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**MALARIA VACCINE INITIATIVE, OXFORD UNIVERSITY,  
AND OXXON PHARMACCINES TO ACCELERATE CLINICAL DEVELOPMENT  
OF INNOVATIVE MALARIA VACCINE**

*Agreement Will Drive “Prime-Boost” Malaria Vaccine Technology into Clinical Trials*

ATLANTA, GA (October 22, 2001) – The Malaria Vaccine Initiative at PATH (Program for Appropriate Technology in Health), the University of Oxford, and the biotechnology company Oxxon Pharmaccines announced today an agreement to accelerate the development of a promising malaria vaccine technology, moving it into human testing. The need for a malaria vaccine remains critical for the developing world. Malaria—a reemerging infectious disease—kills more than one million children per year and is expanding outside its traditional borders. The US\$1.5 million, two-year agreement was announced at the American Public Health Association 129<sup>th</sup> Annual Meeting and Exposition.

The alliance between the three entities will develop and test in human volunteers a vaccine based on Oxxon’s “prime-boost” technology. This technology should increase the body’s natural resistance to malaria through a two-stage regime that primes the immune system with one vaccine candidate and then boosts the immune response with another. Each candidate contains a gene for the same malaria antigen. Antigens are parts of the malaria parasite that are capable of sparking an immune response. Animal studies have shown the prime-boost technology, using as an antigen the parasite’s coat protein, is 100 percent effective in providing protection from malaria. The agreement announced today will move the prime-boost approach using these malaria vaccine candidates into clinical trials. “I’m optimistic about our ability to take these early animal results and translate them into a very practical, affordable vaccine that could substantially reduce the suffering malaria inflicts, especially in the developing world. These vaccines, administered in the prime-boost approach, have the potential to greatly amplify the human body’s ability to fight off malaria,” said Regina Rabinovich, MD, MPH, Director of the Malaria Vaccine Initiative (MVI). “The partnership will benefit tremendously from Oxford’s substantial scientific expertise and Oxxon’s ability to develop clinical grade vaccines.”

“This vaccine combination holds the promise of turning the immune system of a six-month old into that of a six-year old, providing a better chance of protecting children from the dangers of malaria,” said Adrian Hill, MD, DPhil, Principal Investigator of the project at Oxford and a Wellcome Trust Fellow at Oxford’s Nuffield Department of Clinical Medicine. “Our team has been developing malaria vaccines using this powerful prime-boost technology for some time. It is exciting that with MVI and Oxxon, we now have the opportunity to take these particular vaccine candidates to the next level.”

“MVI’s partnership with Oxxon and Oxford University allows us to quickly progress new malaria vaccine candidates, and provides the opportunity to validate Oxxon’s prime-boost

technology using a vaccine regime that has not previously been tested in humans,” said Deirdre Gillespie, MD, Oxxon’s Chief Executive Officer.

One of the advantages of this malaria vaccine strategy is that it delivers malaria antigens with the help of well-understood viruses that are harmless to humans. The prime-boost mechanism uses a pair of modified pox viruses to expose malaria antigens to human immune cells. The two viruses or “viral vectors” are administered sequentially. Neither is capable of replicating in humans. The use of such well-studied vaccine components, noted Hill, should make production relatively easy and inexpensive, leading to a vaccine that could be as accessible as it is effective.

“Speeding up natural immunity is particularly crucial as most deaths from malaria occur in young children,” said Rabinovich. “Should this malaria vaccine prove successful, all parties agree that it will be made affordable in developing countries where cost is often a major barrier to both prevention and treatment of the disease.”

Malaria is a parasitic infection transmitted through the bite of the Anopheles mosquito. Between 300 and 500 million malaria infections occur each year, and 40 percent of the world’s population is at risk. The availability of an effective malaria vaccine would greatly enhance global efforts to reduce the enormous impact of malaria on adults and children in the developing world.

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Program for Appropriate Technology in Health (PATH) established the Malaria Vaccine Initiative (MVI) through a US\$50 million seed grant from the Bill & Melinda Gates Foundation. MVI at PATH seeks to accelerate the development of promising malaria vaccines and ensure their availability for the developing world. For further information about MVI and PATH, visit the Web sites at [www.MalariaVaccine.org](http://www.MalariaVaccine.org) and [www.path.org](http://www.path.org).

The University of Oxford, recently named ‘the most innovative university in the UK’, currently has the highest international research standing of any UK university. In the financial year 1999-2000, Oxford attracted over £130m in external research income from industry, charities and government agencies. The University’s wholly-owned technology transfer company, Isis Innovation, is a world leader and currently files a patent a week, and spins-out a company every two months based on Oxford research. For further information about the University and the Nuffield Department of Clinical Medicine, visit the Web sites at [www.ox.ac.uk](http://www.ox.ac.uk) and [www.jr2.ox.ac.uk/ndm](http://www.jr2.ox.ac.uk/ndm).

Oxxon Pharmaccines is an Oxford-based company developing innovative therapeutic vaccines (pharmaccines) based on its proprietary prime-boost technology. The company has a melanoma pharmaccine candidate in Phase 1 clinical trials, with another candidate targeted at Hepatitis B due to enter the clinic shortly. Clinical trials using prime-boost in an academic setting are ongoing in malaria and AIDS. The Web site is [www.oxxonpharmaccines.com](http://www.oxxonpharmaccines.com).