



# Sanofi and *PATH* announce the Launch of Large-scale Production of Semisynthetic Artemisinin against Malaria

- A pivotal milestone in the fight against malaria - - A new production line at Sanofi's manufacturing site in Italy -

Paris, France, and South San Francisco, California - April 11, 2013 - Sanofi (EURONEXT: SAN and NYSE: SNY) and *PATH*'s Drug Development program, established through an affiliation with *OneWorld Health*, today announced the launch of the large-scale production line of semisynthetic artemisinin at Sanofi's Garessio site in Italy.

Global demand for artemisinin, the key ingredient of artemisinin-based combination therapies (ACTs), has increased since the World Health Organization identified ACTs as the most effective malaria treatment available. Because the existing botanical supply of artemisinin - derived from the sweet wormwood plant - is inconsistent, having multiple sources of high-quality artemisinin will strengthen the artemisinin supply chain, contribute to a more stable price, and ultimately ensure greater availability of treatment to people suffering from malaria.

The development of a new commercial-scale alternative manufacturing process to produce a complementary source of artemisinin started nine years ago, led by *OneWorld Health*, and funded by the Bill & Melinda Gates Foundation. The project built upon pioneering synthetic biology work by Dr. Jay Keasling at the University of California, Berkeley (UC Berkeley), and involved a team of public and private partners, including Sanofi and the synthetic biology innovator, Amyris, Inc., to take the project from laboratory research to commercialization.

"Taking lifesaving innovation to scale requires many things, but it begins with strong partnerships and keeping a close ear to what's most needed on the ground," said Steve Davis, President and CEO of PATH. "That's why I'm extremely pleased we've partnered with Sanofi in the scale up of semisynthetic artemisinin, a key ingredient in the treatment for malaria. Promoting a steady and affordable supply of high-quality artemisinin is a critical part of PATH's efforts to ultimately eradicate malaria and advance health equity. A life free from malaria is a life full of possibilities."

This innovative industrial process to produce semisynthetic artemisinin consists in the production of artemisinic acid through fermentation - which is performed by Huverpharma, in Bulgaria - followed by a synthetic transformation of the artemisinic acid into artemisinin via photochemistry, which will be performed at the Sanofi's Garessio site. Sanofi plans to produce 35 tons of artemisinin in 2013 and, on average, 50 to 60 tons per year by 2014, which corresponds to between 80 and 150 million ACT treatments.

"Sanofi is very proud to announce the launch of large-scale production of semisynthetic artemisinin at Sanofi's Garessio site in Italy," said Philippe Luscan, Senior Vice-President, Industrial Affairs, Sanofi. "This production milestone exemplifies Sanofi's industrial chemists' exceptional expertise and innovative mindset and capabilities, for which we were honored with the French Pierre Potier Scientific Prize in 2012."

Sanofi is committed to producing semisynthetic artemisinin using a no-profit, no-loss production model, helping to maintain a low price for developing countries. This is a pivotal milestone in the

fight against malaria, which affects about 300 million people every year and was responsible for more than 650,000 deaths in 2010.

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## About the partnership

The partnership for semisynthetic artemisinin is led by OneWorld Health, PATH's Drug Development program, with funding from the Bill & Melinda Gates Foundation. The project began in 2004, and partners include Sanofi, UC Berkeley, and Amyris. The novel use of synthetic biology technology is based on pioneering inventions from UC Berkeley, Amyris, the National Research Council Canada Plant Biotechnology Institute, and GenoClipp Biotechnology BV. The chemistry expertise and the industrial experience and capacity of Sanofi helped bring this project from small laboratory experiments to production on the factory floor.

## **About PATH's Drug Development program**

PATH's Drug Development program was established through its affiliation with OneWorld Health, a nonprofit drug development organization. The program works to develop and ensure the availability and accessibility of safe and effective new medicines for diseases disproportionately affecting people in developing countries. For more information, please visit:

http://sites.path.org/drugdevelopment/.

#### **About PATH**

PATH is an international nonprofit organization that transforms global health through innovation. PATH takes an entrepreneurial approach to developing and delivering high-impact, low-cost solutions, from lifesaving vaccines and devices to collaborative programs with communities. Through its work in more than 70 countries, PATH and its partners empower people to achieve their full potential. For more information, please visit <a href="https://www.path.org">www.path.org</a>.

## **About Sanofi**

Sanofi is a diversified world leader in healthcare, researching, developing, and marketing therapeutic solutions based on patient needs. Sanofi has fundamental advantages in the health sector with seven major growth areas: diabetes management, human vaccines, innovative products, consumer healthcare, emerging markets, animal health, and the new Genzyme. Sanofi is quoted in Paris (Euronext: SAN) and in New York (NYSE: SNY).

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