A study of U.S. women published May 9 in the LANCET links insulin-like growth factor-1 (IGF-1) with breast cancer. [1,2] Earlier this year a study linked IGF-1 to prostate cancer. [3] (See REHW #593.) Prostate and breast cancers are major killers of men and women in the U.S. and in other industrialized countries. IGF-1 levels are now being artificially increased in much of the cows' milk being sold throughout the U.S. These new cancer studies raise serious questions about the wisdom of allowing IGF-1 levels to be raised in milk.

The latest study[1] found a 7-fold increased risk of breast cancer among pre-menopausal women younger than age 51 with the highest levels of IGF-1 in their blood. The prostate cancer study published in SCIENCE in January, 1998, found a 4-fold increase in risk of prostate cancer among men with the highest levels of IGF-1 in their blood.[3] Thus IGF-1 in blood is associated with larger relative risks for common cancers than any other factor yet discovered.[2]

It is not clear from these studies whether IGF-1 causes these cancers, or whether elevated IGF-1 accompanies some other factor that causes these cancers. At the very least, researchers are hoping that measurements of IGF-1 will identify individuals at high risk of getting these cancers, so that surveillance might be increased.[2] (However, it would be common practice in the U.S. for people under such surveillance to find their health insurance canceled, which tends to discourage participation in surveillance programs.)

IGF-1 is a powerful naturally-occurring growth hormone found in the blood of humans. Dairy cows injected with genetically-engineered bovine growth hormone (rBGH) give milk containing elevated levels of IGF-1, and the IGF-1 in milk can pass into the blood stream of milk consumers. Cows' IGF-1 is chemically identical to that in humans. Ingested IGF-1 would ordinarily be broken down in the stomach, but the presence of casein in milk prevents such breakdown.[4,5,6,7,8] (See REHW #454.) Thus these latest cancer findings raise important public health questions about the safety of milk from cows treated with bovine growth hormone (rBGH).

rBGH is injected into cows to extend by several weeks their period of lactation, and to force them to produce more milk. rBGH is chemically identical to that in humans. Ingested IGF-1 would ordinarily be broken down in the stomach, but the presence of casein in milk prevents such breakdown. (See REHW #381, #384.) Because rBGH injections can cause numerous ill effects in cows, veterinarians in Germany have refused to administer rBGH to cows on grounds that it violates their professional code of ethics, which forbids intentional harm to animals. (See REHW #483.) U.S. veterinarians have not taken a similar stand.

The latest study of IGF-1 and cancer, reported this week in the LANCET, --approximately the British equivalent of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, --examined 397 women with breast cancer, and 620 carefully-matched controls. Their blood had been drawn before any of the women were diagnosed with breast cancer, so this was a prospective study --the most convincing kind there is. (The prostate cancer study reported in January was also a prospective study.[3])

The study found no relationship between IGF-1 in blood and breast cancers among the entire group, or among the post-menopausal group. However among pre-menopausal women increasing levels of IGF-1 in blood were strongly associated with increasing risk of breast cancer in a consistent dose-response relationship. Adjusting for other known breast cancer factors (age at which menstruation began; age at birth of first child; number of children; family history of breast cancer; and weight in relation to height) did not change the results.

Two previous studies had reported a relationship between IGF-1 levels in blood and breast cancer.[9,10] However those were "retrospective" studies in which the IGF-1 levels were measured AFTER the diagnosis of breast cancer, so it was possible that the cancers caused the IGF-1 increases instead of the IGF-1 increases causing the cancers. This latest study minimizes the likelihood that IGF-1 levels are raised by breast cancers.

The authors of the latest study say there is "substantial indirect evidence of a relation between IGF-1 and risk of breast cancer." They point to experiments showing that IGF-1 enhances the growth of cancerous breast cells in mice, and growth of healthy breast cells in rhesus monkeys. In humans, very-low-calorie diets protect against breast cancer and they also reduce blood levels of IGF-1. Low birth weight is protective against breast cancer and low birth weight also leads to low levels of IGF-1. Tall women tend to have an increased likelihood of breast cancer and they also tend to have increased levels of IGF-1. Tamoxifen, a chemical now being used to prevent breast cancer, is known to reduce IGF-1 levels in the blood. Several other chemicals thought to protect against breast cancer --such as vitamins A and D--may also lower blood levels of IGF-1.[11]

It will be difficult for the U.S. Food and Drug Administration (FDA) to acknowledge that milk from rBGH-treated cows might be implicated in common cancers. Historically, FDA has maintained a very close relationship with Monsanto, the chemical company that spent a billion dollars developing rBGH. FDA approved rBGH for cows in 1993 and issued regulations that made it appear to be illegal to label milk rBGH- produced or rBGH-free. Some of the FDA officials who approved rBGH and who established the regulations discouraging labeling had previously worked for Monsanto. (See REHW #381.) In 1994, Monsanto sued two grocery stores that labeled milk rBGH-free, because the chemical giant feared that, given a choice, consumers would reject rBGH-produced milk. FDA's anti-labeling regulations --signed into law by a former Monsanto official--were clearly intended to help Monsanto succeed in this marketing ploy. Eleven separate surveys have shown that Americans strongly prefer to have rBGH-treated milk labeled as such. (See REHW #381.)

Monsanto officials say their rBGH product has been so successful among dairy farmers that they are building a new factory in Augusta, Georgia to produce a lot more of it. They say they intend to market the product world-wide.[12] However in Canada and the European Union, rBGH has so far not been approved for use, partly because of unanswered health questions. The new studies linking IGF-1 to breast and prostate cancers are unlikely to help rBGH gain approval in Canada or Europe.

Because of FDA's and Monsanto's aggressive steps to prevent labeling of rBGH-produced milk, U.S. consumers of milk, chocolate milk, buttermilk, cream, whipped cream, ice cream, iced milk, cheese, cottage cheese, cream cheese, yogurt, frozen yogurt, custards--and perhaps many baked goods as well--are very likely ingesting increased quantities of IGF-1 today. (See REHW #383, #454, #483.)

The milk industry --a powerful lobby in the U.S.--is currently conducting a campaign to increase milk consumption and top U.S. health officials are participating in the campaign. Recent advertisements show Donna Shalala, the U.S. secretary of health and human services, with a glass of milk in her hand and a "milk mustache" on her upper lip.[13] Ms. Shalala oversees the U.S. FDA, among other agencies.

A few bold companies--such as Ben and Jerry's, makers of gourmet ice cream--now label their products as rBGH-free. However, other companies, such as Whole Foods, Inc.,--an "organic" grocery chain that owns Fresh Fields stores--claim to sell no dairy products containing rBGH. Yet the Annapolis, Maryland Whole Foods outlet sells cheeses from Cabot Dairies in Vermont and Cabot readily acknowledges that it uses some milk from rBGH-treated cows. Thus rBGH may be even more widespread than advertisements and
Monsanto has bet the company's future on genetically-engineered products, and rBGH is the first such product to be marketed. Therefore, it seems unlikely that Monsanto will voluntarily terminate the uncontrolled IGF-1 experiment being conducted now on the American people. This is a company that plays hard ball. As we saw in REHW #593, Monsanto lawyers frightened Fox TV executives into killing an investigative series that raised questions about rBGH and cancer. Just last month Monsanto wrote a threatening letter to Vital Health Publishing, Illinois over the proposed publication of AGAINST THE GRAIN, a book by Marc Lappe and Britt Bailey. Monsanto said the new book would libel its best-selling product, the herbicide Roundup (glyphosate). Lappe is an established medical writer and an acknowledged health policy expert. His earlier books include TOXIC DECEPTION (1991), BREAKOUT --THE EVOLUTION OF DRUG RESISTANT DISEASE (1995), and THE TAO OF IMMUNOLOGY (1997). Lappe and Bailey run the Center for Ethics and Toxics in Gualala, California (telephone 707-884-1700).
