

# Did evolution give us inflammatory disease?

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In new research published on March 21, 2013 in the online issue of *The American Journal of Human Genetics*, researchers from Brigham and Women's Hospital (BWH) demonstrate that some variants in our genes that contribute to a person's risk for inflammatory diseases such as multiple sclerosis, Crohn's disease or rheumatoid arthritis, have been the target of natural selection over the course of human history.

The research team, led by Philip De Jager, MD, PhD, BWH Department of Neurology and Barbara Stranger, PhD, University of Chicago, looked at genome-wide association studies along with protein-[protein interaction](#) networks, as well as other data and found 21 places in the genome that bear a 'signature' for both inflammatory disease susceptibility and natural selection.

Towfique Raj, PhD, BWH Department of Neurology, is the lead author on this study. The study's findings suggest that, in the past, these variants rose in frequency in the human population to help protect humans against viruses, bacteria and other pathogens. But now in our modern world, the environment and exposure to pathogens has changed, and the genetic variants that were originally meant to protect us, now make an autoimmune reaction more likely. These results are consistent with the [hygiene hypothesis](#) in which our cleaner environment is thought to contribute to the increasing prevalence of inflammatory diseases.

## **More information:**

[www.cell.com/AJHG/abstract/S0002-9297\(13\)00109-2](http://www.cell.com/AJHG/abstract/S0002-9297(13)00109-2)

Provided by Brigham and Women's Hospital

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