

Breakthrough in the battle against malaria

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A mosquito in flight with its abdomen full of blood. This species, *Anopheles stephensi*, is the insect that transmits malaria in India and Pakistan. Credit: Hugh Sturrock/Wellcome Images

An international team of scientists has announced a breakthrough in the fight against malaria, paving the way for the development of new drugs to treat the deadly disease.

According to the [World Health Organisation](#) malaria currently infects more than 225 million people worldwide and accounts for nearly 800,000 deaths per year. Most deaths occur among children living in [Africa](#) where a child dies every 45 seconds of malaria and the disease accounts for approximately 20% of all childhood deaths. The disease is

caused by the malaria parasite, *Plasmodium*, that is injected into the [human host](#) through the bite of the female *Anopheles* mosquito.

Now researchers have discovered new ways in which the malarial parasite survives in the [bloodstream](#) of its victims.

The advance is the result of a collaboration between medical scientists at the University of Leicester in the UK and a team from the French Institut National de la Santé et de la Recherche Médicale (Inserm) working at the Wellcome Trust Centre for Molecular Parasitology in Glasgow and the Ecole Polytechnique Fédérale de Lausanne (EPFL, Switzerland), now relocating to Monash University in Melbourne (Australia).



This is a specimen of *Anopheles gambiae*. Credit: Copyright Inserm/E.Begouen

The breakthrough was made by the teams led by Professor Andrew Tobin at the University of Leicester and Professor Christian Doerig, now at Monash University, and is published in the prestigious scientific journal *Nature Communications* and was funded by The Wellcome Trust, the European Commission, Inserm and EPFL.

Professor Tobin, of the Department of Cell Physiology and Pharmacology, said: "I am proud to be involved in a collaboration that has made such an impact on malaria research. Our study opens new avenues for researchers to look for [new drugs](#) that treat malaria."

Professor Doerig explained "We have shown that a crucial element that is required by malaria parasites to survive in the human blood stream is a group of enzymes called protein kinases. If we stop these proteins kinases from working then we kill the malaria parasites. We are now looking for drugs that do exactly that – stop the protein kinases from working. If we find these drugs then we will have a new way of killing the malaria parasite."

Professor Tobin added: "It seems perfectly realistic to us that we can now develop novel anti-malaria drugs based on the findings that we have made – it certainly is a big moment in our fight against this terrible disease that mainly affects the world's poorest people."

Tobin and Doerig also warn: "The parasite is very clever at adapting to [drug](#) treatments and in so doing becoming resistant to drugs. In fact, there is already evidence that the parasite is developing resistance to the most recent front line treatment for [malaria](#).

"To avoid the catastrophic affects of widespread resistance to anti-malarial treatments we need a continued pipeline of new anti-malaria drugs. Our discovery provides one avenue towards populating such a pipeline."

Provided by University of Leicester

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