Health & Medicine

Study of Ashkenazi Jews Opens Genomic Window

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The Ashkenazi Jewish population has played an important role in the study of human genetics because of its history of demographic isolation. Since Ashkenazi Jews have little genetic variation among them, scientists have a relatively easy time spotting anomalous genes that increase the risk of disease — insights that can lead to better diagnostics and medical treatments for everybody.

This year, a team of researchers led by Columbia Engineering's Itsik Pe'er conducted what they say is the most comprehensive study of Ashkenazi genes ever. By analyzing the genomes of 128 healthy Ashkenazi Jews and comparing their profiles to those of non-Jewish Europeans, Pe'er and colleagues identified many previously unknown mutations common among Ashkenazim. They have since published their entire database online, in hopes that other medical researchers will find links between some of these genetic variants and complex diseases such as schizophrenia, Parkinson's, diabetes, and cancer.

"Our study is the first full DNA-sequence data set available for Ashkenazi Jewish genomes," says Pe'er, an associate professor of computer science who is also a co-chair of the Health Analytics Center at Columbia's Institute for Data Sciences and Engineering. "What's especially gratifying is the idea that our work will pave the way for personalized genomics in other populations."

The mapping effort drew on contributions from scientists at eleven labs in the New York City area and Israel as part of the Ashkenazi Genome Consortium, which Pe'er cofounded three years ago.

"We fully expect the creativity of the scientific world to come up with additional uses for the data," says Pe'er, who is now working with additional collaborators, including the New York Genome Center, to sequence approximately five hundred more Ashkenazi genomes to make the catalog even more comprehensive.



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