BIOPHARMADIVE

Otsuka partners with Shape in deal to design eye gene therapies

The companies will work together to pair Shape's adeno-associated virus technology with Otsuka's genetic payloads.

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A light beam shines through the retina and lens on an eye exam. Zorica Nastasic via Getty Images

Japan's Otsuka Pharmaceutical will work with Seattle startup Shape Therapeutics to develop gene therapies for the eye, announcing Thursday a research collaboration centered on Shape's viral engineering technology.

With Shape's help, Otsuka aims to develop adeno-associated virus-based gene therapies that can deliver into eye cells the genetic code for molecules and antibodies it's identified to treat "chronic ocular diseases."

Shape uses high throughput screening to parse a vast array of possible adeno-associated viruses, or AAVs, that could work as a delivery chassis for payloads like those Otsuka has in mind. It then applies machine learning to select the AAVs best-targeted to specific tissues and less likely to stray from their cellular destination.

Francois Vigneault, Shape's CEO and co-founder, compares how his company applies machine learning to generative AI tools like

Midjourney and DALLE-2, which can create digital images from written descriptions.

“By incorporating diffusion models, our platform is designing novel medicines that transcend the boundaries of what is possible experimentally,” Vigneault said in a Sept. 7 statement.

Otsuka will pay Shape an undisclosed amount upfront and has promised more than $1.5 billion more if certain development, regulatory and sales milestones are met.

The partnership with Otsuka is Shape’s second with a large pharmaceutical company. Two years ago, on the heels of raising $112 million in Series B venture financing, the biotechnology firm struck a deal with Roche focused on applying RNA editing technology to neurological diseases.