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Oklahoma City companies develop therapeutics, test them for safety

BY JIM STAFFORD
For The Oklahoman

Kumar Sripathirathan, Ph.D., placed a slide under a microscope lens in the laboratory of Oklahoma City's DRIK Safety Testing and an image instantly appeared on an adjacent computer screen.

It looked vaguely like a satellite image of Spain to me.

Dr. Kumar, as I call him, pointed me in a different direction.

"This is a tumor," he said. I squinted.

DRIK is a contract research organization that provides preclinical toxicology testing for researchers worldwide wanting to discover the effects of drugs or chemicals on the body.

"We help pharmaceutical companies in the preclinical discovery efforts," Dr. Kumar said. "We also conduct toxicology and efficacy testing for pharmaceutical drugs, chemical, agri-chemical businesses and also the cosmetic industries."

Toxicology testing is a key step in drug development. Safety and efficacy are important because most drugs fail during development. That's when researchers are most likely to discover new therapeutics aren't as effective as originally indicated or they fail



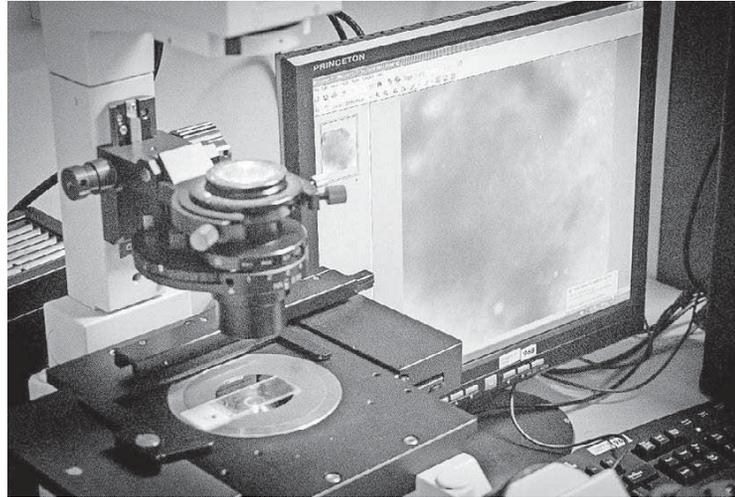
Kumar Sripathirathan, Ph.D., Co-founder and CEO of DRIK and DEHA LLC

safety testing.

DRIK and its staff of three use what is called 3-D modeling of live tissue samples to study the effects of drugs on tissue. It can be tissue from the heart or brain or even a tumor.

"The Food and Drug Administration requires these studies be conducted to make sure humans aren't in harm's way," Dr. Kumar said. "We can keep these 3-D tissue slices alive for 60 days or more, which means the drug companies can do the testing with their drugs for more than 60 days at a very low dose. The models provide very high value in terms of the data that it produces and to de-risk development."

DRIK, which has investment funding from i2E Inc.'s StartOK Fund, is generating revenue and achieving the goal of any Oklahoma startup — it



DRIK uses 3-D modeling of live tissue samples to study the effects of drugs on tissue. [PHOTO PROVIDED]

is bringing dollars into Oklahoma from out of state.

Dr. Kumar recently launched a second company that complements DRIK's safety testing services. DEHA is a drug development company that is focused on providing a treatment for what are known as brain edemas caused by large strokes and concussions.

Athletes and soldiers most frequently suffer the type of injuries that cause brain edemas.

"Brain edema is accumulation of fluid on the brain, especially water on the brain," Dr. Kumar

said. "There are not many drugs available, and the approach of those that are, are not specific for solving brain edemas."

DEHA is developing a small molecule therapy that would relieve the fluid accumulation in brain edemas at a much faster pace than say, diuretics. Time is a critical factor in treating edemas.

"In a large stroke there is a lot of fluid accumulating in the brain, and cranial pressure accumulates over a short time period of about 24 hours," he said. "A surgeon has to intervene to

remove the brain edema. If nothing is done, then it is life-threatening."

That is the challenge that DEHA is working to achieve. DEHA has a literal meaning of "body," Dr. Kumar said.

Dr. Kumar and his wife and DRIK co-founder, Vanmathy Vasudevan, decided to launch a second company after investigating the number of what he calls "neglected diseases" that the drug development world ignores.

"It's interesting to note that humankind has detected about 6,500 diseases," he said. "Of those

6,500 diseases, FDA-approved medication is only available for one-third of them. We would like to develop more compounds that address as many of these diseases as possible."

For the founders of DRIK and DEHA, the goal of each company is to make an impact internationally with both their drug testing and drug development initiatives.

But DEHA is still in the early stages, Dr. Kumar cautioned. He is seeking patent protection for the intellectual property the company is developing.

"We would like people to know that the drug development pipeline is a very long and arduous, costly process," he said. "So, it will take time for drug development to move forward."

That's the way the drug development world works. After a new therapeutic is developed, it has to be tested over and over to ensure it is safe and effective.

DRIK and DEHA have it all covered.

"We want to take slow and steady steps," Dr. Kumar said.

Jim Stafford writes about Oklahoma innovation and research and development topics on behalf of the Oklahoma Center for the Advancement of Science & Technology (OCAST).