Scientists find new antimalarial drug targets
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"We've already started collaborating with GSK to see if designing drugs that target these proteins could form the basis of a new antimalarial drug," says Dr James Thomas, Crick postdoctoral scholar and joint first-author of the paper.

When malaria parasites invade red blood cells, they form an internal compartment where they replicate many times before bursting out of the cell and infecting more cells. In order to escape red blood cells, the parasites have to break through both the internal compartment and the red cell membrane.

The team used genetic knockout experiments to show that a protein called SUB1 is essential for the parasite to break through the internal compartment, while SERA6 - which is activated by SUB1 - is essential for the parasite to break through the red blood cell membrane.

Using analytical tools, the team then figured out how SERA6 breaks through the blood cell membrane. Crick PhD student and joint first-author Michele Tan explains: "There is a strong chicken wire-like meshwork that sits under the red blood cell membrane to provide strength and support. We found that SERA6 cuts the chicken wire, causing the blood cell membrane to collapse and rip open so that the parasites can escape."

The paper 'A protease cascade regulates release of the human malaria parasite Plasmodium falciparum from host red blood cells' is published in Nature Microbiology.


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