

Novo Nordisk enters into research collaborations with Omega Therapeutics and Cellarity on novel treatment approaches for cardiometabolic diseases

Overview

- Omega collaboration will leverage the company's platform to develop an epigenomic controller as part of a new approach to obesity management
- Cellarity collaboration will build upon initial work and engage the company's platform to develop a small molecule therapy in metabolic dysfunction-associated steatohepatitis (MASH)
- First two research programmes signed under existing partnership between Novo Nordisk and Flagship Pioneering
- Novo Nordisk will reimburse R&D costs and each company and Flagship's Pioneering Medicines are eligible to receive up to 532 million US dollars in upfront and milestone payments, as well as tiered royalties

[Bagsværd, Denmark, Cambridge, Mass., and Somerville, Mass. 4 January, 2024](#)

– Novo Nordisk, Omega Therapeutics, Inc. (Nasdaq: OMGA) (“Omega”), and Cellarity Inc. today announced that Novo Nordisk has entered into separate research collaborations with each company. The Omega collaboration will leverage its proprietary platform technology to develop an epigenomic controller designed to enhance metabolic activity as a part of a potential new treatment approach for obesity management. The Cellarity collaboration aims to unravel novel biological drivers of MASH and will leverage Cellarity's platform to develop a small molecule therapy against this disease.

These are the first two programmes signed under the framework collaboration between Flagship Pioneering and Novo Nordisk to leverage Flagship's biopatform companies to develop novel treatment approaches for cardiometabolic diseases.

“This is an important moment in our partnership with Flagship Pioneering. We look forward to advancing these research programmes with Omega and Cellarity in the coming years as we explore bold new treatment strategies with the potential to make a significant impact for people living with obesity or MASH,” said Marcus Schindler, executive vice president and chief scientific officer at Novo Nordisk. “Novo Nordisk is committed to advancing new treatment options for people living with cardiometabolic diseases. To that end, it is essential that we complement our internal research with external innovation and work with partners who are bringing forward cutting-edge technology. Both companies offer differentiated and novel approaches, including Omega's expertise in controlled epigenomic modulation and Cellarity's deep insights into applying human data and artificial intelligence to the development of new medicines.”

Harnessing epigenomic control as a new treatment approach for obesity management

Globally, there are more than 800 million adults living with obesity^[1]. Many of the existing therapeutic interventions for weight management have focused on appetite regulation. Thermogenesis, the production of heat within tissues to raise body temperature, is a natural metabolic function that critically regulates overall energy balance.

By harnessing the human body's innate mechanisms to control cellular identity and gene expression, Omega's proprietary platform has the potential to create an epigenomic controller designed to enhance thermogenesis, and therefore metabolic activity.

"Precision epigenomic control is an emerging approach to medicine that allows us to pre-transcriptionally modulate gene expression with an unparalleled level of specificity," said Mahesh Karande, president and CEO of Omega Therapeutics. "By leveraging Novo Nordisk's deep expertise in the space and our OMEGA platform, we have the opportunity to tap into the body's natural processes that control metabolic activity and potentially develop an alternative, more durable approach to obesity management."

Deciphering complex disease biology to develop a transformative medicine for MASH

MASH is a chronic and progressive liver disease with high unmet patient need for which there is currently no approved treatment. MASH is a leading cause of chronic liver disease that can progress to liver failure or require transplantation, and people living with MASH are at increased risk of developing type 2 diabetes and cardiovascular disease.

Cellarity has developed unique capabilities to link biology and chemistry with high dimensional, transcriptomic data to generate medicines against the cellular signatures of disease. Using proprietary AI models, the Cellarity platform provides novel insights into cellular dysfunction and enables the design of drugs previously inaccessible with traditional methods of drug discovery. In September 2022, Novo Nordisk engaged Cellarity to identify novel cell behaviors implicated in MASH disease progression. The research collaboration expands on this initial work and will further leverage Cellarity's platform to develop a small molecule therapy.

"Cellarity is developing a new paradigm in drug creation by harnessing the power of AI and multiomics data," said Fabrice Chouraqui, Pharm.D., CEO of Cellarity and a CEO-partner at Flagship Pioneering. "Our partnership with Novo Nordisk, the world leader in metabolic disease, creates a unique opportunity for application of our platform to identify novel vantage points into the progression of MASH and develop a transformative small molecule therapy against this debilitating disease."

First two programmes under Flagship framework collaboration

The previously announced partnership brings together Novo Nordisk's Bio Innovation Hub, an R&D unit designed to accelerate the development of therapeutics via co-creative partnerships with academia, biotechs, and venture capital groups, and Pioneering Medicines, Flagship's drug development initiative leveraging Flagship Pioneering's unique ecosystem of biopatform capabilities.

"These collaboration agreements with Omega and Cellarity are an exciting demonstration of how our partnership with Novo Nordisk is leveraging the unique biopatform technologies within the Flagship ecosystem to develop potentially transformational medicines," said Paul Biondi, president, Pioneering Medicines, and executive partner, Flagship Pioneering. "By bringing these innovative platforms together with Novo Nordisk's deep expertise in cardiometabolic disease we have incredible potential to make a bigger leap forward for patients."

Each company, Novo Nordisk, and Pioneering Medicines will jointly advance these respective programmes through preclinical development and conduct foundational activities, after which point Novo Nordisk could advance the programmes into clinical studies. Under the terms of the respective agreements, Novo Nordisk will reimburse R&D costs. Additionally, each agreement may pay up to 532 million dollars in upfront, development and commercial milestone payments, as well as tiered royalties on annual net sales of a licensed product, to be shared between the respective companies and Flagship's Pioneering Medicines.

[1] [World Obesity Atlas 2023 Report.pdf \(worldobesityday.org\)](#)