

Mutation in human gene helps protect against fatal malaria

April 21 2008

New research suggests that not everyone who is bitten by a malaria-infected mosquito develops life threatening health problems according to scientists at the University of Toronto.

Malaria causes an estimated 500 million clinical cases worldwide with symptoms ranging from headache, high fevers and nausea to more than 1 million deaths annually.

“Malaria has had a major effect on the evolution of our species. Mutations occurring in our genome that have helped us survive malaria have been selected for over tens of 1,000s of years of co-existing with this parasite. Understanding how these mutations make us more resistant to malaria can help us design innovative new strategies to prevent or treat severe malaria in places such as sub-Saharan Africa,” says researcher Kevin Kain, a Professor out of the Department of Medicine at U of T and one of the lead researchers on the project. “Our research shows that people who have an enzyme deficiency or those who carry the gene trait for this deficiency may be protected from severe and fatal malaria.”

The team headed by Dr. Kain and which included researchers from McGill University found that a deficiency in an enzyme called pyruvate kinase, which is required for energy production in the body, provides protection against malaria infection.

The findings could lead to the design of new novel therapies to treat and prevent severe and fatal malaria through enhancing the body’s protective

pathways instead of inundating the body with drugs. The study was funded by the Canadian Institutes of Health Research (CIHR) Team grant in malaria.

The study findings were published in the April 24th issue of *New England Journal of Medicine*.

Source: University of Toronto

Citation: Mutation in human gene helps protect against fatal malaria (2008, April 21) retrieved 21 November 2023 from <https://medicalxpress.com/news/2008-04-mutation-human-gene-fatal-malaria.html>

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