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## For Immediate Release

### **New Computer Software to Advance Genome Design Capabilities Ushering in next-gen solutions for societal and environmental health**

**NEW YORK, May 11, 2021** -- A new Computer Aided Design (CAD) platform for whole genome design is being launched by two pioneers in the world of biotech: **Genome Project-write (GP-write)** and **Twist Bioscience (NASDAQ: TWST)**. The technology is expected to open up new frontiers in genome research with real world applications to advance development of therapeutics and solutions for environmental health.

The CAD technology will be an important development along the path to more facile writing of genomes, by eliminating a host of barriers that hinder genome design. Current platforms can be limited to small-scale changes in bacterial systems. The GP-write CAD will allow scientists to scale to other species with larger genomes. It will also automate workflows to enable collaborative efforts critical for scale-up from designing plasmids (kilobases) to whole chromosomes (megabases) across entire genomes (gigabases).

“CAD features will help inform the functional meaning of genetic mutations that cause disease and enable the reprogramming of genetic blueprints,” explained George Church, Ph.D., the renowned geneticist at Harvard Medical School and a Founder of GP-write. This is important because computational feedback “will help expedite development of therapeutics such as targeted gene and cellular therapies, vaccines and early diagnostics to combat rare genetic diseases,” added Church. The platform will provide critical guidance to the user on the proposed design, such as the genotypic and phenotypic consequences.

Underscoring its importance, next-gen design software is the first milestone identified in the GP-write white paper, [Technological Challenges and Milestones](#) (*Science*, 2019). GP-write is an open international project founded in 2015 to reduce the cost of engineering and testing large genomes. It was conceived as a sequel to the Human Genome Project which completed the first “read” of the human genome. GP-write seeks to take genome technology to the next level— to “write” DNA and build human and other genomes from scratch.

Twist Bioscience’s CEO Emily Leproust, Ph.D., is particularly enthusiastic about the practical applications the new software may enable when it comes to genomic advances that could fuel therapeutic breakthroughs and preserve the planet, major areas of focus.

“The CAD technology provides an important tool to make genome engineering and biological discovery more accessible to a wider spectrum of researchers, supporting the democratization

of synthetic biology to improve human health and sustainability,” she said. “Environmental damage could be addressed by deploying engineered algae to clean up oil spills, for example, to restore natural resources. We are thrilled about the possibilities!”

Twist Bioscience, a leading synthetic biology and genomics company, is partnering with GP-write in an initiative to advance genome design. The GP-write CAD will offer a unique feature: direct-orders of synthetic DNA from participating industrial partners. Twist will participate in the platform design and be the first industrial partner to benefit from this streamlined opportunity.

### **How it will work**

Reducing the cost and ease of design will have high utility and provide broad accessibility. Students, citizen scientists, professionals and industry will soon be able to learn how to design genomes from scratch and receive feedback on the functional consequences of these designs. Tools to manage data among a distributed community will enable learning from others’ design processes through shared results.

Due to the size of whole genomes, large orders of synthetic DNA will be required if users wish to have their designs synthesized (or assembled). To facilitate this, direct orders of synthetic DNA may be placed from the CAD platform, and a participating biofoundry selected for assembly and testing of designed constructs. Upon completion, the newly designed genome will be shipped to the original user. Such a full-circuit international ecosystem is expected to be the first of its kind.

All projects facilitated by the CAD software will be held to the highest safety standards and protocols as outlined by the International Gene Synthesis Consortium.

### **Powerful Partners**

Experts in the field have formed the **GP-write Industrial Advisory Board** led by **Agilent Technologies (NYSE: A)** as a founding partner, **Ansa Biotechnologies, Inscripta, Lattice Automation** and **Twist Bioscience**.

### **Just the Beginning**

Led by Amy Cayne Schwartz, J.D., President and General Counsel of GP-write; Giovanni Stracquadanio, Ph.D., a senior lecturer in synthetic biology at the University of Edinburgh and Co-Director at Edinburgh Genome Foundry; Farren Isaacs, Ph.D., Associate Professor of Molecular, Cellular & Developmental Biology, Biomedical Engineering and Systems Biology at Yale University, Todd Peterson, Ph.D., Founder of GenApex Bio and Douglas Densmore, Ph.D., a Professor of Computer Engineering at Boston University and Co-Founder of Lattice Automation. The GP-write CAD will serve as a foundational technology in a GP-write virtual Foundry and Incubator, the platform will support new science and technology ventures selected to advance genome-scale writing and democratize science. Further information about GP-write, the living

CAD platform and how to participate is available by contacting [amy@engineeringbiologycenter.org](mailto:amy@engineeringbiologycenter.org) and visiting the GP-write [website](#).

### **About Genome Project-write**

GP-write, conceived as a sequel to The Human Genome Project, leverages advances in high throughput genome sequencing, gene editing and synthetic biology to drive dramatic cost reductions and expedite whole-genome writing and redesign. Supporting work of multi-institutional and interdisciplinary research teams engaged in broad public outreach, the organization includes nearly 300 scientists, affiliated with more than 100 institutions/companies in 17 countries. Visit us at [www.engineeringbiologycenter.org](http://www.engineeringbiologycenter.org)

### **About Twist Bioscience**

Twist Bioscience developed a disruptive DNA synthesis platform to industrialize the engineering of biology across many industries including healthcare, industrial chemicals, agriculture and academic research. The core of the platform is a proprietary technology that pioneers a new method of manufacturing synthetic DNA by “writing” DNA on a silicon chip. Twist leverages its unique technology to manufacture a broad range of synthetic DNA-based products and is pursuing longer-term opportunities in digital data storage in DNA and biologics drug discovery.

### **About Lattice Automation**

Lattice Automation provides complete solutions to fundamentally change the way that biological designs are conceived, designed, physically created, and managed. Their technology builds upon state-of-the-art techniques in computer science, electrical engineering, and bioengineering. Lattice provides a variety of software engineering engagement models to create diverse software across a range of customer needs, problem domains, and design requirements.

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