



Research Grant Recipients

Since our inception in 1995, Friends for an Earlier Breast Cancer Test® has awarded \$4,285,677 to fund seed grants in the specific area of finding a biological test to detect breast cancer in its earliest stage.

2018

Total Grants \$160,000

Stanford University (Stanford, CA)	\$40,000
<i>"Mapping of the single cell level clonal architecture of pre-invasive and benign breast disease for early breast cancer detection"</i>	
Dr. Francisco Beca	
Arizona State University (Tempe, AZ)	\$40,000
<i>"Metabolic Biomarkers for Breast Cancer: Discovery and Initial Cross-Validation"</i>	
Dr. Haiwei Gu	
Memorial Sloan Kettering Cancer Center (New York, NY)	\$40,000
<i>"A Novel Intelligent Breast Exam Tool for Earlier Breast Cancer Detection in Low Resource Populations"</i>	
Dr. Victoria L. Mango	
Hebrew University Institute for Medical Research (Jerusalem, Israel)	\$40,000
<i>"Using pre-mRNA isoforms in saliva as biomarkers for breast cancer diagnosis"</i>	
Dr. Maayan Salton	

All grants are funded for a one year period unless otherwise noted

2017

Total Grants \$159,300

Weill Medical College of Cornell University (New York, NY) **\$40,000**
"Bioinformatically-identified, site-specific methylation markers as potential blood-based indicators of early stage breast cancer."
Dr. Manny Bacolod

Central Texas Veterans Research Foundation (Temple, TX) **\$39,385**
"A Novel exosome isolation method based on ion exchange chromatography."
Dr. Hosoon Choi

University of Naples (Naples, Italy) **\$40,000 over 3 years**
"Early Breast cancer diagnosis through aptamer-mediated exosomes detection"
Dr. Gerolama Condorelli

University of California, San Francisco (San Francisco, CA) **\$39,915**
"Leveraging cancer-specific small RNAs for early detection of high-risk breast cancer"
Dr. Hani Goodarzi

2016

Total Grants \$160,000

University of Washington (Seattle, WA) **\$40,000**
"Non-contrast Diffusion-weighted MRI Tailored for Early Detection of Mammographically Occult Breast Cancer in Women with Dense Breasts"
Dr. Savannah Partridge

The Felsenstein Medical Research Center/Tel Aviv University (Tel Aviv, Israel) **\$40,000**
"Circulating hTERT mRNA in serum exosomes: a novel marker for early diagnosis and relapse of breast cancer"
Dr. Orit Uziel

Ben-Gurion University of the Negev (Beer-Sheva, Israel) **\$40,000**
"Combinatorial Engineering of Proteolytically Resistant APPI Variants that Selectively Target Human Mesotrypsin for Breast Cancer Imaging"
Drs. Niv Papo & Evette Radisky

The George Washington University (Washington, D.C) **\$40,000**
"Detection of Early Breast Cancer by Circulating MicroRNAs"
Dr. Xiaohui Tan

2015

Total Grants \$200,000

Fox Chase Cancer Center (Philadelphia, PA)	\$40,000
<i>“Ultra-Deep Sequencing for Detection of p53 and PIK3CA mutations in DCIS and Surveillance of High-Risk Women by Blood as a Liquid Biopsy for Early Diagnosis of Invasive Breast Cancer”</i>	
Dr. Paul Cairns	
Tulane University (New Orleans, LA)	\$40,000
<i>“Detection of Early Breast Cancer by Circulating HER4 Extracellular Domain ELISA”</i>	
Dr. Frank Jones	
University of Louisville (Louisville, KY)	\$40,000
<i>“Isolation and Characterization of Circulating Tumor Cells for Detection of Early Breast Cancer”</i>	
Dr. Lori Millner	
Mayo Clinic (Rochester, MN)	\$40,000
<i>“Pilot Study to Evaluate Dedicated Breast Positron Emission Tomography as a new Imaging Technique for Early Detection of Breast Cancer”</i>	
Dr. Michael O’Connor	
Indiana University (Indianapolis, IN)	\$40,000
<i>“Quantitative PCR Analysis of Telomere Fragility in Plasma Circulating and Cell-Free DNA for Early Breast Cancer Detection”</i>	
Dr. Hiromi Tanaka	

2014

Total Grants \$159,961

University of Massachusetts (Amherst, MA)	\$40,000
<i>“Detection of micro-scale tumors and metastases with non-toxic bacteria”</i>	
Neil S. Forbes	
Cleveland Clinic (Cleveland, OH)	\$40,000
<i>“Microbiomics for Breast Cancer Detection”</i>	
Stephen R. Grobmyer, MD, FACS	
Washington University in St. Louis (St. Louis, MO)	\$39,961
<i>“Development of anti-CD44 scFv’s for Early Detection of Breast Cancer by PET Imaging”</i>	
\$39,961	
Buck E. Rogers, Ph.D.	
Case Western Reserve University (Cleveland, OH)	\$40,000
<i>“Circulating RNAs for the Early Detection of Breast Cancer”</i>	
Cheryl Thompson, Ph.D.	

2013

Total Grants \$200,000

Mayo Clinic (Rochester, MN) \$40,000

“Development and evaluation of a combined molecular breast imaging/breast ultrasound system”

Dr. Carrie Hruska

Ben-Gurion University (Beer-Sheva, Israel) \$40,000

“Non-Invasive early detection of breast cancer: developing bi-specific APPI peptides and small molecule conjugates that bind to both avbeta3 integrin and MY1-MMP”

Dr. Niv Papo

Tel Aviv University (Tel Aviv, Israel) \$40,000

“Combining genetic and epi-genetic markers for early detection of breast cancer”

Dr. Noam Shomron

Stanford University (Stanford, CA) \$40,000

“Highly Sensitive Breast Cancer and Lymphnodes Cereukow Imaging Mediated by Gold Nano-Clusters”

Dr. Lei Xing

University of California, Irvine (Irvine, CA) \$40,000

“In vitro evolution of molecular sensors that detect breast cancer at early stage”

Dr. Weian Zhao

2012

Total Grants \$160,000

Roswell Park Cancer Institute (Buffalo, NY) \$40,000

“Identification of Novel MicroRNA biomarkers for Early Detection of Breast Cancer”

Dr. Stefano Rossetti

Harvard University (Cambridge, MA) \$40,000

“Novel Peptides as Candidate Breast Cancer Biomarkers”

Dr. Alan Saghatelian

University of North Carolina – Greensboro (Greensboro, NC) \$40,000

“An Ultrasensitive Detection Platform for Breast Cancer Biomarkers Present in Serum”

Dr. Marinella Sandros

University of California – San Francisco (San Francisco, CA) \$40,000

“Detecting the Early Oncogenic Kinome Signature of Breast Cancer”

Dr. Laura Van't Veer

2011

Total Grants \$160,000

Mayo Clinic (Rochester, MN) \$40,000

"Evaluation of Low-dose Molecular Breast Imaging for Detection of Breast Cancer"

Dr. Carrie Hruska

Stanford University (Stanford, CA) \$40,000

"X-Ray Stimulated Fluorescence for Early Detection of Breast Cancer"

Dr. Dimitre Hristov

Fox Chase Cancer Center (Philadelphia, PA) \$40,000

"DNA-Methylation Changes in Premalignant Lesions of the Breast"

Dr. Sandra V. Fernandez

University of North Carolina at Chapel Hill (Chapel Hill, NC) \$40,000

"Epigenetic Field Cancerization in the Development of Basal-like Breast Cancer"

Dr. William B. Coleman

2010

Total Grants \$240,000

Mayo Clinic (Rochester, MN) \$40,000

"Evaluation of Molecular Breast Imaging in the Detection of Breast Cancer in Patients with high risk Benign Breast Lesions"

Dr. Judy Boughey

Duke University (Durham, NC) \$40,000

"Diagnosis of Aggressive Breast Cancer with Enhanced Microwave Radiometry: Detection of Rapidly Proliferating Tumors by Noninvasive Deep Temperature Mapping"

Dr. Paolo Maccarini

Stanford University (Stanford, CA) \$40,000

"Combined Mammography and X-Ray Activatable Nonphosphor Molecular Imaging for Early Breast Cancer Detection"

Dr. Lei Xing

Technion-Israel Institute of Technology (Haifa, Israel) \$40,000/2 yrs.

"Early Diagnosis and Screening of Breast Cancer by an array of Nanosensors"

Dr. Hossam Haick

Roswell Park Cancer Institute (Buffalo, NY) \$40,000

"Identification of Unique Breast Pre-Malignant Signatures"

Dr. Nicholetta Sacchi

Roswell Park Cancer Institute (Buffalo, NY) \$40,000

"A Blood Test for Early Detection of Breast Cancer"

Dr. Ashwani Sood

2009

Total Grants \$394,694

University of California at San Diego (San Diego, CA) **\$37,250**
“*PTHrP: Translation of Molecular Biology to the Development of an Earlier Breast Cancer Test*”
Dr. LJ Deftos

Edinburgh Napier University (Edinburgh, Scotland) **\$40,000**
“*Potential of Altered AGP Glycosylation As A Marker for Breast Carcinoma*”
Dr. Kevin Smith

Sidney Kimmel Cancer Center (San Diego, CA) **\$40,000**
“*Evaluation of a Protein Microarray-based Profiling Assay of Enzymatic Activity for Breast Cancer Detection*”
Dr. Charles Spruck

Arizona State University (Tempe, AZ) **\$40,000**
“*Discovery and Validation of Artificial Recognition Elements for Detection of MUC1 Breast Cancer Biomaker*”
Dr. Kathryn Boltz

Moffitt Cancer Center (Tampa, FL) **\$37,500**
“*Identified of Circulating Serum Biomarkers Via Gene Expression Profiling For Breast Cancer Screening*”
Dr. Marie Catherine Lee

University of Texas (Austin, TX) **\$40,000**
“*Hyperspectral Microscopic Imaging of Circulating Tumor Cells (CTSCs) Isolated in Microfluidic Channels for Early Breast Cancer Diagnostics*”
Dr. John Zhang

Duke University (Durham, NC) **\$39,944**
“*Assessment of nuclear Snail-1 protein in early stage breast cancer*”
Dr. Robin Bachelder

University of Texas - MD Anderson Cancer Center (Houston, TX) **\$40,000**
“*DNA damage as a Biomarker of Risk of Breast Cancer*”
Dr. Isabelle Bedrosian

Mayo Clinic (Rochester, MN) **\$40,000**
“*Molecular Breast Imaging for Screening of Women at Average Risk of Breast Cancer*”
Dr. Carrie Hruska

University of California at San Diego (San Diego, CA) **\$40,000**
“*Breast Cancer Detection with Targeted DNA Nanoparticles*”
Dr. Bradley Messmer

2008

Total Grants \$317,915

University of Virginia (Charlottesville, VA) **\$40,000/2 years**
"Measurement of Aromatase in the Breast: Use for Breast Cancer Risk Assessment and Early Detection"
Dr. Sarah Aiyar, *et al*

University of Massachusetts (Amherst, MA) **\$39,915/15 months**
"Compact Microwave Array Imaging Chamber for Improved Early Breast Cancer Detection"
Drs. Anatoliy Boryssenko and Richard Arenas

University of North Carolina (Chapel Hill, NC) **\$40,000**
"Contribution of a Novel BRCA1 Promoter Polymorphism to Increased Breast Cancer Susceptibility"
Dr. William Coleman

Duke University (Durham, NC) **\$40,000**
"Validation of Novel Candidate Genes Involved in Early Breast Cancer Progression"
Dr. Joseph Geradts

University of Pittsburgh Cancer Institute (Pittsburgh, PA) **\$40,000**
"Development of Chimeric Biopolymers as Molecular MRI Contrast Agents to Detect Premalignant Breast Lesions, Breast Cancer, and Metastasis"
Dr. Qihong He

University of Texas at Houston (Houston, TX) **\$40,000**
"Developing a New Serum Assay for Detection of a Potential Novel Biomarker in Early Stages of Breast Cancer"
Dr. Wenzheng Zhang

University of Pittsburgh Cancer Institute (Pittsburgh, PA) **\$40,000**
"Biomarkers of Invasive and Metastatic Potential in Breast Cancer in Situ"
Dr. Stephen Grant

University of California at San Francisco (San Francisco, CA) **\$38,000**
"Targeted X-Ray Nano Molecular Imaging Agents for Breast Cancer Early Detection"
Dr. Ella Fung Jones

<u>2007</u>	<u>Total Grants</u>	<u>\$470,550</u>
University of California at San Francisco (San Francisco, CA) <i>“Developing tumor-specific uptake of MR contrast agents in breast cancers”</i> Dr. Heike E. Daldrop-Link	\$39,977	
Washington University School of Medicine (St. Louis, MO) <i>“A Serum Assay for the Detection of Breast Cancer”</i> Dr. Timothy Fleming	\$40,000	
Indiana University (Indianapolis, IN) <i>“Targeting Telomere Dysfunction for Early Detection of Breast Cancer”</i> Dr. David P. Gilley	\$37,000	
Indiana University (Indianapolis, IN) <i>“A Cancer Associated Isoform of PCNA in Breast Cancer has Implications as a Potential Biomarker for Disease”</i> Dr. Robert J. Hickey	\$39,300	
Mayo Clinic (Rochester, MN) <i>“Serum Biomarkers for Early Detection of Basal-Like Cancer of the Breast”</i> Dr. Eric W. Klee	\$34,300	
Robert H. Lurie Comprehensive Cancer Center (Chicago, IL) <i>“A Composite DNA Methylation Biomarker for Detection of Breast Cancer”</i> Dr. Victor V. Levenson	\$40,000	
Purdue University (West Lafayette, IN) <i>“Breast Cancer-Specific tNOX Isoform for Early Detection and Diagnosis”</i> Dr. D. James Morré	\$40,000	
Mayo Clinic (Rochester, MN) <i>“Comparison of Magnetic Resonance Imaging and Molecular Breast Imaging in Breast Diagnostic Evaluation”</i> Dr. Michael K. O’Connor	\$40,000	
MD Anderson Cancer Center at the University of Texas (Austin, TX) <i>“Proteomic Detection and Validation of Proteins Produced Human Breast Tumors at the Earliest Time for Detection”</i> Dr. Fredika Robertson	\$40,000	

Mayo Clinic Comprehensive Cancer Center (Jacksonville, FL) \$40,000
"Defining Protein Kinase D1 As An Early Marker For Breast Cancer"
Dr. Peter Storz

Russian Academy of Medical Sciences (Moscow, Russia) \$40,000/2 yrs.
"Development and validation of a differential methylation screening technology applicable for the identification of early breast cancer diagnostic markers"
Dr. Vladimir Strelnikov

Mayo Clinic College of Medicine (Rochester, MN) \$39,973
"Candidate Gene Approach for Identification of Novel Breast Cancer Susceptibility Genes"
Dr. Csilla Szabo

2006

Total Grants \$144,664

University of North Carolina at Chapel Hill (Chapel Hill, NC) \$39,914
"Detection of a +ACA BRCA1 Promoter Polymorphism in Constitutional DNA Identifies Individuals at Increased Risk for Breast Cancer"
Dr. William Coleman

University of Washington School of Medicine (Seattle, WA) \$40,000
"Identifying the Immunologic Signature of Breast Cancer for Use in the Early Detection of Disease"
Dr. Mary Disis

University of Melbourne (Melbourne, Australia) \$8,250
"Targeting the Novel Glucose Transporter GLUT12 for the Early Detection of Breast Cancer"
Dr. Suzanne Rogers

State University of New York – Downstate (Brooklyn, NY) \$39,000
"BC200 RNA: A Novel Molecular Indicator of Invasiveness for Breast Cancer"
Dr. Anna Iacoangeli

Wake Forest University Baptist Medical Center (Winston-Salem, NC)
Dr. Steven Akman \$17,500
Grant funded in conjunction with *Golfers Against Cancer*

<u>2005</u>	<u>Total Grants</u>	<u>\$316,354</u>
Dana-Farber Cancer Institute (Brookline, MA) <i>"Using Protein Microarrays to Identify Early Biomarkers in DCIS"</i> Dr. Karen Anderson		\$40,000
SUNY Stony Brook (Stony Brook, NY) <i>"Breast Cancer Detection and Screening Using Testes Specific Protein 50 (TSP 50) Antibodies"</i> Dr. Vladimir Jurukovski		\$40,000
Columbia University (New York, NY) <i>"Gene Methylation in Tumor DNA in Blood"</i> Dr. Regina Santella		\$40,000
University of California at Davis (Davis, CA) <i>"Serum Glycan Profiling as a Diagnostic Aid in Breast Cancer"</i> Suzanne Miyamoto		\$37,900
University of Kansas (Lawrence, KS) <i>"Centrosomal Biomarker For Early Detection of Human Breast Cancer"</i> Dr. Jonathan Li		\$40,000
Mayo Clinic (Rochester, MN) <i>"Visual and Computer Aided Analysis of Real-time Ultrasound Strain Image Sequences for Non-invasive Diagnosis of Breast Lesions"</i> Dr. Nicholas Hangiandreou		\$40,000
Winship Cancer Institute at Emory University (Atlanta, GA) <i>"Targeted Magnetic Nanoparticle Probes for Non-invasive Imaging of Breast Cancer Using MRI"</i> Dr. Lily Yang		\$40,000
Wake Forest University School of Medicine (Winston-Salem, NC) <i>"BARC (SCGF) in Breast Cancer Growth and Detection"</i> Dr. Suzy Torti		\$38,458

2004 **Total Grants \$193,489**

Fox Chase Cancer Center (Philadelphia, PA) **\$40,000**

"Benign Breast Registry to Assess Valid Endpoints"

Dr. Mary Daly

Mayo Clinic (Rochester, MN) **\$39,900**

"Prediction of Invasive Breast Cancer and Breast Cancer Risk in DCIS and Benign Breast Disease by Analysis of Methylated Gene Markers"

Julian R. Molina, MD, PhD and Lynn Hartman, MD

Purdue University (West Lafayette, IN) **\$35,289**

"Using the local bright feature algorithm to monitor the distribution of the nuclear protein NuMA. A novel approach for earlier detection of breast cancer"

Sophie A. Lelievre, D.V.M.

Washington University (St. Louis, MO) **\$38,300**

"PET Imaging for Early Detection of Breast Cancer with a Radioactive Peptide"

Buck E. Rogers, PhD

University of Missouri at Columbia (Columbia, MO) **\$40,000/2 years**

"DNA Methylation Pattern in Breast Cancer Tissue and matched Nipple Aspirate Fluid/Serum"

Dr. Weizhu Zhu

2003 **Total Grants \$177,052**

Dana-Farber Cancer Institute (Brookline, MA) **\$38,000**

"A Proteomic Approach to Early Diagnosis of Breast Cancer"

Drs. Alexander Miron and Lyndsay Harris

Duke University School of Medicine (Durham, NC) **\$20,000**

"Acoustic Radiation Force Impulse (ARFI) imaging of Breast Cancer"

Dr. Kathryn Nightingale

Georgetown University, Lombardi Cancer Center (Washington, DC) **\$40,001/2 yrs.**

"Imaging of Carcinogenesis and Cancer Prevention: A study of changes which occur in early breast cancer and how they look on MRI scans"

Dr. Matthew Freedman

The Chaim Sheba Medical Center (Tel Hashomer, Israel)	\$40,000
<i>"Nanotechnology for Early Detection of Breast Cancer: Development of Tailored Magnetic nanoparticles"</i>	
Dr. Nave Epstein	
Wayne State University (Detroit, MI)	\$39,051
<i>"Detection of Breast Cancer by Protein Arrays"</i>	
Drs. Kathryn Carolin and Michael Tainsky	

2002 **Total Grants** **\$276,747**

Georgetown University, Lombardi Cancer Center(Washington, DC)	\$37,544/2 yrs
<i>"Use of Invadopodia Antigens for Clinical Detection or Metastatic Cancer in Serum and Tissue Samples"</i>	
Drs. Ozge Alper and Susette Mueller	

Georgetown University, Lombardi Cancer Center(Washington, DC)	\$39,389
<i>"Mitochondrial DNA Mutations in Nipple Aspirate Fluid as Molecular Markers for Detection of Breast Cancer"</i>	
Dr. Lee-Jun C. Wong	

University of California at Los Angeles (Los Angeles, CA)	\$40,000
<i>"Nipple Aspiration in Diagnosis of Breast Cancer"</i>	
Mai Nguyen	

University of California at San Francisco (San Francisco, CA)	\$40,000
<i>"Protein Signatures of Nipple Aspirate Fluid for Individualized Risk Assessment"</i>	
Drs. Maria Pallovicini and Laura Esserman	

University of Manitoba (Manitoba, Canada)	\$40,000
<i>"CTM-OPT: Computed Tomographic mammography One Photon at a Time"</i>	
Dr. Richard Gordon	

University of Manitoba (Manitoba, Canada)	\$39,814
<i>"hSBEM in serum: a new marker for the early detection of breast cancer"</i>	
Drs. Yvonne Myal and Etienne Leygue	

Wake Forest University School of Medicine (Winston-Salem, NC)	\$40,000
<i>"Serum level of cytotoxic cytokines as indicators for the tumor burdens and stages of breast cancers: an immunological approach for an early detection of breast cancer"</i>	
Dr. Zheng Cui	

2001

Total Grants \$116,364

Georgetown University, Lombardi Cancer Center (Washington, DC) \$36,364

"Profiling immune responses in patients with breast cancer: Identify anti-tumor antigens/antibodies found in the serum of patient with early breast cancer"

Dr. Peter D. Burbelo

University of Alabama at Birmingham (Birmingham, AL) \$40,000

"Technetium-99m-labelled Human Anti-EGFR Single-chain Antibody for the Early Detection of Breast Cancer"

Dr. Kevin P. Raisch

University of Iowa Cancer Center \$40,000/2 yrs.

"Diagnosis and Prognosis Value of Circulating Breast Carcinoma"

Dr. Emil Racila

2000

Total Grants \$159,548

AMC Cancer Research Center (Denver, CO) \$32,000

"A Novel Tumor Marker in Early Detection of Breast Cancer"

Dr. Margaret Hanausek

Duke University Cancer Center (Durham, NC) \$20,000

"Prediction of Breast Cancer Risk from Parenchymal Patterns in mammograms"

Dr. Cary Floyd

Georgetown University Lombardi Cancer Center (Washington, DC) \$83,870

"Electrical Impedance Imaging of the Breast: Explorations"

Dr. Matthew Freedman

University of Pennsylvania Medical Center (Philadelphia, PA) \$23,678

"Tissue and Serum Markers of Breast Cancer Development"

Dr. M. Anne Blackwood

1999 **Total Grants** **\$79,000**

Georgetown University Lombardi Cancer Center (Washington, DC) **\$19,000**
"A Non-invasive Approach to Early Detection Using State of the Art Genetic techniques"
Dr. Bassem Haddad

Mayo Clinic Foundation (Rochester, MN) **\$20,000**
"Circulating sErbB1 and sErbB2 Levels as Breast Cancer Biomarkers"
Dr. Andre T. Baron

Wake Forest University School of Medicine (Winston-Salem, NC) **\$40,000**
"Genetic Polymorphisms in Drug Metabolic Enzymes as Risk Factors for p53 Gene Mutations"
Dr. Mark Miller

1997- 1998 **Total Grants** **\$40,000**

Wake Forest University School of Medicine (Winston-Salem, NC) **\$40,000**
"Biologically-based Early Detection of Breast Cancer"
Dr. Steven Akman