

## "Homosexuality Is Not Hardwired," Concludes Dr. Francis S. Collins, Head Of The Human Genome Project

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April 4, 2007 - Dr. Francis S. Collins, one of the world's leading scientists who works at the cutting edge of DNA, concluded that "there is an inescapable component of heritability to many human behavioral traits. For virtually none of them is heredity ever close to predictive."

Dr. Francis S. Collins

In reviewing the heritability (influence of genetic factors) of personality traits, Dr. Collins referenced the estimates of the percentage of various human personality traits that can be ascribed to heredity from the Bochar and McGue research.

The heritability estimates for personality traits were varied: General Cognitive Ability (50%), Extroversion (54%), Agreeableness (42%), Conscientiousness (49%), Neuroticism (48%), Openness (57%), Aggression (38%) and Traditionalism (54%).

Kirk et al. (2000) in their research using a community-based cohort of Australian twins reported a heritability estimate of 30% for homosexuality. Whitehead (1999, 2006) in his extensive review of the research cites 30% as the estimate of heritability for homosexuality as well, though he views the estimate as a maximum.

Estimates of heritability are based upon careful analyses of studies conducted with identical twins. Such studies are important and lead to the conclusion that heredity is important in many of these traits. It is important however, to note that even in such studies with identical twins, that heritability is not to be confused as inevitability.

As Dr. Collins would agree, environment can influence gene expression, and free will determines the response to whatever predispositions might be present.

Dr. Collins succinctly reviewed the research on homosexuality and offers the following: "An area of particularly strong public interest is the genetic basis of homosexuality. Evidence from twin studies does in fact support the conclusion that heritable factors play a role in male homosexuality. However, the likelihood

that the identical twin of a homosexual male will also be gay is about 20% (compared with 2-4 percent of males in the general population), indicating that sexual orientation is genetically influenced but not hardwired by DNA, and that whatever genes are involved represent predispositions, not predeterminations."

Dr. Collins noted that environment, particularly childhood experiences as well as the role of free will choices affect all of us in profound ways. As researchers discover increasing levels of molecular detail about inherited factors that underlie our personalities, it's critical that such data be used to illuminate, not provide support to ideologues.

Citing such dangers, Dr. Collins referred to the book written by activist Dean Hamer who declared the discovery of the God Gene (this same author also is associated with "discovering the gay gene").

Dr. Collins noted that the "evidence" in Hamer's book "grabbed headlines," but was "wildly overstated."

A reviewer in Scientific American suggested that Hamer's book on the God Gene should have been titled, "A Gene That Accounts for Less than One Percent of the Variance Found in Scores on Psychological Questionnaires Designed to Measure a Factor Called Self-Transcendence, Which Can Signify Everything from Belonging to the Green Party to Believing in ESP, According to One Unpublished, Unreplicated Study."

Unfortunately, much of the research in areas such as homosexuality, has been not only misrepresented in the media but by the scientists themselves through the tendency to overestimate the quantitative contribution of their findings.

Perhaps the best example of this media misrepresentation was the two studies conducted by J. Michael Bailey. In Bailey's first study, he reported a concordance rate of 52%. In a second study, Bailey reported a concordance of 20-37.5%, depending on how loosely you define homosexuality. The first study received a great deal of press. The second study received almost no media attention.

Bailey himself acknowledged probable selection bias in his first study---he recruited in venues where "participants considered the sexual orientation of their co-twins before agreeing to participate." The second study, using the Australian Twin Registry with its anonymous response format, made such bias unlikely.

Regarding the contributions of genetics to areas such as homosexuality, Dr. Collins concluded, "Yes, we have all been dealt a particular set of cards, and the cards will eventually be revealed. But how we play the hand is up to us." \*

Bailey, Michael J., Michael P. Dunne and Nicholas G. Martin (2000). Genetic and environmental influences on sexual orientation and its correlates in an Australian twin sample. *Journal of Personality and Social Psychology*, 78, 3, 524-536.

Collins, Francis S. (2006). *The language of god, a scientist presents evidence for belief*, New York: Free Press.

Kirk, K. M., J. M. Bailey, M. P. Dunne and N. G. Martin (2000). Measurement models for sexual orientation in a community twin sample. *Behavior Genetics*, 30, 4, 2000, 345-356.

Whitehead, Neil and Briar (1999). *My Genes Made Me Do It! A Scientific Look at Sexual Orientation*. Lafayette, Louisiana: Huntington House Press.

Whitehead, Neil (2006). "What do first ages of SSA or OSA tell us about their origins?" In *NARTH Collected Papers*.

\* Dr. Steve Simon (in an email correspondence) noted quite appropriately that heritability is a measure of the ratio of two variances and is not a simple proportion. A heritability index and a proportion are calculated on different scales. In this case, however, both the data from the heritability index and the proportion support the conclusion that homosexuality is not hardwired (or simply biologically fated). Though Dr. Collins offered a 20% concordance for monozygotic twins, it should be noted that this figure is the proband concordance. This is mathematically correct. However, Dr. Neil Whitehead offered a correct pairwise concordance of 11%. For the lay audience, it should be understood that different answers will emerge with different models. However, the conclusion is the same: current data provides little evidence to support the conclusion that homosexuality is hardwired.