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**First GP-write Pilot Project Funded
to Advance Grand Challenge**

***Next Steps of Global Technology Initiative to Understand, Engineer and
Test Living Systems Reviewed at GP-write Meeting in NYC***

New York, NY – The Center for Excellence in Engineering Biology today announced funding for a pilot study entitled “Engineering Prototrophy in Mammalian Cells,” which will aim to generate versions of human cells that can grow with significantly reduced external nutrients (e.g. ‘prototrophic’).

The support comes through a grant of approximately \$500,000 awarded to Columbia University by the Defense Advanced Research Projects Agency (DARPA).

The objective of the pilot project is to generate human cells that can produce metabolites – small molecules needed for growth. Longer-term, the study could help generate new information about the biochemical environment needed for mammalian development, cell differentiation, and nutrition-associated aging processes. Information from the project may also lead to more efficient methods of synthesizing drugs and biologics produced in mammalian cell lines.

The principal investigators of the funded project are Harris Wang, Ph.D., Assistant Professor, Department of Systems Biology at Columbia University, and Jef D. Boeke, Ph.D., Director, Institute for Systems Genetics, Professor, Department of Biochemistry and Molecular Pharmacology, NYU Langone Medical Center.

This project is the first of several anticipated pilot projects currently seeking support as part of the Genome Project-write (GP-write) Grand Challenge, a multi-center, international technology initiative focused on DNA synthesis and the engineering of metabolic pathways, led by a multi-disciplinary group of scientific leaders and coordinated by the Center for Excellence in Engineering Biology.

“It’s really amazing to think we can see what happens if we restore to mammalian cells grown in dishes signaling pathways that were lost millions of years ago in evolution,” said Boeke. He added, “I believe this is an example of genome engineering in human cells that will not only generate new knowledge, but may help us solve a practical problem in biotechnology.”

“By engineering mammalian metabolism, we will not only learn about how cells use nutrients to grow, but also how those processes, when they go awry, can contribute to diseases such as cancer,” said Wang. “It’s exciting to embark on this pilot project as a part of the GP-write Grand Challenge. I’m look forward to working with many others in this global effort,” he added.

GP-write, which has no direct affiliation with DARPA, will focus on using synthesis and genome editing technologies to understand, engineer and test model organisms as well as less tractable human and plant cell lines. The goal of GP-write is not only to deepen an understanding of life but to develop pragmatic technology of general use in biology, improving the cost and quality of DNA synthesis, and DNA assembly in cells.

Planning for GP-write has been underway for the past three years, through a series of meetings of scientists, culminating in a *Science* publication in June 2016 (<http://science.sciencemag.org/cgi/doi/10.1126/science.aaf6850>) and a white paper in November 2016 (<http://engineeringbiologycenter.org/wp-content/uploads/2016/12/GP-Write-WhitePaper.pdf>)

The funding announcement was made at a meeting of GP-write held this week at the New York Genome Center in New York City. The meeting agenda included discussions about roadmaps for the project, including scientific direction, technology development, ethical, social and legal engagement, standards and infrastructure development, amongst others. Scientific topics included the introduction and discussion of new Pilot Projects and the creation of an Industry Consortium.

GP-write will be implemented through the Center of Excellence for Engineering Biology, a new, independent nonprofit organization that will manage planning and coordination efforts. These efforts include supporting the formation and work of multi-institutional and interdisciplinary research teams working in a highly integrated fashion, responsive to and engaged with a broad public outreach. Nancy J Kelley, J.D., M.P.P., is the lead executive of GP-write and the Center of Excellence for Engineering Biology.

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