UT Southwestern research team's anti-malarial work wins international Project of the Year award

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The discovery of a potential new anti-malarial drug by a UT Southwestern Medical Center-led research team has been awarded Project of the Year by Medicines for Malaria Venture (MMV).

The team's research, which began in 2002 under the direction of Dr. Margaret Phillips, identified a promising inhibitor of a specific enzyme that the malaria parasite requires for survival. The lead compound, uncovered during high-throughput tests at the UT Southwestern core screening laboratory and now in preclinical trials, could be ready for human studies next year.

"The problem is staying ahead of the parasite's continuing ability to develop drug resistance. If we don't discover new drugs, the parasite is going to win," said Dr. Phillips, professor of pharmacology at UT Southwestern and project leader for the drug development team that includes researchers from the University of Washington, Seattle; Monash University in Melbourne, Australia; and pharmaceutical company GlaxoSmithKline.

Each year, malaria kills 1 million to 2 million people, most of them women and children. The mosquito-transmitted disease is prevalent in Africa, South America and Asia, but virtually nonexistent in the U.S. No vaccine prevents malaria, although drugs are available to treat the infectious disease.

"If this drug succeeds, it could very well revolutionize the way malaria is treated," said Dr. David Mangelsdorf, chairman of pharmacology and a Howard Hughes Medical Institute investigator at UT Southwestern.

Of 26 projects that span the drug development pipeline from early-phase discovery work to compounds in clinical development, MMV chose the work of Dr. Phillips' team for Project of the Year based on its progress toward discovering a new anti-malarial drug.

MMV is a not-for-profit public/private partnership based in Geneva whose mission is to develop and bring affordable anti-malarial drugs to market. Researchers submit proposals to the organization and, if the investigative plan is accepted, their team receives funding and scientific advisory support.

"The project led by Meg Phillips quickly became a firm favorite for MMV's Project of the Year 2010," said Tim Wells, chief scientific officer for MMV. "It was impressive not only for its progress in bringing inhibitors forward for clinical testing but also for the way in which the independent international team worked together."

So far, the lead compound has been shown to kill the malaria parasite in mouse models. Further tests to demonstrate safety are needed before the compound could be developed into a drug for clinical trials, Dr. Phillips said. Besides support from MMV, a five-year grant from the National Institutes of Health is funding this research.

"We were trying to find a compound that would bind the parasite enzyme selectively and stop its function without inhibiting the human enzyme. Therefore, the parasites can't make key building blocks for DNA and RNA biosynthesis and they die," said Dr. Phillips.

Dr. Phillips and three other team members received their awards at

MMV's annual board and stakeholders meeting in Tanzania. United Republic of Tanzania President Jakaya Mrisho Kikwete presented the awards. MMV holds its meeting each year in an area affected by malaria.

Having done graduate work on African sleeping sickness, another parasitic disease, Dr. Phillips was drawn to research on malaria drug development soon after joining the UT Southwestern faculty in 1992. Although the odds of discovering an approved anti-malarial drug are slim – only about one in 10 compounds at this stage of development make it to market – Dr. Phillips said the potential to make a life-saving drug discovery is worth it.

"This is about as cool as it gets. If you are able to actually do research, help people and have an impact, that is just fantastic," Dr Phillips said.

Provided by UT Southwestern Medical Center