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The UCLA/USC Tissue Bank was established to provide research investigators with a ready source of human tissue samples for basic and clinical research projects directed at a greater understanding of various aspects of human breast cancer. The bank has been successful at accruing some 8328 tissue samples to all of the subcomponent banks comprising the main bank. Of these tissues, 2478 are breast cancer specimens while the remaining represent specimens from premalignant and non-malignant breast tissue, normal breast tissue, normal non-breast tissue and bone marrow and peripheral stem cells from patients with active breast cancer. Over the course of the funding period some 36 investigators have utilized material from this bank. We expect continued utilization of the bank by investigators resulting in additional publications.

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NA In conducting research using animals, the investigator(s) adhered to the "Guide for the Care and Use of Laboratory Animals," prepared by the Committee on Care and Use of Laboratory Animals of the Institute of Laboratory Resources, National Research Council (NIH Publication No. 86-23, Revised 1985).

✓ For the protection of human subjects, the investigator(s) adhered to policies of applicable Federal Law 45 CFR 46.

NA In conducting research utilizing recombinant DNA technology, the investigator(s) adhered to current guidelines promulgated by the National Institutes of Health.

NA In the conduct of research utilizing recombinant DNA, the investigator(s) adhered to the NIH Guidelines for Research Involving Recombinant DNA Molecules.

NA In the conduct of research involving hazardous organisms, the investigator(s) adhered to the CDC-NIH Guide for Biosafety in Microbiological and Biomedical Laboratories.

PI - Signature Date

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INTRODUCTION

The introductory section of this infrastructure core resource as well as the background material and purpose of the proposal remains identical to those stated in the initial application. As these sections are required for the progress eport, they will be restated here

We have had considerable experience in the establishment and utilization of human tumor tissue banks. Prior to 1984, most studies of alterations of human genes had been performed on established cell lines. In 1984, we published the first study using actual human tumor tissue as well as adjacent normal tissue to evaluate differential expression patterns of proto-oncogenes in human malignancies. We have had NCI sponsored funding to pursue these types of studies since that initial description and as a result have established and/or utilized human tumor tissue banks to evaluate a number of proto-oncogenes and tumor suppressor genes. These tissue banks have been used by us not only to identify genetic alterations associated with specific human malignancies, but also to provide macromolecules for the cloning of human proto-oncogenes as well as the initial identification of the proteins encoded by some proto-oncogenes and tumor suppressor genes as well as the partial characterization of these and other proteins.

Three of the above mentioned screening studies dealt specifically with human breast cancer and one of those studies utilized messenger RNA from the tissue bank to clone and characterize a full length c-DNA clone of the HER-2/neu gene. This clone has subsequently been used in basic science studies evaluating the role of HER-2/neu amplification and overexpression in the pathogenesis of human breast cancer, underscoring the fact that translational elements can go from clinical material to basic science studies as well as vice-versa. Many investigators have developed banks consisting of hundreds or thousands of samples. Several of these banks, however, may have limitations which restrict the practical utilization of specimens for the development of new reagents and/or new molecular approaches. Frequently tissue banks consist of paraffin-embedded specimens which are appropriate for pathologic and some types of molecular studies but which may have limited use for the analysis of other genetic alterations or protein expression studies. Even though methods now exist for extracting DNA and RNA from paraffin embedded material, these macromolecules are almost always degraded to a greater or lesser extent as a result of the fixation and/or embedding process. PCR technology allows for the assessment of specific sites or regions of genes, however molecular methods requiring high molecular weight DNA or RNA species such as c-DNA cloning or analyses of restriction fragment length polymorphisms (RFLP's) of large DNA segments may be problematic. In addition, the fixation process can alter the antigenicity of some proteins of interest making immunohistochemical analyses with many antibodies difficult if not impossible. Other banks consist of specimens which are not fixed but stored frozen and while this circumvents some of the previously stated problems, there are frequently other potential problems with such samples. Many of these specimens

are stored after other studies have been performed, most notably steroid hormone receptor analyses. As such, some exist as cytosolic preparations or nuclear pellets. Again this presents limitations on the integrity of high molecular weight species of RNA and DNA and such fractionated samples cannot be assessed by immunohistochemistry. Finally, many of these types of specimens have variable clinical and/or follow up data.

Given the nature of the required studies done on breast biopsies and specimens removed for therapeutic purposes, as well as the trend toward earlier diagnosis and thus smaller primary lesions, there are practical limitations to the amount of frozen tissue that can be obtained for a tissue bank. Still, it should be an important objective for any well constructed tissue bank to have significant numbers of specimens which contain sufficient material and appropriate follow-up to circumvent some of the above problems. The ability to perform a comprehensive analysis (ie at the DNA, RNA and protein levels) on a given gene or genetic alteration in an appropriate number of specimens is critical. Our own experience with the human HER-2/neu gene is that this type of analysis can be central to resolving important questions regarding molecular alterations in breast cancer and serves as an example for the necessity of banks which can support comprehensive analyses of a gene or gene product of interest in some specimens. Alteration of the Her-2/neu gene is now known to be of potential biologic and clinical importance in some human breast cancers. However, after publication of our initial paper reporting the correlation of HER-2/neu gene amplification with outcome in breast cancer, a number of other reports were published; some confirming and others refuting our data. The purpose of our subsequent study was not only to examine sufficient numbers of cases to address this issue more completely, but also to critically evaluate the methodologic concerns that might account for discrepancies between studies in the literature. To accomplish this, we performed a comprehensive analysis of 187 tumors that were of sufficient size to obtain DNA, RNA and protein, as well as frozen and fixed material for immunohistochemistry. This part of the study was designed to address several critical issues regarding the HER-2/neu gene in human breast cancer. First, the correlation between a given level of gene amplification and relative expression for both RNA and protein needed to be addressed, since it is known that some genes which are amplified in breast cancer are not expressed. These genes may serve as useful markers, but are unlikely to be involved in pathogenesis of the disease. Second, the issue of the specificity of the alteration within a heterogeneous tumor tissue also needed to be addressed; i.e. were the alterations specific to the tumor cells versus non-tumor cells in the specimen. Solid matrix blotting techniques (Southern, Northern or Western blot analyses) cannot distinguish signals from tumor versus normal cells, and as a result introduce dilutional artifacts which may obscure important findings in the tumor
cells. Third, the comprehensive approach was taken to gain some insight into the relative strengths and weaknesses of the various methods used in assessing alterations in the HER-2/neu gene in human tissues. Fourth, since gene expression was found to correlate closely with amplification in this study, it provided an independent assessment of the accuracy of the cases determined by Southern analysis to be amplified.

The relevance of this study for us was not only that it confirmed the observed HER-2/neu amplification rate of 25% and the correlation with clinical outcome, but of equal importance it demonstrated important methodologic considerations which may be operational when measuring any gene or gene product in human breast cancer specimens consisting of heterogeneous cell populations. These considerations are not restricted to HER-2/neu amplification and overexpression. Indeed a comprehensive approach can address several issues such as the resultant change (if any) in messenger RNA or protein size associated with alterations occurring at the DNA level. In addition, it can allow for assessment of changes in expression which may not be accompanied by gross changes at the DNA level. It can also allow for the evaluation of whether specific antibody reagents perform more optimally in frozen or fixed tissue. Finally, and perhaps most importantly, it allows for a determination of the optimal methodologic approach for assessing a change in a gene, gene product or pathway in actual human breast cancer specimens. In addition, comprehensive processing of samples will facilitate isolation of macromolecules which can be used in the generation of reagents for basic science studies, i.e. full length c-DNA and/or genomic clones. Such reagents will have been derived from tumor tissue rather than cell lines, insuring that the resultant clones are representative of genes occurring in actual human tumors rather than cell lines. This circumvents the possibility that any observed alteration may be the result of continuous propagation of cells in vitro. While it is clear that practical considerations will prohibit having sufficient material to perform this type of processing on all specimens stored in a bank, it will be the objective of the UCLA/USC Breast Tissue Bank to have sufficient numbers of specimens in each bank component to allow for a comprehensive analysis of any genes of interest in a large cohort of the samples. We have provided the above narrative not to detail our accomplishments but to convince the reviewers that we have had extensive experience in establishment and utilization of appropriate tissue bank resources for the conduct of relevant translational clinical research projects involving human malignancies and specifically breast cancer.

BODY

The UCLA/USC Tissue Bank is actually made up of 6 sub-component banks which include:

a) Malignant Breast Tissue Component
b) Pre-malignant/Non-malignant Breast Tissue Component
c) Normal Breast Tissue Component
d) Fat Tissue Component
e) Normal Non-Breast Tissue Component
f) Bone Marrow/Peripheral Blood Stem Cell Component

The figures here represent the final 12 months of the grant funding period

I Accrual

Accrual to all of these component parts of the bank has been excellent. The accrual to the various other components of the bank over the past 12 months is as follows:

a) Malignant Breast Tissue Component
A total of 717 specimens have been accrued to this component of the bank. Of these 92 are DCIS while 625 are invasive carcinomas

b) Premalignant/non-malignant Breast Tissue Component
A total of 514 premalignant and non-malignant samples have been collected including breast specimens from biopsies which demonstrate various non-malignant abnormalities including atypical ductal hyperplasias, fibroadenomas etc.

c) Normal Breast Tissue Component
A total of 139 normal breast tissue samples from reduction mammoplasties have been accrued to the bank.

d) Fat Tissue Component
A total of 105 fat tissues from mastectormy/lumpectormy specimens have accrued to this portion of the bank in the past 12 months.

e) Normal and Non-breast Tissue Component
A total of 902 tissues have been accrued to the normal and non-breast tissue component of the bank. The break down of these tissues by classification of benign and malignant diagnosis is as follows:

	BENIGN	MALIGNANT
Ovary	123	27
Brain	8	17
Prostate	53	41
Colon	108	107
Rectum	2	6
Uterus	170	26
Thyroid	15	14
Bladder	4	4
Spleen	6	4
Lymph Nodes	22	37
Stomach	15	20
Skin	6	8
Soft Tissue	5	7
Testis	16	10
Kidney	27	34
Mediastinum	0	2
Bone	0	9

II Utilization

The UCLA/USC Tissue Bank has again had significant utilization over the funding period. Below is a detailed list of all those investigators who have used this resource during the funding period as well as information on their funding and the title of the research project they have completed or for which they are receiving funding.

1995

Michael E. Press, MD, PhD:
"Pathobiology of Breast Cancer and Hormone Receptors", NCI:2 RO1-CA48780, 1993-1998.
Specimens provided: 215 Breast cancer specimens

Darryl Shibata, MD.
"Genetic Evidence of Early Breast Cancer," funded by the U.S. Army Medical Research & Development Command, DAMD17-94-J-4232, 1994-1996
Specimens Received: 20 paired tumor - normal frozen tissue specimens

Darryl Shibata, MD.
"Biology of Telomere Length Conservation in Breast Cancer." funded by the California Breast Cancer Research Program, 1995-1996
Specimens Received: 40 breast cancer specimens

Peter Daneaberg, PhD.,
"Continuous 5-FU infusion and Concomitant Radiation for Locally Advanced Breast Cancer" NCI RO1 CA60899, 1994-1998.
Specimens provided: 22 frozen breast cancer specimens

Thomas Mack, MD.
"Genetic abnormalities in breast cancer tumors: Relationships to Environmental and Genetic Risk Factors Using Twins." U.S. Army Medical Research & Development Command, DAMD17-94-J-4290, 1994-1995
Specimens provided: 77 breast cancer specimens from twins

Franco Muggia, MD.
"Multidrug Resistance in Breast Cancer; Occurrence and Therapeutic Implications". U.S. Army Medical Research & Development Command, DAMD17-94-J-4321, 1994-1988
Specimens Received: 65 frozen breast cancer specimens

Richard Cote, MD. & John Glaspy, MD
National Cancer Institute P50-CA58197. "SPORE in Breast Cancer".
Specimens received: 400 peripheral blood stem cell and bone marrow specimens on 150 patients

Silvia Formenti MD:
"A pilot study of radiosurgery for T1 breast cancers: Clinical, physical and radiobiological correlates", funded from the NCCC Breast Cancer Research Program," NCI P20 CA66222, 1995-1996.
Specimens received: 25 breast cancer specimens

Amy Lee PhD.
"Application of stress protein gene system for drug resistance and gene therapy in breast cancer", funded from the NCCC Breast Cancer Research Program," NCI P20 CA66222, 1995-1996.
Specimens received: 20 frozen breast cancer specimens and 5 normal breast specimens.

Elizabeth Krecker, MD.
"Breast Cancer in Young Women" (pilot project-not funded)
Specimens received: 89 breast cancer specimens.

Melvin J. Silverstein, MD.
Ductal Carcinoma in Situ of the Breast: A Proposal for a Morphologic Classification based on High Nuclear Grade and Comedo Type Necrosis.
Specimens received: 36 DCIS specimens as well as research personnel assistance in organizing 238 DCIS specimens from his private practice.

Dennis J. Slamon, MD., PhD
"Oncogenes in Physiologic and Pathologic States" NIH RO1 CA36827
Specimens received: 36 DCIS specimens for the collaboration with Dr. Silverstein

Richard J. Pietras, MD., PhD
"Growth Factor Receptor-Directed Therapy in Human Breast Cancer" U.S. Army Medical Research & Development Command, DAMD17-94-J-4370
Specimens received: 105 Breast cancer specimens

1996

French Anderson, MD: Gene Therapy as a Potential Treatment of Human Malignancies. (Funded by private source.)
Specimens provided: 40 frozen breast cancer specimens, 5 adenofibromas and 15 normal breast tissues.

Leslie Bernstein, PhD: Breast Cancer and the Birth Control Pill: Case-Control Study of Perimenopausal and Past Oral Contraceptive Use, National Institute for Child Health and Human Development, NO1-HD-3-3175, 1992-1999.
Specimens provided: 316 breast cancers.

Peter Danenberg, PhD, and Silvia Formenti, MD: "Continuous 5-FU Infusion and Concomitant Radiation for Locally Advanced Breast Cancer", NCI RO1 CA60859, 1994-1998.
Specimens provided: 39 frozen breast cancer specimens.

Silvia Formenti, MD; "A pilot study of radiosurgery for T1 breast cancers: Clinical, physical and radiobiological correlates", funded from the RNCCC Breast Cancer Research Program,S NCI P20 CA66222, 1995-1996.
Specimens received: 39 breast cancer specimens.

Juan Felix, MD : "Expression of Tumor-Related Antigens in Cervical Cancer" (pilot project -- not funded).
Specimens received: 23 cervical cancer specimens.

Susan Ingles, PhD; "The Role of Vitamin D3 and Vitamin D Receptor Alleles in Breast Cancer Incidence", funded by the California Breast Cancer Research Program, 1IB-0353, 1995-1996"
Specimens provided: 10 breast cancers and 10 matched benign breast specimens.

Chaim Jacob, MD, PhD; NIH-funded investigation.
Specimens provided: 40 normal tissue specimens from African-American women.

Amy Lee, PhD: "Application of stress protein gene system for drug resistance and gene therapy in breast cancer", funded from the RNCCC Breast Cancer Research Program,S NCI P20 CA66222, 1995-1996.
Specimens received: 19 frozen breast cancer specimens.

Thomas Mack, MD; "Genetic Abnormalities in Breast Cancer Tumors: Relationships to Environmental and Genetic Risk Factors Using Twins." U.S. Army Medical Research and Development Command, DAMD17-94-J-4290), 1994-1995.
Specimens received: 54 breast cancer specimens from twins.

Franco Muggia , MD; "Multidrug Resistance in Breast Cancer: Occurrence and Therapeutic Implications", U.S. Army Medical Research & Development Command, DAMD17-94-J-4321, 1994 - 1998.
Specimens received: 115 frozen breast cancer specimens.

Michael F. Press, MD, PhD; "Pathobiology of Breast Cancer and Hormone Receptors", NCI; 2 RO1-CA48780, 1993-1998; and "Molecular Epidemiology of Breast Carcinoma In Situ ", USAMRMC; DAMD17-96-1-6156, 1996-2000.
Specimens provided: 126 breast cancer specimens, 49 breast carcinoma in situ specimens and 95 endometrial cancer specimens.

Gregory Shackleford, PhD and Ann Kapoun, PhD; "Genes Involved in Multi-Step Mammary Tumorigenesis.S, funded by the California Breast Cancer Research Program, 1RB-0484, 1995-1998
Specimens provided: 34 breast cancer specimens.

Darryl Shibata, MD: Genetic Evidence of Early Breast Cancer, funded by the U.S. Army Medical Research & Development Command, DAMD17-94-J-4232, 1994-1996; "Biology of Telomere Length Conservation in Breast Cancer." funded by the California Breast Cancer Research Program, 1995-1996; "Biology of Telomere Length Conservation in Breast Cancer." funded by the California Breast Cancer Research Program, 1995-1996
Specimens received: 22 normal, menstrual phase-specific breast specimens; and 65 breast cancer specimens.

Andrew Stolz, MD; Characterization of a New Gene Family of Monomeric Oxidoreductases Which Reduce Toxic Tumor Promoting QuinonesS, Wright Foundation, 1995-1997; and Molecular Studies of a Novel Human Bile Acid Binder". NIH R0-1 grant, DK41014, 1994-1997.
Specimens provided: 4 normal liver specimens.

Graham Casey, M.D; work funded from the Tobacco Related Disease Research Program (TRDRP of California (GC) (1RT343)
Specimens received: 93 breast cancers, 108 ovarian cancers, 154 non small cell lung cancers

Dennis Slamon, MD, Ph.D. "Oncogenes in Physiologic and Pathologic States" funded by NIH RO1 CA 36827
Specimens received: 147 breast cancer

1997

Peter Brooks, Ph.D. "Role of Proteolyzed Collagen in Angiogenesis and Apoptosis". funded by the California breast Cancer Research Program, R29CA74132, 1997-99.
Specimens provided: 3 breast cancer specimens and 3 normal skin specimens.

Joan Levine, PhD.; "Effect of Progesterone Receptor Isotype Ratio on Initial Response to Anti-Estrogen Therapy in Primary Breast Cancer" and "Prevalence Receptor Promoter Region Methylation in Primary Breast Cancer". Pilot projects funded by the USC Norris Comprehensive Cancer Center, 1996-1998
Specimens provided: 40 breast cancer specimens

Saraswati Sukumar, Ph.D.; "Microsatellite alterations as molecular satellites as molecular markers in breast cancer progression" USAMRMC;RP950900. 1996-98.
Specimens provided: 23 breast cancer specimens

Mimi Chiang, Ph.D; Regulation And Expression Of HLA-G In Human Cancers", Funded By The American Cancer Society; IRG#5351146000, 1997
Specimens Provided: 19 breast cancer specimens

Darryl Shibata, M.D.; "Genetic Evidence of early breast cancer", funded by the USAMRDC DAMD17-94-J4232, 1994-1996; Biology of Telomere length conservation in breast cancer". funded by the California Breast Cancer Research Program, 1995-1997.
Specimens provided. 22 normal, menstrual phase-specific breast specimens and 65 breast cancer specimens.

Franco Muggia, M.D.: "Multi-drug resistance in breast cancer: Occurrence and therapeutic Implications". funded by the USAMRDC, DAMD 17-94-J-4321, 1994-1998.
Specimens provided: 115 frozen breast cancer specimens.

Michael F . Press, M.D., Ph.D.; Pathobiology of breast cancer and hormone receptors". funded by the NCI: RO1-CA48780, 1993-1998; and "Molecular epidemiology of breast carcinoma *in situ*". funded by the USAMRMC;DAMD 17-96-1-6156, 19996-2000.
Specimens provided: 261 breast cancer specimens, 78 breast carcinoma *in situ* specimens and 95 endometrial cancer specimens.

Jason Lukas, Ph.D.; "Molecular Alterations in the -53 Metabolic Pathway" funded by the California Breast Cancer Research Program, ITB-0091-L01, 1996-1997.
Specimens provided: 88 breast cancer specimens, 53 ovarian cancer specimens and 47 endometrial carcinomas.

Bahman Saffari, M.D., Ph.D. "Molecular Genetic Alterations in Endometrial Cancer".
Specimens provided: 90 endometrial cancer specimens.

Angeles Reles, M.D., : "Molecular Alteration sin ovarian cancer" funded by the German Alexander von Humboldt-Foundation, 1996-1998.
Specimens provided: 178 ovarian cancer specimens.

John Park, M.D ., Ph.D. Candidate, "Characterization of BRCA1 Protein" funded by the USAMRMC, DAMD17-97-1-7161 1997-1999.
Specimens provided: 45 breast cancer specimens.

Jinha Park, M .D., Ph.D. Candidate; "Gene therapy targeted for breast cancer" funded by the USAMRMC, DAMD17-97-111-7232, 1997-1999.
Specimens provided: 10 breast cancer specimens

Silvia Formenti, M.D,; Original p53 status predicts for pathological response in locally advanced breast cancer patients treated preoperatively with continuous infusion 5-fluorouracil and radiation therapy". funded by the NIH, 1RO1CA60859-01-A1, 1996-1997
Specimens provided: 35 cancer specimens.

1998:

Heinz-Josef Lenz, M.D, "COX-2 Gene expression in ovarian and endometrium cancer (Pilot Study)", USC Norris Comprehensive Cancer Center, 1998-1999.
Specimens provided: 15 normal and 15 cancerous ovarian specimens
Specimens provided: 15 normal and 15 cancerous endometrium specimens

Bagga D, Anders KH, Wang HJ, Roberts E, Clark K, Glaspy JA. Fatty Acid Composition and Organochlorinen Pesticides Content of Breast Fat from Women with Breast Cancer and Controls Nature Medicine (submitted) 1998
Specimens provided: 141 fat tissue - 71 normal and 70 cancerous

PUBLICATIONS UTILIZING MATERIALS FROM THE CORE RESOURCE.

1994-1995

Silverstein MJ, Poller DN, Waisman JR, Colburn W, Barth A, Gierson E, Lewinsky BS, Gamagami P, Slamon DJ: Ductal Carcinoma in Situ of the Breast: A Proposal for a Morphologic Classification based on High Nuclear Grade and Comedo Type Necrosis. *The Lancet*, 345,May 6, 1995

Pietras RJ, Arboleda J, Reese DM, Wongvipat N, Pegram MD., Ramos L, Gorman CM, Parker MG, Sliwkowski MX, Slamon DJ. HER-2 Tyrosine Kinase pathway targets estrogen receptor and promotes hormone-independent growth in human breast cancer cells.. *Oncogene,* 10-2435-2446, 1995

Uziely B, DelaFlor-Weiss E, Groshen S, Russell C, Jeffers S, Watkins K, Chin A, Udove J, Dunnington G, Press M, Muggia F: Breast Cancer response to paclitaxel is unlikely with positive p-glycoprotein immunostaining: *J.Clin. Oncol.* 1995.

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Saffari B, Jones LA, El-Naggar A, Felix JC, George J, Press MF. Amplification and overexpression of HER-2/neu (c-erb B-2) in endometrial cancers: Correlation with overall survival. Cancer Res. 55: 5693-5698, 1995.

Reles A, Press M, Schonborn I, Friedmann W, Minguillon C, Lichtenegger W, Strohmeyer T. Immunohistochemical detection of p53 protein in ovariancarcinoma: Correlation with histopathological data and clinical follow up. Gynakolgisch Geburtshilfliche Rundschau 35: 93-97, 1995.

Kieback DG, Press MF, McCamant SK, Atkinson EN, Mobus VJ, Runnebaum IB, Kreienberg R, Jones LA. Die prognostische differenzierung von ovarialkarzinomen

durch immunhistochemische analyse der ostrogenrezeptorexpression. Geburtshilfe und Frauenheilkunde 55: 189-194, 1995.

Shibata A, Tsai YC, Press MF, Henderson BE, Jones PA, Ross RK. Clonal analysis of bilateral breast cancer. Clinical Cancer Res. 2: 743-748, 1996.

Pauletti G, Godolphin W, Press MF, Slamon DJ. Detection and quantitation of HER-2/neu gene amplification in human breast cancer archival material using fluorescence in situ hybridization. Oncogene 13: 63-72, 1996.

Casey G, Lopez ME, Ramos JC, Plummer SJ, Arboleda MJ, Shaughnessy M, Karlan B, Slamon DJ: DNA sequence analysis of exons 2 through 11 and immunohistochemical staining are required to detect all known p53 alterations in human malignancies. Oncogene, 13: 1971-1981. 1996.

Pietras RJ, Arboleda J, Reese DM, Wongvipat N, Pegram MD, Ramos L, Gorman CM, Parker MG, Sliwkowski MX, Slamon DJ. HER-2/*neu* tyrosine kinase pathway targets estrogen receptor and promotes hormone-independent growth in human breast cancer cells. Oncogene 10: 2436-1446, 1995

Kieback DG, Levy T, Kohlberger P, Fiedrich U, Press MF, Rosenthal HE, Mobus VJ, Runnebaum IB, Tong W-W, Gause HM, Tsai M-J. Chicken ovalbumin upstream promoter - transcription factor (COUP-TF) expression in human endometrial cancer cell lines. Anticancer Res. 16:3371-3376 1996.

1996-1997

Reles A, Schmider A, Press M, Schonborn I, Friedmann W, Huber-Schumacher S, Strohmeyer T, Lichtenegger W. Immunohistochemical detection of p53 protein in ovarian carcinoma: Correlation with histopathological data and clinical follow up. J. Cancer Res. Clin. Oncol. 122: 489-494, 1996

Lukas J, Niu N, Saffari B, Felix J, Jones LA, Groshen S , Hall FL, Press MF. WAF1/Cip gene polymorphism and expression in carcinomas of the breast, ovary and endometrium. Am. J.Pathol. 150: 167-175, 1997

Tsao J-I, Zhao Y, Lukas J, Yang X, Shah A, Press MF, Shibata D. Telomerase activity in breast cancer. Clin. Cancer Res. 3:627-631, 1997

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Petrosyan K, Press MF. Multispecimen tissue blocks in pathology: An improved technique of preparation. Lab.Invest. 77: 541-542, 1997

Formenti SC, Dunnington G, Lenz H-J, Uzieli B, Keren-Rosenberg S, Silberman H, Spicer D, Denk M, Leichman G, Groshen S, Watkins K, Muggia F, Florentine B, Press M, Danenberg K, Danenberg P. Original p53 status predicts for pathological response in locally advanced breast cancer patients treated pre-operatively with continuous infusion (C.I.) 5-fluorouracil (5-FU) and radiation therapy. Int J. Radiat Oncol Biol Phys 39:1059-1968, 1997

1997-1998

Press MF. Sixth biennial symposium on minorities, the medically underserved and cancer: Gynecological cancers. Cancer (Supplement) 83: 1751-1756. 1998

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Bernstein L, Press M. Does estrogen receptor expression in normal breast tissue predict breast cancer risk? J. Natl. Cancer Inst. 90: 5-7, 1998

Wang-Gohrke S, Hees S, Pochon A, Wen W-H, Reles A . Press MF, Kreinenberg R, Runnebaum IB. Genomic semiautomated cycle sequencing as a sensitive screening technique for p53 mutations in frozen tumor samples. Oncol. Reports 5: 65-68, 1998

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CONCLUSION

We are very pleased that over the funding period of this infrastructure core there has been significant accrual to all of the component parts of the bank as well as a significant utilization of this resource by 36 funded investigators in the area of breast cancer research. This includes investigations funded by not only the USAMRMC but also by the NIH and NCI. We anticipate that there will be continued utilization. Over the course of the funding period a total 36 investigators used the bank resulting in 28 peer reviewed publications. As result of the continued utilization of this bank we anticipate further studies and publications resulting in part or in total from the existence of this critical core resource. It is also likely that utilization of the Bank will continue to result in the potential development of new diagnostic, prognostic and therapeutic approaches to human breast cancer.