

By Vicky Cerino

# RESEARCH

## Biting the bug back

Jonathan Vennerstrom was 7 years old when he began taking drugs to prevent malaria, drugs he took for nine years while his parents served as missionaries in Addis Ababa, Ethiopia. He had seen how quickly malaria can kill.

“Growing up where malaria is a health threat gives you a special perspective and interest,” said Dr.

Vennerstrom, an associate professor of pharmaceutical sciences at the UNMC College of Pharmacy.

An *Anopheles* mosquito, carrying one of four parasite species, infects the red blood cells of an estimated 500 million people around the world each year. The result is malaria, a disease from which nearly two million people die every year.

The number of deaths could increase as resistance to current drugs spread, a problem that becomes more likely as malaria reaches epidemic proportions in Africa.

Dr. Vennerstrom has studied the disease for 15 years and has

developed a new class of compounds that he and others hope ultimately will produce a new anti-malarial drug.

Medicines for Malaria Venture (MMV), an international foundation based in Switzerland, has awarded grants to three international research teams selected from more than 100 applications. Dr. Vennerstrom is leading an international team that will receive a two-year, \$2.1 million grant.

MMV is unique in that it brings together the pharmaceutical industry and the public sector with the mission to discover, develop and commercialize one affordable anti-malarial drug every five years.

Yuxiang Dong, Ph.D., a post-doctoral research associate at UNMC, is a key investigator with Dr. Vennerstrom. They work with collaborators from Monash University in Australia and the Swiss Tropical Institute and Hoffmann-LaRoche in Switzerland. Dr. Dong brings his chemistry

expertise to UNMC from Karlsruhe University in Germany.

“This research grant means that Dr. Dong has been recognized at an international level as being an innovative and extraordinary scientist,” Dr. Vennerstrom said. “It’s unique to apply his background to come up with potential new drugs to treat malaria.”

The team has identified several anti-malarial compounds in a new class of chemical structures. Their work has been called spectacular by the World Health Organization (WHO).

“Dr. Vennerstrom knows firsthand the hardships and tragedies caused by malaria. His commitment and perseverance to finding a treatment for this dreaded disease has been unwavering since his days in graduate school. I commend him for that,” said Clarence Ueda, Ph.D., Pharm.D., professor and dean of the UNMC College of Pharmacy.

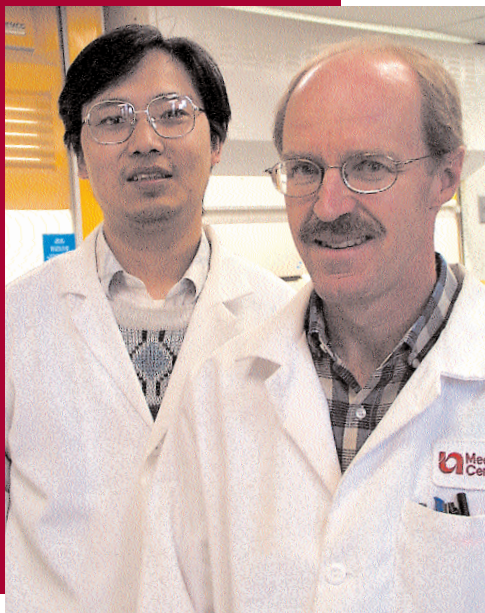
Besides managing the project, UNMC will synthesize and purify the compounds that are being tested for safety and effectiveness by the collaborating institutions. UNMC also has applied for a patent on the compounds through UneMed Corp., UNMC’s technology transfer company.

Counter to popular opinion, malaria is not confined to tropical climates. Improved living standards and aggressive insecticide spraying programs since the 1940s have reduced the incidence of malaria to about 1,000 people a year in the United States, according to the U.S. Centers for Disease Control and Prevention. Almost all the cases are now contracted outside the country.

But in other parts of the world, malaria’s victims tend to be children and pregnant women. Ninety percent of malaria cases occur in sub-Saharan Africa, according to the WHO.

“If a country is fighting disease, it has less energy and resources to develop,” Dr. Vennerstrom said. “Families are losing their children. If we can develop a new and inexpensive anti-malarial drug in our labs, then maybe in some small way we can help.”

**FOR MORE INFORMATION ABOUT THIS RESEARCH, CALL DR. VENNERSTROM AT 402-559-5362. d**



Elizabeth Kumru

Dr. Yuxiang Dong and Dr. Jonathan Vennerstrom

