

Sincerest form of flattery marketed for research tests

Synthetic body parts could elbow their way past animals and cadavers

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STAFF WRITER

TAMPA – Companies looking to test how people react to everything from medical devices to consumer products typically are forced to use animals, plastic models, or if they can afford it, human cadavers. While a great deal can be learned from such studies, a bay area company is offering an alternative: nearly indistinguishable synthetic human body parts.

“We manufacture highly complex models of human anatomy using completely synthetic tissues,” said Dr. Christopher Sakezles, President and Chief Technology Officer of SynDaver Labs. “Our products are designed and built from the bone out, and they are already several generations beyond anything that is currently available to the medical device and consumer product industries.”



Dr. Christopher Sakezles

REDUCING R&D TIME, COSTS

The realism is something that might interest many Hollywood special effects masters, but the time and energy put into developing these models is meant more to help save development resources and improve lives, Sakezles said. “Say

you want to develop a stent designed to go into a coronary artery. You need to first run tests on a prototype device to see how it is going to perform,” he said. “If you run these tests in rubber tubing, the results will be wildly different from what you would expect in human anatomy, but this is exactly what is done today in the medical device industry. In terms of the realism of the model involved, the frictional characteristics are different, the mechanical properties are different, and the test in question ends up being not just a waste of time, but actually counter-productive.”

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Dr. Joel Strom, Professor
University of South Florida

The goal of using SynDaver Labs’ products is to eliminate wasted efforts in research and development, thus reducing the time and cost to get a new product to market, Sakezles said. The company has most of its staff devoted to product development, designing and building models that range from limbs and torsos to individual arteries and veins.

“If you start your development process with a poor quality model, you’re steering the design off course from the very beginning,” Sakezles said. “Our products can actually eliminate this type of error altogether when they are used from the very beginning of the development cycle. This strategy saves our customers a significant amount of time

And money by allowing them to reduce or even totally eliminate both early and late-stage research animal use.”

FIELD APPLICATIONS

SynDaver Labs is working closely with several divisions of Johnson and Johnson, St. Jude Medical, and many other small, mid-size, and large medical manufacturers in the U.S. and Europe. Dr. Joel Strom, Professor of medicine and chemical engineering at the University of South Florida, says he is also interested in working with the company.

“I think it’s fascinating, given the fact that it’s getting harder and harder to get real animals,” Strom said. In fact, such models could go well beyond R&D and straight into the classroom, he said.

“If you’re going to train physicians and surgeons, the more realistic the model is that your working with, the more effective your training will be” Strom said. “Realism is very important.”

Strom is also working on a project with the U.S. military that would provide sensors to detect early battlefield injuries as well as work on the aorta, which right now is being researched using glass and plastic models.

“What we want to do is mimic the tissue characteristics of the aorta, the mechanical characteristics that affect flow,” Strom said. “Using something like this, we could actually create models of arterial aging, which is very difficult to do with plastic.”

CONTROLLED GROWTH

Companies looking to develop and distribute medical devices is big business in the United States, Sakezles said, with at more than 20,000 firms generating in excess of \$120 billion in

annual sales. Of that, more than \$5 billion is spent each year on testing.

With their closest competition being the plastic and glass model makers, SynDaver Labs has already found a substantial amount of business to keep the company self-sustaining, even as a startup. But in the near future Sakezles expects to bring in additional capital to grow the company further, and he predicts his staff to grow significantly in the coming years.



“As a startup, we have to be careful about the level of demand we try to create,” Sakezles said, citing manpower issues. “We’re planning on eventually being very large, and there are a lot of applications for our core technologies. Right now we are concentrating on our primary market, but we will be branching out as quickly as we can.”

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