

Men and women are different in terms of genetic predispositions, study shows

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We are not all the same when it comes to illness. In fact, the risk of developing a disease such as diabetes or heart disease varies from one individual to another. A study led by Emmanouil Dermitzakis, Louis-Jeantet Professor at the Faculty of Medicine of the University of Geneva (UNIGE) reveals that the genetic predisposition to develop certain diseases may differ from one individual to another depending on their sex. Together with his collaborators, the professor has shown that genetic variants have a different impact on the level of gene expression between men and women. The results of this research have been published in the scientific journal *Genome Research*.

For decades geneticists have been interested in genetic variants that affect the level of [gene expression](#). These variants spark the interest of researchers because they play a role in the predisposition to certain diseases. Professor Dermitzakis' team from UNIGE, in collaboration with Oxford University, focused on the fundamental differences in the genetics of gene expression between men and women. After analyzing the impact of genetic variants on the level of gene expression in women, and then in men, the scientists have found that the effect of certain variants affecting gene expression and the [genetic risk](#) of developing a disease resulting from these genetic variants is different depending on the sex of the individual.

Everyone will agree that men and women are different but, beyond the obvious, genetics brings to light more subtle differences. The researchers found that even with the same [DNA mutation](#) in men and in women, the

impact on the level of gene expression will be different. Of all the genetic variants that have an impact on the level of gene expression, about 15% work differently depending on whether they are acting upon a man or a woman.

"We already knew that certain environmental factors like diet had a variable impact depending on the sex of an individual. Today, we are able to confirm that genetic variants have a different impact on the level of gene expression in men and women; that is to say that although two individuals of opposite sex both have a same variant predisposing them to a disease, they will not have the same propensity to develop it," states Professor Dermitzakis.

Provided by University of Geneva

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