Nexilico Launches Microbial Consortia Discovery Program for Hepatic Encephalopathy

DANVILLE, CA, UNITED STATES, September 9, 2025 /EINPresswire.com/ -- Nexilico, a leader in precision microbiome engineering, has initiated a new program to identify and develop novel microbial consortia for the treatment of hepatic encephalopathy (HE). The initiative is supported in part by the National Science Foundation (NSF) and is being advanced in collaboration with the Engineering Research Center (ERC) for Precision Microbiome Engineering (PreMiEr).

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>
> *Mohammad Soheilypour, CEO and co-founder of Nexilico*

Hepatic encephalopathy is a neurological complication of liver dysfunction, affecting up to 45% of patients with cirrhosis. Despite current therapies, patients continue to experience breakthrough episodes and readmission rates as high as 73%, underscoring the need for more effective solutions.

Nexilico is leveraging its AI-driven microbial consortia discovery engine to identify the most promising candidates from thousands of possibilities. Powered by its proprietary microbiome digital twin platform, the system conducts millions of virtual experiments that capture how microbial communities respond to different interventions. These data feed into proprietary AI models and optimization algorithms, which incorporate explainable AI to reveal mechanistic insights and prioritize interventions with the greatest potential to reverse disease. This computational approach accelerates discovery while reducing reliance on experimental trial-and-error, enabling applications across human health, environmental systems, animal health, and agriculture.

"This is the first comprehensive effort to develop microbial consortia specifically designed to target microbiome functionalities implicated in HE pathophysiology," said Mohammad Soheilypour, CEO and co-founder of Nexilico. "By launching our third discovery program, we are demonstrating the breadth of our platform and its ability to tackle urgent unmet needs across diverse sectors, while paving the way for translational programs in HE and beyond."

"This program reflects our shared commitment to advancing novel microbiome engineering technologies", said Claudia Gunsch, Muriel Theodorsen Williams E'46 Distinguished Professor of

Civil & Environmental Engineering at Duke University and PreMiEr Director. “By integrating Nexilico’s computational platform with PreMiEr’s experimental capabilities and testbeds, we are forging a powerful pathway toward next-generation microbiome engineering solutions.”

This initiative follows Nexilico’s prior programs with Siolta Therapeutics on necrotizing enterocolitis and Microvi Biotech on bioremediation. Supported by non-dilutive funding through National Science Foundation and National Institutes of Health SBIR programs, and backed by Axial VC, these efforts highlight Nexilico’s dual strategy of external partnerships and internal pipeline growth, driving a future where precision microbiome engineering delivers solutions across human health, agriculture, and environmental sustainability.

About Nexilico
Nexilico is a biotech company focused on precision microbiome engineering through its innovative AI-driven discovery platform. Powered by its proprietary microbiome digital twin technology, Nexilico’s platform enables the design of targeted interventions across a wide range of applications. To learn more about Nexilico’s mission to revolutionize microbiome engineering with AI, please visit http://www.nexilico.com.

About the Precision Microbiome Engineering Center (PreMiEr)
PreMiEr is a National Science Foundation (NSF)-funded Engineering Research Center (ERC) headquartered at Duke University in Durham, North Carolina, USA. PreMiEr’s vision is to develop an integrated framework for enabling the development of high impact microbiome technologies that provide innovative solutions to key societal challenges at the interface of human health and the built environment.

About the National Science Foundation's Small Business Programs
America’s Seed Fund powered by NSF awards $200 million annually to startups and small businesses, transforming scientific discovery into products and services with commercial and societal impact. Startups working across almost all areas of science and technology can receive up to $2 million to support research and development (R&D), helping de-risk technology for commercial success.

Mohammad Soheilypour
Nexilico, Inc.
msoheilypour@nexilico.com