

Fox Chase Breast Cancer Tissue Resource

Jose Russo, M.D., *Senior Member, Director, Breast Cancer Research Laboratory*

Irma H. Russo, M.D., *Member, Chief, Molecular Endocrinology Section of Breast Cancer Research Laboratory*

Fathima Sheriff, M.D., *Coordinator*

Rachael Fernbaugh, M.S., *Histotechnologist*

A definitive evaluation of breast tumor markers has been hindered by a lack of adequate specimens. Though systems for collecting archival breast cancer tissue blocks have existed for many years, they have been of limited usefulness. The Fox Chase Breast Cancer Tissue Resource provides the foundation for a multidisciplinary, coordinated research effort by supplying archival breast cancer tissue with associated clinical data for the study and validation of prognostic indicators in breast cancer. Information on individual tumor characteristics, including primary site, tumor size, histological type, tumor grade, estrogen and progesterone receptor testing, lymph node status, and general staging, is maintained in a database and available for each case in the resource. Additional information on patient characteristics, including sex, age at diagnosis, date of birth, race/ethnicity, and treatment options is recorded as well. Follow-up information such as date of recurrence, type of recurrence, and current vital status is also maintained in the resource. The Fox Chase Breast Cancer Tissue Resource ensures that materials reach investigators in a timely manner and maintains quality control of the archival tissue and database. The resource cannot provide patient identification or information about other family members.

The Fox Chase Breast Cancer Tissue Resource is one of four geographically diverse facilities from across the nation participating in the National Cancer Institute's Cooperative Breast Cancer Tissue Resource. A computerized central database is maintained in Silver Spring, Maryland. The Fox Chase Breast Cancer Tissue Resource is a collaborative effort among the Hospital of the Fox Chase Cancer Center and eleven other Fox Chase Network hospitals. Network hospital collaborators include:

Bon Secours-Holy Family Hospital

Charles M. Haas, Jr., M.D., *Chief Pathologist*

& *Co-Principal Investigator*

Carol Burkabile, R.N., M.E.D., O.C.N.,

Program Manager

Wanda Fitzpatrick, *Tumor Registrar*

Delaware County Memorial Hospital

Lawrence Mathews, M.D., *Chief Pathologist*

& *Co-Principal Investigator*

Marie DeStefano, R.N., M.S.N., *Program Manager*

Suzanne Iocco, C.T.R., *Tumor Registrar*

Marianne Calvello, *Pathology Administrative Assistant*

Fox Chase Cancer Center

Jose Russo, M.D., FRCP, *Principal Investigator*

Kathy Elmer, MLT, H.T. (ASCP), *Histology Supervisor,
Chief Technician*

Margaret A. O'Grady, R.N., M.S.N., O.C.N.,
Program Manager

Mary Donovan, C.T.R., *Tumor Registrar*

Barbara Greenwald, *Tumor Registry Follow-up Clerk*

Hunterdon Medical Center

Steven Diamond, D.O., *Chief Pathologist*

& *Co-Principal Investigator*

Elaine Kloos, R.N., C.N.A., M.B.A., *Program Manager*

Martin Bunting, H.T. (ASCP), *Histotechnologist*

Ellen Perrine, C.T.R., *Tumor Registrar*

Memorial Hospital of Burlington County

Michael S. Entmacher M.D., *Co-Principal Investigator*

William Manion, M.D., *Chief Pathologist*

Carl Adkins, *Program Manager*

Judy Neuman, B.A., C.T.R., *Manager, Oncology
Data Services*

Dolores Melnick, C.T.R., *Tumor Registrar*

Stella Szymanski, C.T.R., *Tumor Registrar*

Montgomery Hospital

John R. Lininger M.D. FRCP, *Co-Principal Investigator*

Paul Belser, M.D., *Chief Pathologist*

Joanne Cipollini, *Program Manager*

Christopher Evanish, *Histotechnologist*

Mary Ann Tellinghusen, *Tumor Registrar*

Paoli Memorial Hospital

Stephen Fox M.D., *Co-Principal Investigator*

Joseph Hortsman, M.D., *Chief Pathologist*

Rosheen McCutcheon, B.S.N., O.C.N., R.N., C.C.R.A.,
Program Manager

Rick Ruscitto, H.T.L., *Histotechnologist*

Deborah Dickerson, RHIT, C.T.R., *Tumor Registrar*

Pinnacle Health System-Polyclinic Medical Center

Robert Gordon M.D., *Co-Principal Investigator*

James Piper, M.D., *Chief Pathologist*

Betsy Kopp, R.N., M.S., *Oncology Program Administrator*

Barbara Delaney, H.T.L., *Histotechnologist*

Barbara Segina, C.T.R., *Tumor Registrar*

Betsy Reese, *Tumor Registrar*

Riverview Medical Center

Edwin Leschhorn, M.D., *Chief Pathologist
& Co-Principal Investigator*
Kim A. Mazzie, R.N., M.A., *Program Manager*
Ana Garcia, H.T.L., *Histotechnologist*
Dee Krueger, C.T.R., *Tumor Registrar*

Saint Francis Medical Center

E. Rosvold M.D., *Co-Principal Investigator*
Robert Moser, M.D., *Chief Pathologist*
Barbara Simmonds, *Program Manager*
Maryanne Burhenne, *Tumor Registrar*

Saint Luke's Hospital

Santo Longo, M.D., *Chief Pathologist & Co-Principal Investigator*
Patricia B. Herman, R.N., M.S.N., *Program Manager*
Sandy Tucker, H.T.L., (ASCP), *Histotechnologist*
Sally Boyer, B.A., M.S., *Tumor Registrar*

Saint Mary Hospital

Stuart H. Packer M.D., *Co-Principal Investigator*
Zenon Gibas, M.D., *Chief Pathologist*
Sandy Magee-Evans, *Oncology Program Coordinator*
Li Hui, Ph.D., *Histotechnologist*
Joyann Rosenblum, R.N., *Tumor Registrar*

During the last seven years, 2,859 primary breast cancer cases have been entered into the Fox Chase database. The patient population is 93.8% white, 4.8% black, and 1.4% of other origin. A total of 7,309 blocks of paraffin-embedded breast cancer tissue have been collected. The cases have been re-examined by pathologists in each Network hospital and re-evaluated histopathologically according to criteria established by the National Cancer Institute's Cooperative Breast Cancer Tissue Resource (NCI-CBCTR). Clinical data and follow up information are available for all these cases.

Of the tumors entered in the Fox Chase database, 66% are purely invasive, 25% have both an *in situ* and an invasive component, and 9% are strictly carcinoma in situ (CIS). There are 886 cases of lymph node positive invasive carcinomas, 1,307 cases of lymph node negative invasive carcinomas, and 409 cases of unknown lymph node status. The majority carcinoma in situ cases are lymph node negative (54%); only 2% are lymph node positive, while 44% have unknown nodal status. The vast majority of invasive carcinomas, 85%, are ductal, not otherwise (NOS) type. When in situ carcinoma is divided by histotype, 47% are non-comedo type, and 26% are other types.

The Fox Chase Breast Cancer Tissue Resource provides tissue sections from large numbers of formalin-fixed, paraffin-embedded primary breast cancer to meet the requirements of particular research projects. The CBCTR has designed a breast cancer Tissue micro-array (TMA) that can be used to investigate differences in prevalence of potential markers in three stages of invasive breast cancer: node-negative, node-positive and metastatic disease. All of the invasive cases are primary breast cancers with a principal histology of ductal cancer accessioned through the CBCTR. Future arrays under development will include cases with known clinical outcome to allow assessment of prognostic value of markers.

The specimens and data are available to the scientific community for research studies, and are particularly well suited for validation studies of diagnostic and prognostic markers. The resource has been advertised in various scientific publications, including *Women and Cancer*, *BioTechniques*, and *The Scientist* and in national scientific meetings, such as the American Association for Cancer Research (AACR) Annual Meeting and the San Antonio Breast Cancer Symposium. It is also represented on the NCI-CBCTR web site, which contains a searchable database (<http://www-cbctr.ims.nci.nih.gov>).