# Genetic variation increases HIV risk in Africans

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A genetic variation which evolved to protect people of African descent against malaria has now been shown to increase their susceptibility to HIV infection by up to 40 per cent, according to new research. Conversely, the same variation also appears to prolong survival of those infected with HIV by approximately two years.

The discovery marks the first genetic risk factor for HIV found only in people of African descent, and sheds light on the differences in genetic makeup that play a crucial role in susceptibility to HIV and AIDS.

The research, published today in *Cell Host & Microbe,* was co-authored by Professor Robin Weiss, UCL Infection and Immunity, who worked with colleagues in the US to analyse data from a 25-year study of thousands of Americans of different ethnic backgrounds.

The gene that the research focused on encodes a binding protein found on the surface of cells, called Duffy Antigen Receptor for Chemokines (DARC). The variation of this gene, which is common in people of African descent, means that they do not express DARC on red blood cells. DARC influences the levels of inflammatory and anti-HIV blood factors called chemokines.

Discussing the findings, Professor Weiss said: "The big message here is that something that protected against malaria in the past is now leaving the host more susceptible to HIV.

"In sub-Saharan Africa, the vast majority of people do not express DARC on their red blood cells and previous research has shown that this variation seems to have evolved to protect against a particular form of malaria. However, this protective effect actually leaves those with the variation more susceptible to HIV."

Lead author of the study, Professor Sunil K. Ahuja, from The University of Texas Health Science Center at San Antonio, added: "It turns out that having this variation is a double-edged sword. The finding is another valuable piece in the puzzle of HIV-AIDS genetics."

HIV affects 25 million people in sub-Saharan Africa today, an HIV burden greater than any other region of the world. Around 90 per cent of people in Africa carry the genetic variation, meaning that it may be responsible for an estimated 11 per cent of the HIV burden there. The authors observe that sexual behaviour and other social factors do not fully explain the large discrepancy in HIV prevalence in populations around the world, which is why genetic factors are a vital field of study.

Source: University College London