

Press Release

First *Jatropha* Genome Completed by Synthetic Genomics Inc. and Asiatic Centre for Genome Technology

*Partners Analyze *Jatropha* Genome and Associated Microbial Genomes to Understand and Improve Plant Yield and Health to Develop Renewable Fuels, Biofertilizers, and Disease Control Solutions*

Jatropha Genome Represents Second Milestone Accomplishment for Partners who Announced Complete Oil Palm Genome Sequence in 2008

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Synthetic Genomics Inc. (SGI), a privately held company applying genomic-driven commercial solutions to address global issues, and Asiatic Centre for Genome Technology (ACGT), a company focused on the commercial application of genome technology to improve oil palm and other crops, today announced completion of a first draft, 10X assembly of the *jatropha* genome. The completed *jatropha* genome represents another significant milestone in the ongoing joint venture between ACGT and SGI announced in 2007. The partners previously announced completion of the oil palm genome in 2008. ACGT is a wholly owned subsidiary of Asiatic Development Berhad, an oil palm plantation company and a member of the Genting Group.

ACGT and SGI have focused on *Jatropha* for several reasons: it is a tropical tree that is one of the highest yielding oilseed plants in the world; it can be grown on marginal, non-food producing lands; has a very short generation time; can be productive for 30 to 40 years; and its seed oil and biomass are ideal for biofuel production. *Jatropha* is a non-domesticated plant which makes it an ideal subject for genetically engineered improvements.

The sequencing of the genome, using both traditional Sanger sequencing and next generation sequencing, has revealed that the *jatropha* genome is approximately 400 million base pairs in size, similar to the size of the rice genome. The teams are now working on annotating the genome to identify particular genes of interest and to discover genetic variations for use in marker assisted breeding. The teams are also applying traditional breeding tools, as well as modern plant molecular biology tools, to improve plant yield, oil quality, fertilizer requirements and to enhance stress and disease tolerance.

ACGT and SGI have also been exploring the microbial life around the *jatropha* tree using environmental genomic techniques to sequence and analyze *jatropha*'s root, soil and leaf bacterial and fungal communities. By understanding these environments SGI and ACGT will be able to develop diagnostic tests for plant diseases and agents for disease control, leading to healthier and more productive crops. These genomic solutions also allow for more efficient land usage with improved stewardship of the plantation environment.

"Having the sequenced genome of *jatropha* will enable us to develop new, sustainable energy feedstocks that grow on marginal land or in more arid climates and that do not compete with agriculture for food production," said J. Craig Venter, Ph.D., founder and CEO of SGI. "SGI and ACGT will be hard at work on the next steps to use our methods to improve these oilseed

crops so that we have higher yielding plants for biofuels, microbial fertilizers, and biologically-based disease control methods."

"The completion of the jatropha genome is yet another significant milestone for ACGT and SGI. It will accelerate our goal of commercially cultivating high-yielding jatropha for biodiesel production," said Tan Sri Lim Kok Thay, Chief Executive of Asiatic Development Berhad.

About Asiatic Development Berhad

[Asiatic](#) Development Berhad ("Asiatic"), a 55%-owned subsidiary of Genting Berhad, commenced its operations in 1980 as the plantation arm of the Genting Group. Over the years, the Asiatic Group had embarked on several significant acquisitions in Malaysia, thus increasing its land bank from a mere 13,700 hectares in 1980 to nearly 66,000 hectares currently. In line with its long term strategy, the Asiatic Group had, in June 2005, further expanded its operations to Indonesia, on a joint venture basis, to develop some 98,300 hectares. The Asiatic Group also owns 5 oil mills with a total milling capacity of 235 tonnes per hour and is reputed to be one of the lowest cost palm oil producers with fresh fruits bunches production of over one million tonnes. Asiatic is one of the early members of the Roundtable on Sustainable Palm Oil (RSPO).

About Synthetic Genomics Inc.

SGI, a privately held company founded in 2005, is dedicated to developing and commercializing genomic-driven solutions to address global energy and environment challenges. Advances in synthetic genomics present limitless applications in a variety of product areas including: energy, chemicals and pharmaceuticals. The company's main research and business programs are focused on major bioenergy areas: designing advanced biofuels with superior properties compared to ethanol and biodiesel; harnessing photosynthetic organisms to produce value added products directly from sunlight and carbon dioxide; developing new biological solutions to increase production and/or recovery rates of subsurface hydrocarbons and developing high-yielding, more disease resistant and economic feedstocks. For more information, go to www.syntheticgenomics.com.

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