



An Accidental Discovery

In the world of research and development, some of the greatest inventions can happen entirely by accident. That was the case for one Tampa-based team of researchers, who discovered a safe and effective means of permanent hair removal. But that discovery was far from what the researchers had originally intended to find.

The research project was initiated several years ago by a team at the University of South Florida (USF) led by Dr. Mark Jaroszeski. In 2014, STEM Genesis, a company in the Tampa Bay Technology Incubator, joined the team at USF, recognizing the project's potential commercial value. The collaboration continues today with support from The Corridor's Matching Grants Research Program.

Initially, the team developed a device to enhance delivery of DNA and other gene-based therapies for the treatment of skin cancer. By emitting a harmless plasma, the technology applies a charged stream of electrons to the surface of the skin, allowing cells to become more permeable and likely to accept a particular drug or therapeutic agent.

However, as the researchers were testing this process, they came across an unexpected outcome—under certain treatment conditions, hair in the treatment area didn't grow back.

"It was really interesting," said Dr. Michael Muthig, president and CEO of STEM Genesis. "The team realized the potential value of a device that could provide permanent hair removal, so we filed a patent application to commercialize it."

Similar to the drug delivery application, the device would deliver a non-thermal electric current to permanently remove the hair. The technology could one day be widely used and sold by medical device companies, med-spas and dermatologists. Once testing is complete, Muthig and Jaroszeski anticipate that the process will be safe, painless and permanent.

While the technology has vast potential as a cosmetic device, its initial application still holds promise as well. The plasma, which is what generates the device's electrical charge, helps to better



control the drug delivery process, ultimately making treatments for cancer and infectious diseases more effective.

"This is really cool science," said Jaroszeski, associate professor of chemical and biomedical engineering at USF. "It's a fascinating way of manipulating cells at the molecular level for disease treatment or hair removal—and we believe we'll be able to achieve this with negligible sensation or side effects."

As STEM Genesis continues to validate and commercialize both of the technology's applications, funding from The Corridor has played a key role in moving the project to the next phase.

"With any high tech medical device coming out of a university, it's usually very hard to get funding to do the necessary testing and validation," said Muthig. "These funds have been absolutely critical in doing that early-stage work to transition the device from the lab to market-ready technology." ■

