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**Common Organic Compound Found in Many Household Products May Pose
Health Risk to Breast Cells
Bisphenol A Could Increase Risk of Breast Cancer**

(San Francisco, April 1, 2008) Bisphenol A, a chemical that leaches into food and beverages from many consumer products, causes normal, non-cancerous human breast cells to express genes characteristic of aggressive breast cancer cells. That's the finding of a "Priority Report" in the latest issue of the journal *Cancer Research*, the official journal of The American Association for Cancer Research.

This new information about bisphenol A (BPA) is timely because the State of California is currently considering placing BPA on the Prop 65 list of hazardous chemicals, and State Senator Fiona Ma has proposed legislation that would ban BPA in products used by children.

The study was done by researchers at the California Pacific Medical Center Research Institute, in collaboration with the Stanford Genome Technology Center.

The findings are significant because BPA is found in many plastic water bottles, in plastic baby bottles, in the lining in food cans, as well as in sealants used by dentists to protect teeth.

"This is a very common compound that most of us are exposed to on a regular basis, often without even being aware of it," says William Goodson, M.D., Senior Clinical Research Scientist at the Institute and lead researcher on the study. "If it's true that exposure to BPA can cause normal, non-cancerous human breast cells to behave in ways that are more characteristic of aggressive breast cancer cells, this is very worrying."

The researchers did needle aspirations on eight consented women at high risk of breast cancer, or its recurrence, to remove a small sample of non-cancerous cells. The cells were exposed to

BPA in the lab and then analyzed to see if the exposure had altered, in any way, the gene expression of the cells.

“We screened 40,000 genes in normal human cells that had been exposed to BPA and found a striking increase in the sets of genes that promote cell division, increase cell metabolism, and increase resistance to drugs that usually kill cancer cells, and prevent cells from developing to their normal mature forms,” says says Shanaz Dairkee, Ph.D., the Principal Investigator of this California State-funded project at CPMCRI, and the co-author of the study. “Breast cancer patients with this kind of gene expression tend to have a higher recurrence than other patients, and they have a worse survival rate.”

The researchers chose to focus on BPA because it is a common compound with a controversial reputation. BPA acts like an estrogen, and in animal studies has been shown to have carcinogenic effects including increasing the risk of breast and prostate cancer, as well as reducing sperm-count and impacting the immune system. A study by the Centers for Disease Control and Prevention in 2004 found that 95 percent of people tested had traces of BPA in their urine, with women having higher blood concentrations of BPA than men, and children having higher concentrations than adults.

“Our use of fresh cells for short term cultures in this research is unusual in medical research,” emphasizes Dr. Goodson, “which makes the results especially useful because this is the closest we can ethically get to studying the effects of giving BPA directly to living people. Our cells are much closer to normal tissue than usual cell culture techniques which use cells that have been growing in laboratories for months or even years.”

“Although the study itself does not prove that BPA causes malignancy, the observation that exposure to BPA altered the expression of genes in human breast cells deserves further investigation,” says Wenzhong Xiao, Ph.D., a senior researcher at Stanford Genome Technology Center and a co-author of the study.

The concentration of BPA that the researchers tested was very low (less than one tenth of a millionth of a gram per milliliter), but this concentration of BPA has been found in blood from pregnant women in both the United States and Germany.

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