



**For immediate release**

## **Yissum Introduces a Novel Technology for Manufacturing an Anti-Malaria Drug in Tobacco**

*- The work was published in the latest issue of the prestigious Nature Biotechnology journal -*

Jerusalem, Israel, December 19, 2011 – Combating malaria is one of the eight Millennium Development Goals described in the United Nations Millennium Declaration signed by all UN members at the year 2000. A key intervention to control malaria is prompt and effective treatment with artemisinin-based combination therapies. Artemisinin is a natural compound from *Artemisia annua* (sweet wormwood) plants, but low-cost artemisinin-based drugs are lacking because of the high cost of obtaining the natural or chemically synthesized drug. Despite extensive efforts invested in the last decade in metabolic engineering of the drug in both microbial and heterologous plant systems, production of artemisinin itself was never achieved.

Now, Yissum Research Development Company of the Hebrew University of Jerusalem Ltd., the technology transfer arm of the University of Jerusalem, introduces a novel method allowing artemisinin production in a heterologous (that is, other than *A. annua*) plant system, such as tobacco. The method was developed by Professor Alexander Vainstein from the Robert H. Smith Faculty of Agriculture, Food and Environment at the Hebrew University, and sponsored by a fellowship of Mr. Isaac Kaye. It was published under the title [\*Generation of the Potent Anti-Malarial Drug Artemisinin in Tobacco\*](#) in the latest issue of the prestigious publication Nature Biotechnology.

Professor Vainstein and his graduate student Mr. Moran Farhi have developed genetically engineered tobacco plants carrying genes encoding the entire biochemical pathway necessary for producing artemisinin. In light of tobacco's high biomass and rapid growth, this invention will enable a cheap production of large quantities of the drug, paving the way for the development of a sustainable plant-based platform for the commercial production of an anti-malarial drug. The invention is patented by Yissum, which is now seeking a partner for its further development.

Yaacov Michlin, CEO of Yissum said, "Professor Vainstein's technology provides, for the first time, the opportunity for manufacturing affordable artemisinin by using tobacco plants. We hope that this invention will eventually help control this prevalent disease, for the benefit of many millions of people around the globe, and in particular in the developing world."

**About Malaria**

Malaria is caused by a parasite called Plasmodium, which is transmitted via mosquitoes. Symptoms of malaria include fever, headache, and vomiting, and usually appear between 10 and 15 days after the mosquito bite. If not treated, malaria can quickly become life-threatening by disrupting the blood supply to vital organs.

Over 3 billion people are at risk of malaria. Every year, this leads to about 250 million malaria cases and nearly one million deaths. People living in the poorest countries are the most vulnerable.

Malaria is especially a serious problem in Africa, where 20% of childhood deaths are due to the effects of the disease and every 30 seconds a child dies from malaria.

**About Yissum**

Yissum Research Development Company of the Hebrew University of Jerusalem Ltd. was founded in 1964 to protect and commercialize the Hebrew University's intellectual property. Products based on Hebrew University technologies that have been commercialized by Yissum currently generate \$2 Billion in annual sales. Ranked among the top technology transfer companies in the world, Yissum has registered over 7,000 patents covering 2,025 inventions; has licensed out 530 technologies and has spun out 65 companies. Yissum's business partners span the globe and include companies such as Novartis, Microsoft, Johnson & Johnson, Merck, Intel, Teva and many more. For further information please visit [www.yissum.co.il](http://www.yissum.co.il).

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