

# NTU study makes key find towards malaria vaccine

Team identifies antibodies to block parasite invasion

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By Feng Zengkun

Scientists at Nanyang Technological University (NTU) believe their ground-breaking research could lead to a vaccine against malaria within five years.

Professor Peter Preiser, chair of NTU's School of Biological Sciences, said a low-cost vaccine could help save lives and prevent millions of dollars' worth of economic loss due to malaria sickness.

The mosquito-borne disease usually causes fevers and headaches, but last year it killed an estimated 627,000 people, mostly African children, according to the World Health Organisation.

There is no vaccine on the market, although British drugmaker GlaxoSmithKline has developed one that had some success with young children and infants.

Scientists around the world, including those at NTU, had already identified the part of the parasite's DNA that allows it to recognise healthy red blood cells in humans. This is the first step before the parasite latches onto the cells and invades them, causing the disease.

Prof Preiser said his team tested about 200 antibodies - proteins that neutralise foreign invaders such as bacteria and viruses - and narrowed them down to two that most effectively blocked the parasite's invasion.

Further studies showed that the antibodies actually blocked an internal signal within the parasite that allowed it to recognise the red blood cells.

"This signal tells the parasite that it's in the right place and to invade. Jamming this signal stopped the invasion," said Prof Preiser.

The NTU discoveries were published in science journal Nature Communications last month.

Prof Preiser's team consists of a post-doctoral researcher, three doctoral students and one undergraduate student, all from the School of Biological Sciences.

He said the team was in preliminary talks with several drug companies, as well as an organisation that matchmakes malaria researchers with firms. A potential vaccine could involve a drug that spurs the human body to create the antibodies, or direct injections of the antibodies.

Any potential vaccine would still have to be tested for side effects, as the antibodies are also foreign to the human body.

Prof Preiser said the team will study the parasite further to see if they can develop better and cheaper antibodies to produce.

"We also want to know how the antibodies interfere with the signal. If we can understand that, we can create drugs that target the signalling process more precisely, and that could lower the risk of side effects," he said.

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## **PROTECTING BLOOD CELLS**

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**- Professor Peter Preiser, chair of NTU's School of Biological Sciences**

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