Prehistoric origins of stomach ulcers uncovered

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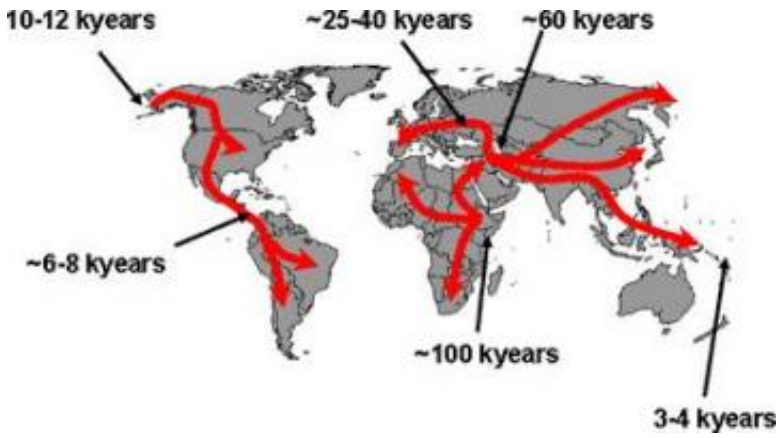

The migration paths taken by modern man as he colonized the world. 60,000 years ago, Homo sapiens left his original home in East Africa -- taking the bacterium Helicobacter pylori with him. The abbreviation kyears stands for thousand years. Credit: Max Planck Institute for Infection Biology

The bacterium that causes most kinds of stomach ulcers has been present in the human digestive tract ever since Homo sapiens ventured out of Africa some 60,000 years ago, a study says.

An international team of scientists has discovered that the ubiquitous bacteria that causes most painful stomach ulcers has been present in the human digestive system since modern man migrated from Africa over 60,000 years ago. The research, published online today by the journal *Nature*, not only furthers our understanding of a disease causing bacteria

but also offers a new way to study the migration and diversification of early humans.

The international research collaboration was led by scientists from the University of Cambridge, the Max Planck Institute in Berlin, and the Hanover Medical School. The researchers compared DNA sequence patterns of humans and the Helicobacter pylori bacteria now known to cause most stomach ulcers. They found that the genetic differences between human populations that arose as they dispersed from Eastern Africa over thousands of years are mirrored in H. pylori.

Human DNA analysis has shown that along the major land routes out of Africa human populations become genetically isolated - the further from Eastern Africa a population is the more different genetically it is compared to other human populations. Other research has shown gradual differences in European populations, presumed to be the result of Neolithic farmers moving northwards. The international H. pylori research team found almost exactly the same genetic distribution patterns in their results.

The scientists combined their genetic analysis with a computer simulation the modelled the spread of the bacteria across the globe. This showed that it migrated from Eastern Africa at almost exactly the same time as early humans, approximately 60,000 years ago.

The UK research effort was led by Dr Francois Balloux, a Biotechnology and Biological Sciences Research Council-funded scientist at the University of Cambridge. He said: "Humans and this ulcer-causing bacterium have been intimately linked for the last 60,000 years. The research not only shows the likelihood that for tens of thousands of years our ancestors have been suffering the effects of this bacteria but it also opens up new possibilities for understanding early human migration. By showing that Helicobacter pylori emerged from Africa at the same time

as early humans it makes it easier to examine some of the controversial questions about human migration. For example we could use our understanding of the bacteria's spread to gauge poorly understood human population shifts in Europe, Africa and Asia."

Source: Biotechnology and Biological Sciences Research Council