



ABOUT SYNTHETIC GENOMICS

Synthetic Genomics, Inc., a privately held company founded in 2005, is dedicated to developing and commercializing genomic-driven solutions that address global challenges, beginning with energy and the environment.

The company is applying synthetic and natural biological approaches to unlock the potential of microbial and plant resources for the development of commercial solutions for a cleaner and more sustainable future.

The advances in synthetic genomics present limitless applications that can revolutionize the creation of a wide variety of products for the energy, chemical and pharmaceutical marketplaces; such paradigm shifting technologies can even enable carbon capture and sequestration, and address the issues of water security and environmental pollution remediation. Synthetic Genomics is designing novel metabolic pathways and synthesizing whole chromosomes for the biological production of renewable energy and the creation of solutions that will help reduce the world's dependency on oil and mitigate greenhouse gas emissions.

The company's main programs are focused in the following areas:



Designing advanced biofuels that can be produced from a variety of bio-feedstocks and possess superior characteristics when compared to traditional biofuels



Developing biological solutions to increase the production or recovery rates of subsurface hydrocarbons



Conducting in-depth genomic analyses of oil seed plants and energy crops to develop high-yielding, more resistant and economic plant feedstocks



Harnessing photosynthetic organisms to produce biofuels directly from sunlight and carbon dioxide

SCIENTIFIC AND BUSINESS LEADERSHIP

The scientific strength of Synthetic Genomics lies in the decades of pioneering scientific research by its world-renowned founders and lead researchers. Entrepreneurial founder and chief executive officer, J. Craig Venter, Ph.D., has assembled a stellar scientific and business team that includes:

Aristides A.N. Patrinos, Ph.D., *president;*

Chuck McBride, *chief financial officer;*

Fernanda Gandara, *vice president of business development;*

Eric J. Mathur, *vice president of metagenomics;*

Stephen Picataggio, Ph.D., *vice president of metabolic engineering;*

Hamilton O. Smith, M.D., *Nobel Laureate, co-founder, board member, co-chief scientific officer; and*

Clyde Hutchison, Ph.D., *pre-eminent scientist, chairman of scientific advisory board.*

The company's scientific team includes other leading researchers with expertise in areas such as plant genomics, bioinformatics, cellular engineering, microbiology, biochemistry, climate change and energy policies.



THE SCIENCE OF SYNTHETIC GENOMICS

Synthetic genomics is an emerging field of science that makes it possible to design, synthesize and assemble genes, synthetic chromosomes and even whole genomes from the basic chemical components of DNA. The company's goal is to modify the operating system of a cell to direct the synthesis of metabolic products with commercial value and improve those cellular properties essential for large-scale commercial bioprocesses. Using the genome as a template, Synthetic Genomics is developing custom-designed modular "cassettes" that encode entire metabolic pathways to enable new, powerful and more direct methods of bio-engineered industrial production. The company believes that a synthetic chromosome, and eventually synthetic cells, will become an integral tool for the energy industry.

In addition to the in-house research at Synthetic Genomics, the company is also funding synthetic genomic research at the J. Craig Venter Institute (JCVI), a not-for-profit research organization with more than 400 staff and scientists dedicated to the advancement of the science of genomics, understanding its implications for society, and communicating those results to the scientific community, the public and policymakers. In 2003, JCVI scientists led by Drs. Smith, Hutchinson and Venter, built in vitro a fully synthetic PhiX174 chromosome in just 14 days and published their results in the *Proceedings of the National Academy of Sciences*. This breakthrough served as a proof of concept for creating highly engineered, efficient bio-production capabilities in a commercial setting.

In June 2007, the JCVI developed genome transplantation methods to transform one type of bacteria into another type dictated by the transplanted chromosome and published their results in the journal *Science*. In January 2008, the JCVI created the first synthetic bacterial genome, *Mycoplasma genitalium* JCVI-1.0, representing the largest man-made DNA structure (also published in *Science*). Genome transplantation, synthesis and assembly are essential enabling steps toward the ultimate goal of a fully synthetic, activated cell.

INVESTORS

The largest Synthetic Genomics investors include its founders, BP plc, Biotechnology LLC, Draper Fisher Jurvetson, Desarrollo Consolidado de Negocios, Genting Berhad and Meteor Group LLC.

BOARD OF DIRECTORS

Juan Enriquez

Co-Founder of Synthetic Genomics, Inc.;
Chairman and CEO of Biotechnology LLC

Alfonso Romo Garza

Chairman and CEO of Pulsar International

Steve Jurvetson

Managing Director of Draper Fisher Jurvetson

David Kiernan, M.D., J.D.

Co-Founder of Synthetic Genomics, Inc.;
Senior Litigation Partner at Williams & Connolly

Barry Schuler

Chairman and CEO of Raydiance, Inc.;
Managing Director of Draper Fisher Jurvetson Growth Fund

Hamilton O. Smith, M.D.

Co-Founder, Co-Chief Scientific Officer of Synthetic Genomics, Inc.;
Scientific Director of the J. Craig Venter Institute

J. Craig Venter, Ph.D.

Board Chairman, Co-Founder and CEO of Synthetic Genomics, Inc.;
Founder and President of the J. Craig Venter Institute

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Director of Technology Strategy & Venturing at BP plc

Derrick Khoo Sin Huat

Chief Innovation Officer of Genting Berhad