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# Long Island Breast Cancer Study Project Newsletter

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Columbia University School of Public Health Fall 1997-Winter 1998 ♦ Issue 3

Hotline Telephone #: (212) 305-9392

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## LIBCSP Field Operations Near End

July 31, 1997 marked the end of the 12-month long subject identification period of the Long Island Breast Cancer Study Project (LIBCSP), the epidemiologic case-control study of breast cancer and the environment on Long Island. Recruitment for study participation of eligible subjects, Long Island women who have been newly diagnosed with breast cancer and women who have never been diagnosed with breast cancer, will continue through the end of 1997.

Although completing the identification period is cause for celebration, it does not mean that the Long Island Breast Cancer Study Project is in any way completed. Not all of the women who are eligible to participate in the LIBCSP have had the opportunity to do so. For the LIBCSP to be successful, we need every woman who is scientifically selected to participate in the study. Therefore, we have increased our efforts to reach

these women to give them a chance to make a contribution to breast cancer research. The information provided by each and every participant is vital to the scientific validity of the LIBCSP.

As of October 31, 1997, more than 2,700 women have taken part in the study. However, the in-person interviews are not the only component of the study that has been progressing. During the past year, the analyses of the biological samples (blood and urine) began and will continue through the middle of next year. The final year of the study will be dedicated to data analysis and the preparation of the study results for publication.

We want to thank all of the women who have taken part in the study. The Long Island Breast Cancer Study Project could not be successful without their commitment to breast cancer research.

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## COMMONLY ASKED QUESTIONS ABOUT THE LIBCSP

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### WHAT IS THE LONG ISLAND BREAST CANCER STUDY PROJECT?

Scientists at Columbia University School of Public Health, working in collaboration with other New York City and Long Island investigators, are conducting an epidemiologic study to determine whether certain environmental exposures increase the risk of breast cancer among women on Long Island. This study is funded by the National Cancer Institute (NCI) and the National Institute of Environmental Health Sciences (NIEHS).

### WHAT IS THIS STUDY'S HISTORY?

This research project grew from the concerns of Long Island women about the high rates of breast cancer in their community. They sought the help of their congressional representatives to have a scientific investigation of breast cancer and the environment conducted on Long Island. In June 1993, Congress voted that a study be done to look at the possible relationship of the environment to breast cancer. Public Law 103-43 directed the NCI and the NIEHS to conduct a case-control study on Long Island and two other areas. (continued on page 2)

## Polycyclic Aromatic Hydrocarbons and Breast Cancer: The Facts

### What are polycyclic aromatic hydrocarbons?

Polycyclic aromatic hydrocarbons (PAH) are a class of chemicals produced during the burning of organic material. They are present in the exhaust of automobiles and airplanes, incinerators, and home heating burners, and in cigarette smoke. Charcoal broiling of foods also results in the generation of PAH as does the smoking of foods. Because air levels of PAH are generally low, the major source of human exposure to this class of chemicals is through active and passive smoking. In nonsmokers without exposure to passive cigarette smoke, the major source of exposure is the diet.

### Why investigate PAH and breast cancer?

It is well known that PAH can produce cancer in laboratory animals. Epidemiologic studies have also suggested that the PAH present in cigarette smoke may be partly responsible for lung cancer in smokers. However, the role of PAH in breast cancer is not clear. In general, epidemiologic studies have not found a direct relationship between smoking and breast cancer but it is possible that exposure during a specific time period (for example, adolescence) or in a specific subset of smokers

who are more sensitive to the cancer causing chemicals it contains may be at higher risk.

### How are they being studied in the LIBCSP?

In the LIBCSP we will be measuring exposure to PAH by determining levels of these compounds bound to DNA in the blood of cases and controls. The specific assay we are using previously found higher levels of PAH-DNA in smokers compared to nonsmokers, in those with very high exposure to PAH in the occupational setting (foundry and coke oven workers) and in those with exposure to highly polluted air in Eastern Poland. We hope to determine whether levels of PAH-DNA are higher in cases than controls. Such data would be suggestive of a role for these compounds in breast cancer. We are using the blood DNA as a substitute for DNA in the breast tissue since it is not possible to obtain breast tissue from healthy controls. However, in cases from whom we can obtain breast tissue at the time of surgery we will also measure PAH bound to DNA. If we find a relationship between levels in the breast and blood samples, it will confirm that the use of blood is appropriate.

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## Commonly Asked Questions about the LIBCSP (continued)

**WHAT IS A CASE-CONTROL STUDY?** A case-control study is a commonly used study design for epidemiologic investigations. Women who are newly diagnosed with breast cancer (cases) are identified. Then, as a comparison, women without breast cancer (controls) are scientifically selected. Through the use of in-person interviews and donated blood and urine samples, the investigator can determine if women with breast cancer have higher levels of past exposure to environmental factors than women who do not have breast cancer.

**WHY IS THE LONG ISLAND BREAST CANCER STUDY PROJECT BEING CONDUCTED?** The LIBCSP is a landmark investigation that will significantly add to our knowledge of the relationship between the environment and breast cancer. An important part of this research effort involves understanding differences between women who develop breast cancer and women who do not. The results of this study may improve our ability to:

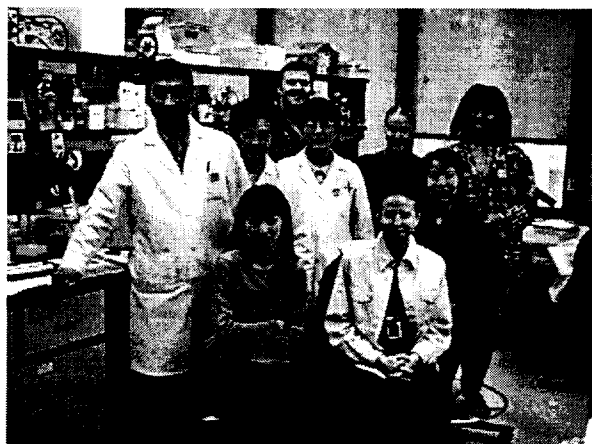
- ▶ better identify women who are at risk of developing breast cancer,
- ▶ identify risk factors that can be changed, and
- ▶ aid in developing strategies to prevent breast cancer that will eventually benefit all women.

## Meet the LIBCSP Biomarkers Coordinator

We would like to introduce you to Regina Santella, Ph.D.. She is Professor of Public Health in the Division of Environmental Health Sciences at Columbia University School of Public Health. Regina Santella received her B.S. degree in Chemistry from Brooklyn College, then went to the University of Massachusetts for an M.S. in Organic Chemistry. She then returned to New York and received a Ph.D. in Biochemistry from the City University of New York.



Dr. Regina Santella



Research Laboratory Team: Yuan Zhang, Yasmina Ait Amara (front row); Yu Jing Zhang, Lilian Wang, Qiao Wang, Tie Lan Young (middle row); Kyle Kelly, Sharon Hayes, Sharon Ramsey (back row)

As Biomarkers Coordinator on the Long Island Breast Cancer Study Project, Dr.

Santella is responsible for overseeing the preparation and storage of all of the biological samples collected from participants in the LIBCSP. Her lab will be conducting the laboratory analysis of the polycyclic aromatic hydrocarbons bound to DNA in the blood samples collected during the study. She will also be involved in the data analysis of the laboratory results in conjunction with other researchers at Columbia University School of Public Health. Dr. Santella is one of the key members of the collaborative team that directs the scientific aspects of the LIBCSP.

Dr. Santella's research interests are related to developing and using methods for monitoring human exposure to chemicals which can cause cancer. Her laboratory has generated a large number of antibodies which can measure levels of these chemicals on the cell's DNA. While a number of exposures have been examined, Dr. Santella's research work is concentrated on measuring exposure to polycyclic aromatic hydrocarbons, as in the LIBCSP, and to aflatoxin B<sub>1</sub>, a chemical produced by molds and contaminating foods (corn, peanuts, etc) in certain parts of the world.

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### Commonly Asked Questions about the LIBCSP (continued)

**WHAT ENVIRONMENTAL EXPOSURES ARE BEING STUDIED?** Recently, several studies suggested that certain environmental exposures affect estrogen production under laboratory conditions, increase mammary tumors in animals, and may increase a woman's risk of breast cancer.

These environmental exposures include:

- ▶ **Organochlorine compounds** - includes pesticides such as DDT, DDE, and chlordane; and PCBs, which were used as electrical insulators
- ▶ **Polycyclic Aromatic Hydrocarbons** - formed during the incomplete burning of organic material; found in car exhaust, cigarette smoke and charcoal broiled foods
- ▶ **Electromagnetic Fields (EMF)** - invisible waves that result from the flow of electric current

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**Long Island Breast Cancer Study Project Hotline**

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## The Long Island Breast Cancer Study Project

Telephone Hotline: (212) 305-9392

E-mail us at: [libcsp@columbia.edu](mailto:libcsp@columbia.edu)

World Wide Website: <http://cpmcnet.columbia.edu/dept/sph/epi/libc/>

### The Investigative Collaborators

LIBCSP brings together investigators at institutions from Long Island, New York City, Maryland, New Jersey and Texas in an effort to determine whether environmental factors are associated with breast cancer among women on Long Island. We would like to recognize these institutions for the contributions they are making to the LIBCSP. The following is our list of collaborating institutions.

American Health Foundation

Beth Israel Medical Center

Brookhaven Memorial Hospital

Brunswick Hospital

Central Suffolk Hospital

Columbia School of Public Health

Columbia Presbyterian Medical Center

County of Suffolk

Eastern Long Island Hospital

Franklin Hospital Medical Center

Good Samaritan Hospital Medical Center

Health Insurance Plan of Greater NY

Hempstead General Hospital

Huntington Hospital

John T. Mather Memorial Hospital

Long Beach Memorial Hospital

Long Island Jewish Medical Center

Massapequa General Hospital

Memorial Sloan-Kettering Cancer Center

Mercy Medical Center

Mid-Island Hospital

Mineola Medical Lab

Mt. Sinai School of Medicine

Nassau County Medical Center

National Audubon Society

North Shore University Hospital

at Glen Cove

North Shore University Hospital

at Manhasset

North Shore University Hospital  
at Plainview

North Shore University Hospital  
at Syosset

Princeton University

St. Charles Hospital

St. Francis Hospital

St. John's Episcopal Hospital

South Nassau Communities Hospital

Southwest Research Institute

Southampton Hospital

Southside Hospital

Strang Cancer Prevention Center

University Medical Center at Stony Brook  
Westat

Winthrop University Hospital

## The Long Island Breast Cancer Study Project

Columbia University School of Public Health

600 West 168th Street, PH-18, New York, NY 10032

*Information Leads to Prevention.*

*Local participating institutions:*

Beth Israel Medical Center

Columbia-Presbyterian Medical Center

Memorial Sloan-Kettering Cancer Center

Mount Sinai Medical Center

New York University Medical Center

University Hospital at Stony Brook

*The Metropolitan New York Registry is supported by the National Cancer Institute.*

### **R** METROPOLITAN NEW YORK REGISTRY

**WHY DOES BREAST CANCER TRAVEL IN FAMILIES?**

**ARE GENES TO BLAME?**

**DO OTHER FACTORS PLAY A ROLE?**

Only research can answer these questions. You can play an active role by providing information on family history of cancer, family and personal health history and samples of blood and urine. Researchers will use this information to search for new detection methods, preventive measures and improved treatments.

If you have a family history of breast and/or ovarian cancer, please call 888-METRO-08.

**Take an active role.  
Join the Registry.**

FOR MORE INFORMATION OR REGISTRATION WITH THE REGISTRY,  
CALL 888-METRO-08.