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SYNTHETIC BIOLOGY

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Synthetic Genomics Inc., USA

Harnessing the power of nature to address global challenges

Today, many products we know, use and consume are produced by biological systems — from medicines to nutritional products to chemicals. There are a multitude of institutes and companies around the globe utilizing synthetic biology and genomics to address issues of titer, productivity and yield of commercial products which tend to be manufactured in conventional systems such as E. coli, yeast and mammalian cell lines e.g. CHO or HEK. These systems have limitations but are pursued because of the developed tools and the familiarity with regulatory agencies. At Synthetic Genomics Inc. we have extensive expertise in biodiscovery and cutting-edge genomics to develop improved or novel hosts with the goal of achieving a step change improvement in production costs and quality. These novel hosts will also open opportunities for innovative and sustainable solutions. Many products are currently sitting on the shelves of R&D labs because traditional hosts made producing those products technical unfeasible or cost prohibitive. We believe that every product, solution and innovation starts with data. We have sequenced and annotated thousands of genomes and metagenomes from diverse environments around the world. Our proprietary bioinformatics platform enables scientists with a set of analytical and design tools, to decipher complex genomic information, understand phenotypic and metabolic traits and translate them into actionable information. Understanding nature's design rules, how living organisms have evolved, and how they function allows smooth transition from in silico design to DNA synthesis and assembly. Here I show several examples where we have developed novel production systems by engineering and optimizing both the cell specific productivity as well as the manufacturing process. We continue to leverage to the power of Mother Nature to revolutionize the current paradigm in bio-based production.

Biography

Robert Christopher Brown received his PhD in Bacterial Pathogenesis from the Centre of Microbial Research and Microbiology, in the U.K. He joined Synthetic Genomics in 2007 to build and lead a multifunctional team in the design and development of microbes for the production of advanced biofuels. He now leads SGI's world-class phototrophic strain development group. Dr. Brown has over 20 years of experience in molecular biology and gene expression in the biotechnology sector. Prior to SGI, he was a senior scientist Diversa Corp., developing recombinant expression systems for industrial enzymes and animal vaccines. Earlier in his career, Dr. Brown served in senior research and science roles for Solexa Ltd. (acquired by Illumina), Dow Chemical, Chirotech Ltd. and Chiroscience Plc. Dr. He has more than 20 issued patents and additional pending applications in various areas of industrial biotechnology

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