‘Perfect for New mRNA Vaccines’: Olathe Startup Targets Biotech toward Precision Delivery

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A sudden, then lingering, global pandemic put a spotlight on vaccine technology — with an Olathe startup now positioning itself at the leading edge of both pharmaceutical and vaccine applications for humans and their four-legged counterparts.

“We manufacture and develop peptide delivery systems to help deliver drugs and vaccines safer and more effectively,” said Steve Schram, CEO of Phoreus Biotech, which has raised a little more than $3 million in funding over two seed rounds to build out its revolutionary solution.

Phoreus Biotech is presenting this week as one of the emerging companies at the Animal Health Corridor Summit on Aug. 29-30 at the Midland Theater.

The startup — officed on the Kansas State University campus in Olathe — was founded in 2018 by Drs. John Tomich, Randall Tosh, and Michael Coe, who all have links to K-State.

“We licensed the technology out of Kansas State University and we have four patents on the technologies, as well,” Schram said. “We’re very well tied to Kansas State and I’m very proud that we were born and bred here in the Kansas City corridor.”

Phoreus works with animal health companies — as well as human health companies — that are developing new vaccines and drugs. The two targeted delivery platforms use nanocarriers that help to stabilize the drugs and vaccines, according to Schram.

“If you’re developing a vaccine and you have a vaccine that you want to deliver to the

animal, that vaccine construct or virus would wrap itself around one of our carriers and our carrier would help deliver it into the animal," he explained. "Our technology, we really believe, is made perfectly for all the new mRNA vaccines that are being developed both on the animal and the human side."

The peptide nano carriers — as opposed to lipid nanocarriers — also have the potential to remove the cold chain, he said, which is especially important for parts of the world without good refrigeration systems.

"You remember that all the COVID vaccines had to be frozen (and) thawed out," he said. "So we're actually doing some work on the human side on developing a COVID vaccine with a company using our (carriers). We're doing work where we're showing that we don't have to keep the vaccine refrigerated."

With drugs, he said, the nanocarriers allow for precision delivery to the target cells. The startup is working with the University of Kansas right now on a cystic fibrosis drug, Schram said.

"If you had a drug like a pharmaceutical that you want it to be protected so you could deliver it to a lung or to the liver or something like a cancer tumor, you would take your drug and our nanocarrier peptides would encapsulate it and keep it stable," he continued. "So it can be delivered where you want it to be delivered."

For example, like with humans, cancer drugs are often hard on an animal because they travel through the bloodstream and affect the whole body, he said.

"But if you could protect that certain kind of drug and only deliver it to the tumor where you want it, then it would not be as hard on the animal," he added.

Phoreus is also applying this technology to agriculture chemicals.

“We’re working with companies for some pesticides and fungicides to deliver those more safely to the plants, for example,” he said. “So it’s a very broad technology.”

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