

Study finds protein in platelets fight malaria but only for some people

7 December 2012, by Bob Yirka

(Medical Xpress)—Researchers in Australia have found that a protein in platelets found naturally in blood has a protective effect against malaria. In their paper published in the journal *Science*, the team describes how they found that a certain protein present in platelets binds to infected red blood cells and kills the parasite responsible for the disease, but only if the red blood cell has a certain kind of receptor.

Scientists have known since 2009 that platelets serve some role in protecting some people from being infected by the parasite *Plasmodium falciparum*, which is responsible for causing [malaria](#) in people – but the process wasn't very well understood. This new research has discovered the mechanism involved.

Platelets are cells produced in bone marrow that make their way into the [bloodstream](#). To better understand their role in fighting malaria, the team grew samples of *P. falciparum* in their lab and then exposed them to platelets under various scenarios. In so doing they found that a protein in the [platelets](#) called Platelet Factor 4 (PF4) tended to bind with infected [red blood cells](#) and when they did so, they killed off the parasite it harbored – but only if the red blood cell had a Duffy-antigen receptor – without it there was no binding and thus no malarial protection.

They note that the Duffy-antigen receptor is uncommon in people of African descent, which means the people most impacted by the disease are the very same ones that have the least resistance to it. They suggest this is because of the evolutionary history of the people of Africa and another parasite related to *P. falciparum* known as [Plasmodium vivax](#). This parasite, now more commonly found in India is not able to infect people who are Duffy-[antigen receptor](#) negative. The researchers suspect early Africans lost the receptor in response to *P. vivax* and because of that are now more vulnerable to *P. falciparum*.

These new findings, the team writes, aren't likely to lead to a way to prevent malaria infections in people without Duffy-antigen receptors anytime soon, but they do offer more insight into how the parasite works in the human body and that might help lead the way to finding a way around the problem sometime in the future.

More information:

www.sciencemag.org/content/338/6112/1348

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