

## 'Autoantibodies' may be created in response to bacterial DNA (w/Video)

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Autoimmune diseases have long been regarded as illnesses in which the immune system creates autoantibodies to attack the body itself. But, researchers at the California non-profit Autoimmunity Research Foundation (ARF) explain that the antibodies observed in autoimmune disease actually result from alteration of human genes and gene products by hidden bacteria.

Not long ago, scientists believed they had located all [bacteria](#) capable of causing human disease, But [DNA](#) discoveries in the last decade have led the NIH Human Microbiome Project to now estimate that as many as 90% of cells in the body are bacterial in origin. Many of these bacteria, which have yet to be named and characterized, have been implicated in the progression of autoimmune disease.

In a paper published in *Autoimmunity Reviews*, the ARF team, under the guidance of Professor Trevor Marshall of Murdoch University, Western Australia, has explained how *Homo sapiens* must now be viewed as a superorganism in which a plethora of bacterial genomes - a metagenome - work in concert with our own. Marshall and team contend that the [human genome](#) can no longer be studied in isolation.

*Video: 'MP Study Results,' Cpt. Tom Perez's Porto Presentation*

"When analyzing a genetic pathway, we must study how bacterial and human genes interact, in order to fully understand any process related to the human superorganism," states Marshall. "Especially since some of

these pathways contribute to the pathogenesis of autoimmune disease."

For example, the team notes that the single gene ACE has an impact on myocardial infarction, renal tubular dysgenesis, Alzheimer's, the progression of SARS, diabetes mellitus, and sarcoidosis, yet recently ACE has been shown to be affected by the common species *Lactobacillus* and *Bifidobacteria*. Found in yogurt, these species are often considered to be innocuous or "friendly."

"No one would argue that these species aren't present in the human body, yet there has been inadequate study of how these 'friendly' species affect disease," states Amy Proal, the paper's lead author.

"What we thought were autoantibodies generated against the body itself can now be understood as antibodies directed against the hidden bacteria," states Marshall. "In autoimmune disease, the [immune system](#) is not attacking itself. It is protecting the body from pathogens."

More information: Proal AD et al. In press. *Autoimmunity Reviews*.

"Autoimmune disease in the era of the metagenome."

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Source: Autoimmunity Research Foundation

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