

Australia's Preeminent Malaria Scientists to Collaborate with the Malaria Vaccine Initiative

Three New Projects Pursue Promising Candidate Vaccines

ROCKVILLE, MARYLAND, USA (17 December 2001) – The Malaria Vaccine Initiative at PATH (Program for Appropriate Technology in Health) announced today that it would provide more than US\$4 million for three Australian vaccine development partnerships. These projects will utilize Australia's considerable achievements in malaria research and proven biotech industry to help move the malaria vaccine field toward a safe and effective vaccine.

The need for a malaria vaccine remains critical, particularly for the developing world. Malaria—a widespread and devastating infectious disease—kills more than one million children per year and is expanding outside its traditional borders. Australia has had a long-term interest in the disease, both as part of its commitment to global health and its strong ties to nearby Papua New Guinea and Southeast Asia, where malaria remains endemic.

"The Malaria Vaccine Initiative (MVI) is moving aggressively to support Australian scientists as part of a broader effort to tap talent globally in its quest for a malaria vaccine," said MVI's Director Regina Rabinovich, MD.

"Australia possesses an exceptional wealth of knowledge about the basic behavior of the malaria parasite," Rabinovich said. "Scientists in Australia, however, have lacked the funding required to drive their vaccine candidates from the bench into large-scale vaccine production for clinical trials. Through our partnerships, MVI removes this roadblock."

Following extensive discussions with investigators throughout Australia, MVI chose to fund work on five different malaria vaccine candidates identified by Australian scientists as having the potential to be useful components of an effective malaria vaccine. Each of the Australian projects focuses on "blood-stage" antigens that have the potential to prevent the malaria parasite from causing severe disease and death. Many adults found to be carrying the parasite do not get sick from it because they have developed partial immunity to the parasite in the blood stage of its life cycle. A vaccine that could prompt such immunity in children would be a considerable achievement.

The MVI agreements involve partnerships between academic investigators and commercial biotech firms who will work together to translate laboratory discoveries into manufactured vaccine products suitable for clinical testing within two to three years. The objective of these projects is to evaluate the safety and immune response to each

antigen individually and then combine promising candidates for an efficacy trial in a malaria endemic site. Since the long-term goal of the program is to prevent death and severe disease in high-risk children in the developing world, each partner has committed to making successful vaccines available in the future.

Sir Gustav Nossal, Professor Emeritus, University of Melbourne (and current chair of MVI's Strategic Advisory Council), said MVI arrives on the scene at a critical juncture. He said that while the Australian government has been a strong supporter of malaria research, scientists had "come to a stage where they were blocked" because the resources required for clinical trials far exceed funding available through regular research grants.

"It's like MVI has come in and cut the Gordian knot that was keeping us from moving forward," he said. "These projects are creating a lot of excitement in Australia's malaria research community."

Anne Kelso, Director of Australia's Cooperative Research Centre for Vaccine Technology (CRC-VT), an academia-industry consortium that is a partner on two of the MVI-funded projects, echoed Nossal's sentiments.

"I simply cannot overstate the importance of this funding, because it is absolutely clear that we have attractive vaccine candidates," she said. "Some of the brightest minds in Australian science have been or are now working in malaria research. But it can be very frustrating when there are very limited resources for evaluating candidates in people."

The following is a brief summary of the vaccine development projects MVI supports in Australia:

Biotech Australia and CRC-VT—with Professor Robin Anders' team at La Trobe University—were awarded US\$1.66 million by MVI for a project that will develop and test two vaccines based on different forms of an antigen known as merozoite surface protein 2 (MSP-2). MSP-2 appears to be essential to the malaria parasite's viability and therefore a prime target for a vaccine. Also, one of the MSP-2 formulations to be studied was part of a previous vaccine that appeared to reduce parasite density when evaluated in malaria-infected children in Papua New Guinea. This effect could be expected to reduce the severity of disease in someone infected with malaria.

Monash University and Progen Industries will receive US\$1.6 million from MVI to develop two vaccines based on merozoite surface proteins 4 and 5 (MSP-4 and MSP-5). MSP-4 and MSP-5 have shown promising results in pre-clinical tests and are considered particularly appropriate targets for vaccines designed to protect children. The MVI-backed project, led by Monash's Dr. Ross Coppel, will work to manufacture the vaccines. If successful, human testing would proceed under a separate agreement. Neither antigen is patented and so could rapidly be incorporated by others into a multi-antigen vaccine candidate.

Progen Industries and CRC-VT—with Dr. Laura Martin’s team at The Queensland Institute of Medical Research—will use US\$1.4 million from MVI to develop a vaccine using the rhopty associated protein 2 (RAP-2). Antibodies formed in response to RAP-2 are believed to inhibit the malaria parasite from invading red blood cells, and studies with monkeys have shown that the antigen has the potential to decrease parasite growth rates. The project includes pre-clinical development, cGMP manufacture, and initial clinical trials.

The Malaria Vaccine Initiative (MVI) was established by Program for Appropriate Technology in Health (PATH) through a US\$50 million seed grant from the Bill & Melinda Gates Foundation. MVI 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 and www.path.org.

MVI’s partners in this endeavor include:

- Biotech Australia, New South Wales
- Cooperative Research Centre for Vaccine Technology (CRC-VT), Queensland, www.crc-vt.qimr.edu.au.
CRC-VT partners include:
 - La Trobe University, Victoria, www.latrobe.edu.au
 - Queensland Institute for Medical Research, Queensland, www.qimr.edu.au
- Monash University, Victoria, www.med.monash.edu.au
- Progen Industries Limited, Queensland, www.progen.com.au