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A Talk with Dean Hamer, PhD, of the National Institutes of Health® by Barbara I. Bond

On July 16, 1993 *Science* published a research article entitled "A Linkage Between DNA Markers on the X Chromosome and Male Sexual Orientation." Dean Hamer, National Institutes of Health researcher and first author of the study, tried to prepare in advance for the resulting media circus and public reaction. Consulting with lawyers, ethicists, and other scientists he prepared for the onslaught of questions and criticisms. In his new book *The Science of Desire: Searching for the Gay Gene and the Biology of Behavior* (Simon and Schuster, 1994, with Peter Copeland, \$23.00) he puts that article into perspective with a succinct look at the work, the people involved, and the controversy it has spawned. Although when I spoke with Dean Hamer, *The Science of Desire* hadn't been out very long he'd already received positive reactions from the people he'd spoken with.

It didn't take the 16-year research veteran long to realize he was entering a politically-sensitive and controversial area of study. Before he was even through with gathering the data, critics assailed his work from afar. At one point, Hamer found himself discussing his unpublished work in front of a Harvard University behavioral genetics class. Afterwards, he realized he had taken a chance by confidently discussing a link between sexual orientation and Xq28 in public. Upon checking on the latest data analysis, he realized the results were clear and perhaps it was time to start writing it up for publication.

Sexual orientation appears to be polygenic and subject to environmental effects. I asked Hamer why, in his book, he even talks about a supposed "gay gene". Hamer admits readily it is much more complicated than that, "... sexuality is at least polygenic, and genes are only part of the story. It's not the gay gene that switches people on or off from gay to straight. But... that's a complex thought to express to somebody. We're already sure from the twin study that genes plus family environment is (sic) no more than 50 percent of the story, and probably less than that, probably more like 30 percent."

Hamer also commented on what a "gay gene" might code for. "Obviously we don't know, since we don't have the gene. The simplest answer would be that it codes for something in the brain that's involved in sex-specific structures like that region of the hypothalamus that Simon LeVay was interested in. And it would either control the growth of neurons, or the decay of neurons in that region. Then you have sort of a simple causal chain, the gene makes the structure in the brain, which makes people attracted to males or to females. But it could just as easily turn out to be something completely different that involves a very early step in the differentiation of the brain. It might not even be in the brain at all, for all we know."

There are other laboratories doing research regarding sexual orientation. Hamer talked about the status of some of that work. "I think that the most important thing about their research is to verify the initial observation. And sadly, even though there has been a huge amount written about Simon LeVay's experiment, and a tremendous amount of criticism, no-one has done the important thing which is simply to repeat the experiment on a better sample." He continued, "I know of no-one who is pursuing the neuroanatomical studies except for Dr. Bill Byne, who has been one of the major critics of LeVay's work. ... the rumor I heard was that he had already confirmed the first part of Simon's research, but he doesn't seem to be publicizing that very broadly."

Hamer also talked about preliminary results of other work he was involved in. In his book he talks about the possibility of an HIV on/off switch. Commenting on that work he said, "Basically that's the idea, I wouldn't say on/off, there it's very much of a dimmer. ... But we're trying to see whether or not there's any similarity or dissimilarity in HIV outcome that can be linked to genes. And the initial screen didn't yield anything, the sample is too small, the outcomes too diverse. We hope that as these other scientists who are looking at really big populations of unrelated people with HIV pull out candidate genes, then we can test them on our pairs of brothers."

In *Science* recently an article talked about the need for ethical guidelines for the Human Genome Project. Hamer said he knew that work was progressing in this area and that he had been involved in a conference with the ethical, legal, and social arm of the genome project. He also said that it was important to remember that this is a complicated area. Explaining, he said that the ethical principle that must be adhered to is to respect individual rights.

Hopefully the results of scientific studies can be used to help educate Americans regarding the wide spectrum of sexual orientation that exists. Perhaps even public policy would be affected. Hamer commented on these thoughts about the future by saying, "I think that it will help to educate people, especially those who are open to information and to education. You know I would hope that public policy would be based on fundamental human rights and considerations of the dignity and individuality of people and of individuals. But of course we don't live in an ideal world and this idea that sexual orientation is some sort of deliberate choice has been around a long time. ... So I think that just in countering that wrongheaded notion will play some role. ..."

He also talked about work for the future. "Well, I hope that we're going to find this gene, whatever it is, and understand something more about why we are the way we are. I hope that the work on HIV is going to yield some results. and, there are some interesting hints from other scientists at the Cancer Institute about genes and HIV progression, and we're trying to follow up on that right away, on our own sample of gay brothers. And, I hope that our research will do some little part in making sexuality more acceptable as a scientific discipline, rather than something you read about in *Cosmopolitan* or *Playboy*."

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