

Team nabs second breast cancer gene

Last year, when an international team ended a 4-year quest for the gene responsible for inherited breast cancer, the researchers announced that they and another team, working together, had discovered a second breast cancer gene somewhere on the long arm of chromosome 13.

Now, that second team, headed by Michael R. Stratton, has the additional gene in hand. Approximately 90 percent of all inherited cases of breast cancer can be attributed to mutations in either of the two genes.

"We don't have all of [the second gene] because it is quite large," says Stratton, of the Institute of Cancer Research in Sutton, England. "But we do have the abnormalities which are responsible for breast cancer risk."

In 1990, Mary-Claire King, now of the University of Washington in Seattle, reported that a breast cancer susceptibility gene dubbed *BRCA* resides on chromosome 17 and may cause the 5 to 10 percent of breast cancers that are inherited. Last year, a team headed by Mark H. Skolnick of the University of Utah School of Medicine in Salt Lake City isolated the chromosome 17 gene and called it *BRCA1*.

At the same time, Skolnick and Stratton had acquired evidence of another gene, on chromosome 13, that they called *BRCA2* (SN: 9/24/94, p.197).

Stratton and his group studied six families with a history of breast cancer linked to chromosome 13. In the Dec. 21/28 *NATURE*, they report that each of those families harbors one of five mutations that truncate the protein produced from *BRCA2*'s instructions.

Currently, Stratton's team has identified 7,000 of the gene's base pairs. The researchers suspect, however, that the entire *BRCA2* gene could include as many as 12,000 base pairs. While *BRCA2* bears only a slight resemblance to *BRCA1*, early evidence indicates that it, like *BRCA1*, provides the blueprint for a tumor suppressor that puts a brake on cell growth.

Inheriting mutations in either *BRCA1* or *BRCA2* gives a woman an 85 percent chance of developing breast cancer. Both genes also increase a woman's risk of ovarian cancer, compared to the general population. *BRCA1* confers a greater risk than *BRCA2*; however, *BRCA2* mutations are responsible for some male breast cancers, whereas *BRCA1* mutations are not.

Stratton notes that isolating *BRCA2* now allows researchers to explore the differences between the breast cancer genes.

— L. Seachrist