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Robotic-Pill Maker Rani Therapeutics Backed by Shire

VC firm bets that technology will enable injected drugs to be taken orally



Rani's pill technology enables biological drugs to be taken orally. PHOTO: RANI THERAPEUTICS

By Brian Gormley

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Add Shire PLC to the list of corporations betting that Rani Therapeutics LLC's robotic pill can free many patients who take biological drugs from needle injections.

Biological medicines, such as proteins and antibodies, are a giant industry because they treat many conditions, including cancer, autoimmune diseases and rare disorders. They typically can't be taken orally because they would be poorly absorbed or broken down by chemicals in the stomach and intestines.

Rani's oral capsules allow patients to swallow a technology that protects the drug until it is ready to be delivered across the intestinal wall and into the bloodstream.

Novartis AG and AstraZeneca PLC have signed on as collaborators. Now Shire is joining with Rani to see if the system can free hemophilia A patients from infusions of a medicine that helps their blood clot, factor VIII.

Hemophilia A patients now get regular factor VIII infusions. Rani aims to convert that treatment to a daily pill. After consumption, the pill goes through a transformation and positions itself to inject the drug into the intestinal wall, according to the company. Because the intestines lack sharp pain receptors Rani expects the treatment to be painless.

Shire now has an exclusive option to negotiate a license to develop and market this technology for delivering factor VIII therapy, following completion of feasibility studies. Shire is also making an equity investment. The amount is undisclosed, but Rani Chief Executive Mir Imran said the company has now raised a total of close to \$110 million.

Rani, formed in 2012, also counts GV, AstraZeneca and others as investors.

Other startups cashing in on interest in new ways to administer biological drugs include venture-backed Arsia Therapeutics Inc., which was acquired last year by Eagle Pharmaceuticals Inc. Arsia's technology enabled highly viscous biologics to be given through a small needle instead intravenous infusion.

In addition to working with drug companies, San Jose, Calif.-based Rani has its own pipeline. They include a bone-building medicine for osteoporosis and a treatment for the rare disease acromegaly. One or both could be in clinical trials in about a year, Mr. Imran said.

Write to Brian Gormley at brian.gormley@wsj.com

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