

# Antimalarial drug artemisinin moves into production

July 12 2010

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(PhysOrg.com) -- A semi-synthetic version of the antimalarial drug artemisinin developed by UC Berkeley's Jay Keasling is moving out of development into full-scale production, helped along by a \$10.7 million grant from the Bill & Melinda Gates Foundation to the Institute for One World Health. The drug, produced by genetically engineered bacteria, is much cheaper than the plant-derived drug available today.

The Institute for OneWorld Health (iOWH), a nonprofit organization based in San Francisco, CA, announced today that the development activities for semisynthetic [artemisinin](#), a key ingredient in first line malaria treatments, are complete. iOWH also announced that they have received an additional grant of \$10.7 million from the Bill & Melinda Gates Foundation to prepare for large-scale production and commercialization.

Semisynthetic artemisinin is a key ingredient in Artemisinin-based Combination Therapies (ACTs). iOWH, in partnership with sanofi-aventis, a leading global pharmaceutical company, will now be moving toward industrialization, with the intent to commercialize ACTs containing the semisynthetic artemisinin in 2012.

"The accomplishments made by this unique public private partnership harness cutting edge science of [synthetic biology](#) to bring us one step closer to enhancing the security of artemisinin supply and ensuring affordable treatment for the more than 500 million people infected with malaria each year," said Dr. Richard Chin, CEO of iOWH.

iOWH, University of California, Berkeley (UCB) and Amyris Inc. have been working together on the Artemisinin Project since late 2004 to develop a new, low cost technology platform to produce artemisinin. This technology, based on synthetic biology, originated from the laboratories of UCB chemical engineer Jay Keasling, and Amyris engineered the industrial synthetic microbe for large scale manufacturing. sanofi-aventis joined the partnership in 2008 and they are responsible for developing the commercial manufacturing process and commercialization of the product.

"The promise of synthetic biology is being realized with the advancement of this product towards commercialization", said Keasling, the co- inventor of the technology, a professor of chemical engineering, and a co-founder of Amyris.

The semi synthetic version of artemisinin will be a complementary, high quality source of non-seasonal and affordable artemisinin that can alleviate shortages and meet future demand by supplementing the current botanical supplies derived from the sweet wormwood tree that grows in many parts of the world.

"We are confident that the semisynthetic artemisinin production processes will improve the availability of high-quality artemisinin derivatives to drug manufacturers and enable millions of people infected with malaria to gain access to lifesaving treatments", said Jack Newman, co-inventor, co-founder and Sr. Vice President of Amyris.

Semisynthetic artemisinin research and development, was funded with a \$42.6 million grant from the Bill & Melinda Gates Foundation beginning in December 2004 to iOWH. A \$10.7 million grant for commercialization activities was given in November 2009.

Provided by University of California - Berkeley

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