Can antibodies block the malaria parasite?

Ian Ada, Stephen Fisher, Xiao Xiao

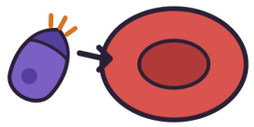
citizens of science

Background

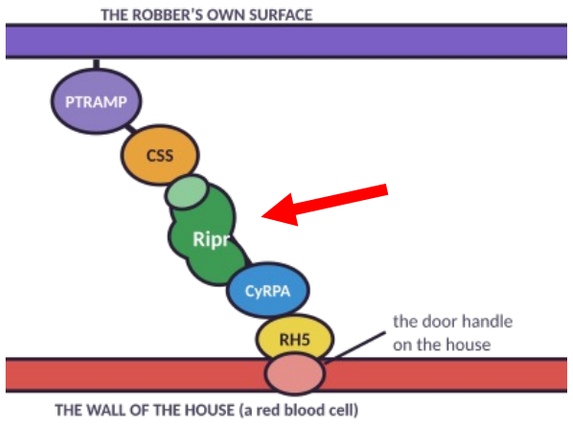
- Malaria is a parasitic disease that kills roughly 610,000 people a year and we still do not have a vaccine good enough to stop it.



- Mosquitos introduce the parasites into the human body, first travelling to the liver, then invading the red blood cells.



- It does that with a small tool on its surface (chain of proteins), one of which is called Ripr.

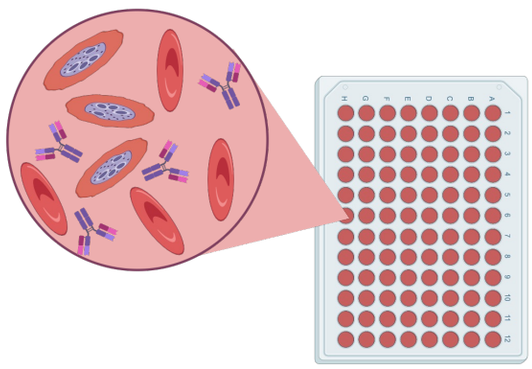


Aim and hypothesis

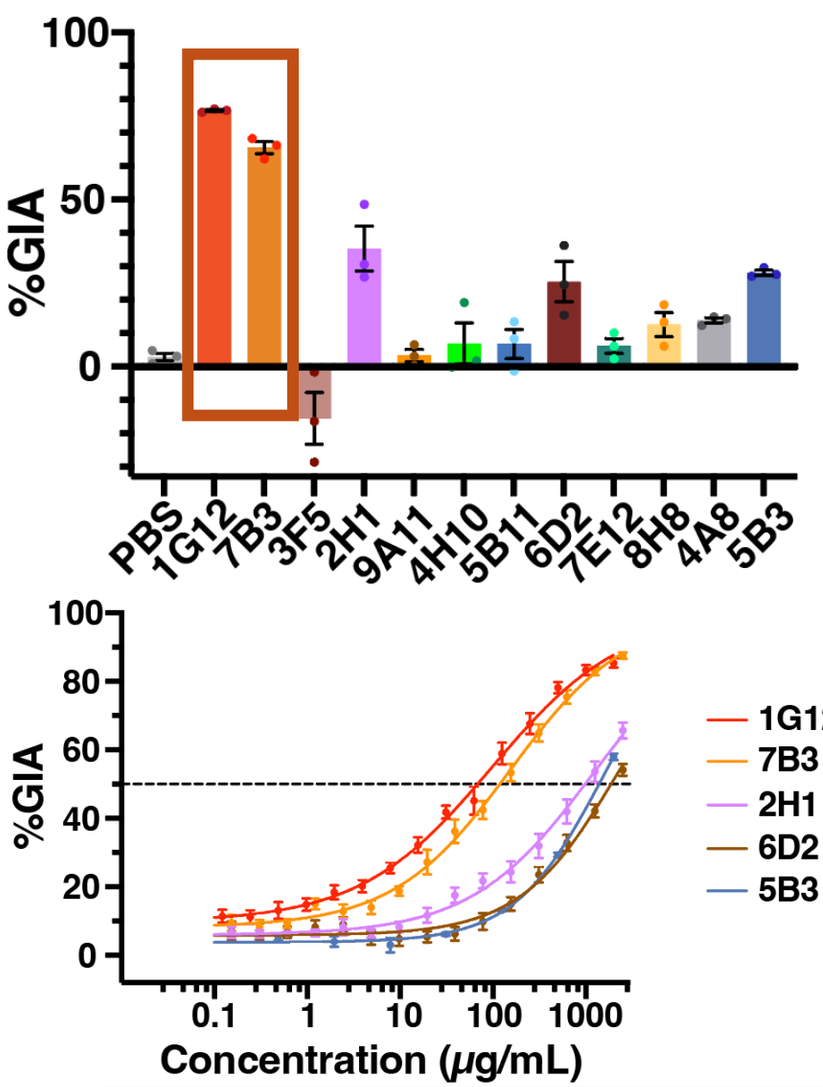
- Aim: To test a range of antibodies against Ripr.
- Hypothesis: Some antibodies are able to disable Ripr and stop parasite growth.

Method

- Tested twelve antibodies, one per well, against live parasites for 48 hours, and counted how many parasites survived.
- Initially all antibodies were tested at the same concentration to ascertain which ones inhibit.
- All inhibitory antibodies were tested across a range of concentrations.



Findings



5 antibodies had some effect, 2 had major, requiring the least concentrations.
This suggests Ripr can be a good vaccine candidate.

Learnings

- Killing the parasite in the Petri dishes is not the same as preventing malaria in humans.
- Do multiple antibodies work better than single antibodies?
- Do these antibodies work on more than one malaria species?