SCIENCE NEWS 1998 April 25, 1998
Vol. 153 No. 17 p. 271

BIOMEDICINE

Genetic flaw linked to breast cancer

Much discussion of genetic links to breast cancer has centered on mutations in genes called *BRCA-1* and *BRCA-2,* which predispose some women to the disease. New research suggests that other genetic flaws also increase a woman's risk of breast cancer.

Among these flaws are variants of three *GST* genes, named for the glutathione S-transferase enzymes that they encode. GST enzymes act as roving cleanup crews to detoxify potential cancer-causing agents in the body. A flaw in the gene, *GSTM1,* that encodes one such enzyme has been associated with lung cancer. Other studies have hinted that cancer of the colon, bladder, and testicles could also be linked to *GST* variations.

To assess the role of these genetic variations in breast cancer, researchers at the Johns Hopkins Medical Institutions in Baltimore, Md., analyzed blood samples from 110 women who had breast cancer and 113 healthy women. Nearly all of the women were white, and most had gone through menopause.

A postmenopausal woman carrying a genetic variation of *GSTM1* faces a 2.5 times greater risk of developing breast cancer than do her peers without that genetic flaw, the scientists report in the April 1 JOURNAL OF THE NATIONAL CANCER INSTITUTE. Moreover, a woman carrying variants of two or three of these enzyme-encoding genes encounters nearly four times the minimal risk, says study coauthor and molecular epidemiologist Paul T. Strickland.

The *GST* variations are quite common. For example, while the *GSTM1* flaw appeared in 56 of 90 postmenopausal women who had breast cancer, it also showed up in 36 of 90 healthy women. The proportion of women carrying the flaws for the other genes was lower but still considerably above the few percent of the population that carry the BRCA mutations.

Although *GST* variations aren't as potent as *BRCA* mutations, Strickland says, they may play a role in a substantial fraction of breast cancers. For example, the *GST* flaws may prove most consequential in the face of cancer-causing chemicals in the environment, he speculates.

—N.S.