WRAIR is the only institution in the world focused on developing drugs for both prevention and treatment of malaria in healthy adults, as well as vaccines to prevent malaria infection.

Roughly 212 million malaria cases occur annually, with approximately 429,000 deaths in 2015. Given its prevalence, malaria poses a significant and persistent threat to global stability and security, including the health of U.S. Service Members. The U.S. Military Malaria Research Program, composed of Experimental Therapeutics and Malaria Vaccine branches, continues to lead the fight against this major disease threat.

An Ongoing Threat

Increasing drug resistance has made malaria eradication even more of a moving target. The goal of ending malaria deaths requires a combination of mosquito avoidance along with the innovative use of leading-edge therapeutics, diagnostics and surveillance. Malaria eradication will require several more effective drugs, as well as new and better diagnostics and highly effective vaccines.

With its history of success in malaria research and development and its unique network of resources, including an insectary and network of overseas laboratories, including the U.S. Army Medical Research Directorate-Kenya (USAMRD-K) and Armed Forces Institute of Medical Sciences (AFRIMS) in Thailand, WRAIR continues to lead charge to combat this widespread disease.

Drug & Vaccine Development

The Military Malaria Research Program (MMRP) at WRAIR has distinguished itself as one of the world’s preeminent institutions for malaria research. To date, all FDA-approved drugs currently used for malaria prevention were either developed or co-developed by WRAIR scientists. WRAIR’s challenge model for *P. falciparum* and *P. vivax* malaria enables in-house testing of vaccine candidates and drugs for malaria treatment and prevention.

Advances in Experimental Therapeutics

- Developed the most widely used antimalarial drugs, including chloroquine, primaquine, sulfadoxine-pyrimethamine, mefloquine, doxycycline as well as early discoveries that led to combination of atovaquone and proguanil
- Demonstrated intravenous artesunate as a safer and more effective drug for the treatment of severe malaria in the U.S.
- Evaluated Malarone™, a first-line prophylaxis, administered to prevent infections among U.S. troops in Africa
- Advanced the development of tafenoquine for radical cure and prophylaxis into Phase 2/3 clinical trials
- Contributed to the FDA approval of Binax/NOW as a rapid diagnostic for malaria
In addition to combating malaria, WRAIR’s Experimental Therapeutics (ET) branch houses the world’s only dedicated drug development program for cutaneous leishmaniasis and recently initiated a new discovery program for antibacterials as part of a presidential initiative, Combating Antibiotic Resistant Bacteria. ET is also home to DoD’s leading experts in synthetic, medicinal, and analytical chemistry, who support external drug discovery efforts in therapeutic areas ranging from traumatic brain injury to biodefense.

Malaria Vaccine Development

The Malaria Vaccine Branch is a fully integrated research enterprise that designs and develops new products, conducts controlled human malaria infection trials and transitions products for clinical development in malaria-endemic areas worldwide.

From inception, WRAIR has been a key collaborator in the development of GlaxoSmithKline’s malaria vaccine candidate, RTS,S. WRAIR has performed many of the Phase 2 malaria challenge trials for this vaccine candidate, including a recently concluded study which demonstrated 86.7% vaccine efficacy through utilization of a delayed fractional dose regimen. Additionally, GSK’s Phase 3 trial in Africa was conducted partly at USAMRD-K. In 2017-2018, WRAIR is collaborating with GSK and PATH-MVI on the largest malaria challenge trial ever performed, in which delayed fractional dosing of the vaccine candidate will be further evaluated.

Advances in Vaccine Development

• Co-developed RTS,S, the world’s first efficacious malaria vaccine
• Developed and tested P. vivax vaccines for the first time in a clinical trial
• Launched an International Reference Laboratory for malaria serology to evaluate the immunogenicity of malaria vaccines
• Established and refined Controlled Human Malaria Infection Model (CHMI) for testing vaccines and drugs

For more information, including how to partner with WRAIR, call 301-319-9471 or email debra.l.yourick.civ@mail.mil

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