

New technologies gearing up to meet rising demand for vital malaria drugs

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Three emerging technologies have the potential to significantly improve supplies of drugs to combat malaria, according to a report published today.

With renewed efforts to eradicate malaria – a disease which kills up to one million people every year, most of them young children – the global demand for antimalarials is set to increase dramatically over the next four years.

The report, launched at a special meeting of the All Party Parliamentary Group for Malaria at Westminster, assesses a portfolio of new technologies, collectively known as The Artemisinin Enterprise:

- The Centre for Novel Agricultural Products at the University of York is using fast-track plant breeding to increase yields of artemisinin from the medicinal plant.
- The Institute for One World Health is using synthetic biology to produce artemisinin through fermentation and subsequent chemical conversion.
- The Medicines for Malaria Venture is developing novel synthetic artemisinin-like compounds.

The World Health Organization recommends artemisinin combination therapies (ACTs) as the most effective treatments available today. Around 100 million Artemisinin-based Combination Therapies (ACTs) were sold in 2006, but forecasts show that demand will at least double

over the next four years, potentially growing to over 300 million doses annually.

Artemisinin is extracted from the medicinal plant *Artemisia annua* but production of the drugs is expensive and quality variable. Uneven supplies have caused prices to vary from USD \$1200/kg to \$120 between 2005 and 2008 leading to high levels of uncertainty in the market for growers and pharmaceutical companies. There is growing concern that the current global supply of artemisinin cannot reliably and affordably produce the quantities or quality that will be required for ACT production.

Today's report concludes that the outputs from all three technologies can collectively help satisfy the projected global demand for malaria treatments by providing alternative sources of artemisinin, stabilising the supply of effective antimalarial drugs such as ACTs and reducing the cost of artemisinin production.

The new technologies will only be used to support the production of high quality combination therapies for malaria. Such therapies are essential to counter the development of artemisinin resistance, a major threat to effectively fighting the disease. These technologies are envisaged to come online in the next three to seven years.

The report recommends measures to help to ensure the effective introduction of the new technologies of the Artemisinin Enterprise into the ACT supply chain. It also highlights suggestions for the wider malaria community, aimed at improving the supply of ACTs in other ways. These include creating buffer stocks, harmonizing the regulatory approach for faster ACT approvals and improving demand forecasting.

Source: University of York

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