

Gene trait suspected in moms of gay sons

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Scientists may have found more evidence for a genetic origin to homosexuality, thanks to a study of mothers with two or more gay sons.

Scientists have reported that they've found an "extremely unusual" trait in the cells of some mothers with two or more gay sons, providing more evidence to suggest that homosexuality might be inherited.

Mothers of multiple gay sons were about six times more likely than other women to process their X chromosomes in a certain way, researchers discovered.

Researchers aren't entirely sure what the findings mean, said study co-author Sven Bocklandt, a postdoctoral researcher at UCLA. Making things more complicated, about 75 percent of mothers of multiple gay sons don't have the trait. Still, the study, released Tuesday in the journal *Human Genetics*, raises plenty of questions, Bocklandt said, especially as researchers try to figure out whether homosexuality has genetic roots and if there truly is a "gay gene" -- or genes.

"What everybody wants is the gene, and we don't have it yet," Bocklandt said. "But this is an independent confirmation that the X chromosome is involved."

Bocklandt and colleagues looked at a phenomenon known as X-chromosome inactivation, in which cells inside the bodies of females automatically turn off -- or inactivate -- one of their two X chromosomes. That leaves them with one working X chromosome -- just like males, who have a single X and a single Y chromosome. Normally, each cell in a female's body randomly turns off one or the other X chromosome. In some cases, such as when families share a genetic disease, there is "extreme skewing" -- one X chromosome is more likely to be turned off than the other, Bocklandt said.

In the new study, the researchers looked at 97 mothers of one or more gay sons and 103 women with no gay sons to see what their blood cells did with their X chromosomes. The researchers recruited many of the women with the help of PFLAG. They found that nearly a quarter of the mothers of multiple gay sons inactivated the same X chromosome -- in other words, nonrandomly -- compared to just 4 percent of the women without gay sons. Of those with one gay son, 13 percent inactivated the same X chromosome.

Dr. Ionel Sandovici, a genetics researcher at the Babraham Institute in Cambridge, England, who is familiar with the research findings, cautioned that the study is small, with just 44 mothers of multiple gay sons being examined. More research in larger groups must be done to confirm the results, Sandovici said.

The research does provide "circumstantial evidence" that the X chromosome contributes to the development of male sexuality, Sandovici said. But "we still

understand very little about molecular mechanisms of sexual orientation, and this seems to be rather a complicated biological puzzle."