



Biotech

## 'Genome-tuning' biotech Omega Therapeutics snags \$85M as it aims for the clinic

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Omega CEO Mahesh Karande (Omega Therapeutics)



Less than a year after launch, Omega Therapeutics is getting an **\$85 million** (PDF) cash boost. It will push a pipeline of treatments toward the clinic as well as bankroll the identification of new targets for genomic medicines.



healthy levels.

The company's work is based on "neighborhoods" of genes and their regulatory elements found in loops of DNA called Insulated Genomic Domains (IGDs). These loops occur because long strands of DNA need to fit into the cell's nucleus.

"In nature, generally things are not all the way on or all the way off, but rather turned to a very specific range in a healthy setting," Omega Chief Scientific Officer Thomas McCauley, Ph.D., said in a previous interview. Omega's "epigenomic controllers" are designed to target the right place on specific IGDs to restore gene function at the right level, he said.

Since launch, Omega has been working to figure out which neighborhoods play a role in different diseases.

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"We could have gone in various directions," Karande said. But Omega landed on a handful of areas. It's advancing five programs spanning oncology and inflammation as well as autoimmune, metabolic and rare genetic diseases, the first of which should hit the clinic in 2021.

In addition to tweaking gene expression without making permanent changes to the genome, Omega's approach offers advantages over a small-molecule approach to epigenetics.

"There are a number of companies developing small-molecule therapies for epigenetic targets, almost exclusively in cancer," McCauley.

"The issue is really specificity, in having those molecules go everywhere in the body as opposed to having them go to specific cell types and specific locations in the genome," McCauley continued, adding that the benefits of such treatments might outweigh the risks in oncology but that this risk-benefit profile may be unacceptable in other diseases.

In its first efforts, Omega is going after targets with links to specific diseases that are well understood, McCauley said. Moving forward, it will take advantage of the lessons it learns to look for new targets.

"We're looking for the ability to expand laterally," he added.

One of those lateral expansions could be into COVID-19. Since inflammation plays a big role in COVID-19 infection, Omega could leverage the work it's already done in that space to quickly move into drug development against the new coronavirus.

Right now, it's all systems go with its five—potentially six—programs. Karande said the company would be "remiss" if it did not ink partnerships.



*Omega CSO Thomas McCauley  
(Omega Therapeutics)*