPhub made suggestions,” said Brandt.

“SHARPhub has their finger on the pulse of the ‘emotional’ aspect of NIH,” said Brandt. “They know what the agency is looking for and how to avoid pitfalls in creating the proposal. We would work with SHARPhub again, no question.”