

# Researchers find 5 risk biomarkers for Crohn's disease in Jews of Eastern European descent

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In the largest study of its kind, researchers from Mount Sinai School of Medicine have discovered five new genetic mutations associated with Crohn's disease in Jews of Eastern European descent, also known as Ashkenazi Jews. The findings, which appear in the March 8 online edition of *PLoS Genetics*, are the first step in an attempt to explain why the prevalence of Crohn's disease is nearly four times higher in Ashkenazi Jews than in other populations.

Crohn's disease was first characterized in 1932 by Mount Sinai physician Burrill B. Crohn, MD. It is an autoimmune condition in which the immune system attacks healthy tissue in the gastrointestinal track, causing chronic inflammation. Inga Peter, PhD, Associate Professor of Genetics and Genomic Sciences at Mount Sinai School of Medicine, led the international research team to search for unique genetic risk factors in Ashkenazi Jews.

Previous studies had identified 71 genetic variants of Crohn's disease risk in individuals of European ancestry. Dr. Peter and her team conducted a two-step genome-wide association study comparing 1,878 Ashkenazi Jews with Crohn's disease to 4,469 Ashkenazi Jews without the disease, using DNA samples to evaluate their genetic make-up. The research team found 12 of the known risk variants, but also discovered five new genetic risk regions on chromosomes 5q21.1, 2p15, 8q21.11, 10q26.3, and 11q12.1.

"This is the largest study to date, and the first to discover the unique risk factors of Crohn's disease in the Ashkenazi Jewish population," said Dr. Peter. "The prevalence of this disease is so much higher in Ashkenazi Jews, and the involvement of genetic variants predominant in this population might help understand why that is."

The research team also evaluated previous findings in non-Jewish Europeans with Crohn's disease and found that the genetic architecture of the novel regions associated with Crohn's disease risk in the Ashkenazi Jewish group was much less diverse than that of non-Jewish Europeans.

"Not only did we discover different risk factors for Ashkenazi Jews, but we found that some previously known risk factors are more potent to this population," said Dr. Peter. "Armed with this new information, we can begin to analyze the specific signals in order to pinpoint causal genetic mutations, discover why they are malfunctioning, and eventually develop novel treatment approaches."

Since Dr. Crohn and his colleagues first described this disease, Mount Sinai has been at the forefront of research and treatment for digestive diseases. Today, Mount Sinai specialists care for more patients with inflammatory bowel disease than any other medical center in the United States.

**More information:** Kenny EE, Pe'er I, Karban A, Ozelius L, Mitchell AA, et al. (2012) A Genome-Wide Scan of Ashkenazi Jewish Crohn's Disease Suggests Novel Susceptibility Loci. *PLoS Genet* 8(3): e1002559. doi:10.1371/journal.pgen.1002559

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