

Evidence that humans prefer genetically dissimilar partners based on scent

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A team of researchers at Université Paris Diderot has found evidence that suggests humans are able to detect via smell which partners are genetically preferable. In their paper published in *Proceedings of the*

Royal Society B, the group describes their study of the major histocompatibility complex (MHC) in people, and the ability to detect it via smell.

Prior research has shown that animals, including humans, are more successful from a genetic perspective when they mate with a partner that is genetically dissimilar in key ways. One of those differences is the makeup of their MHC—a cluster of genes that plays an important role in immune function. When two people with dissimilar clusters mate, their offspring gain the benefits of both parents. In recent years, medical researchers have suspected that people are able to "sense" the makeup of a potential mate's MHC, and that people tend to find those with dissimilarities more attractive. It was assumed that if this were the case, that the olfactory system was responsible. The researchers with this new effort note that several studies have been conducted that were designed to determine if such theories were correct, but the results have varied widely. To find out once and for all, they conducted a larger, more thorough study.

The work involved analyzing data from the Database of Genotypes and Phenotypes managed by NIH. The researchers report that they were able to use genome-wide data from over 800 couples living in Europe and the Middle East (Israel)—more specifically, they were able to see how similar their MHCs were.

The researchers report that on average, the MHCs between couples in Europe were dissimilar—more so than could be accounted for by randomness. They also noted that such differences were the most pronounced in couples living in the Netherlands. But they also report that they found no such degree of dissimilarity for couples living in Israel.

The researchers suggest their findings provide strong evidence of a human ability to smell MHC in other humans and to prefer mates with

dissimilarities. They suggest such a preference can be overridden by [cultural practices](#), however, such as those found in Israel, where [mate choice](#) is limited due to social standing or family practices.

More information: Claire Dandine-Roulland et al. Genomic evidence for MHC disassortative mating in humans, *Proceedings of the Royal Society B: Biological Sciences* (2019). [DOI: 10.1098/rspb.2018.2664](https://doi.org/10.1098/rspb.2018.2664)

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