MVI, Merck, NYU collaborate to research potential malaria vaccine

December 14 2010

Development of a vaccine to prevent the malaria parasite from entering the human liver is the goal of a new collaboration announced today by global leaders in malaria research and vaccine development. The PATH Malaria Vaccine Initiative (MVI), Merck (known outside the US and Canada as MSD), and NYU Langone Medical Center are working together to evaluate an approach targeting a novel part of a major surface protein on the malaria parasite. Malaria is estimated to kill close to 900,000 people each year with the majority of deaths occurring in children under the age of five in sub-Saharan Africa.

The circumsporozoite protein (CSP) has been recognized as a potential target in the development of vaccines focused on the earlier stages of malaria infection. The researchers working on this project are focusing on a new approach that targets a region of CSP important to a critical function of the protein. By blocking this function, it is hoped that invasion of the parasite into the liver, an essential step in causing malaria disease, can be prevented.

"We think we can improve the way sub-unit vaccines are designed by strategically targeting this critical protein function," noted Dr. Elizabeth Nardin, professor in the Department of Medical Parasitology at NYU Langone Medical Center. "Other vaccine approaches targeting CSP have required extremely high levels of antibody, which are difficult to elicit and to maintain. This approach has the potential to address that problem."

The rationale for pursuing this targeted "peptide protein conjugate" approach is based on knowledge of both the vaccine technology to be used and the targeting of a particular malaria protein known to elicit an immune response. CSP has already been shown to have significant protective efficacy in the field, in the context of RTS,S, the most advanced malaria vaccine candidate, now in a Phase 3 clinical trial. Additionally, other conjugate based vaccines developed against bacterial pathogens have been incorporated into licensed, widely used pediatric vaccines by Merck.

"History has shown that vaccines can be a powerful tool against disease," said Dr. John Shiver, vice president of vaccines discovery at Merck. "We recognize that new methods and partnerships, like this collaboration with MVI and NYU Langone Medical Center, are important to continue innovation in the battle against the malaria parasite."

"With the availability of a first-generation malaria vaccine on the horizon, we are ramping up our efforts to seek out and invest in scientific approaches for malaria vaccines that could potentially be even more effective and protect more people," said Dr. Christian Loucq, director of MVI. "We are very pleased that one of the world's largest pharmaceutical companies and a major academic medical center have committed to testing a promising new way to defend children against malaria."

Although this vaccine approach is being tested primarily for use in children younger than one year of age, it could be used to help prevent disease in all populations vulnerable to Plasmodium falciparum, the most deadly species of the parasite, and could potentially be adapted to prevent P. vivax as well. Approximately 40 percent of the world's population lives at risk of contracting malaria caused by *P. vivax* and/or *P. falciparum*.

"Though it is quite early, we are excited to have the opportunity to explore the promise of this innovative vaccine approach with Merck and MVI," said Dr. Photini Sinnis, associate professor in Medical Parasitology at NYU Langone Medical Center.

Provided by PATH Malaria Vaccine Initiative