

## Highlights from the 40<sup>th</sup> Annual San Antonio Breast Cancer Symposium

**Abstract # 1136 A randomized phase II study of neoadjuvant carboplatin/paclitaxel (CT) versus panitumumab/carboplatin/paclitaxel (PaCT) followed by anthracycline-containing regimen for newly diagnosed primary triple-negative inflammatory breast cancer (2016-0177) Ongoing Trial**

**Authors:** Ja S Wiley<sup>1</sup>, Chao A Pao<sup>1</sup>, Ross Lin<sup>1</sup>, Yoonah Yoon<sup>1</sup>, Sarah Komisaruk<sup>1</sup>, Wendy A. Woodward<sup>1</sup>, Anthony Lison<sup>1</sup>, Xiaoping Wang<sup>1</sup>, Anna Wood<sup>1</sup>, Huaning Sun<sup>1</sup>, Jihua Song<sup>1</sup>, Yu Shen<sup>1</sup>, Haido T. Ueno<sup>1,2</sup>, Morgan Welch Inflammatory Breast Cancer Research Program and Clinic, <sup>1</sup>Department of Breast Medical Oncology, <sup>2</sup>Diagnostic Imaging, <sup>3</sup>Pathology, <sup>4</sup>Radiation Oncology <sup>5</sup>Breast Surgical Oncology, <sup>6</sup>Biostatistics, The University of Texas MD Anderson Cancer Center, Houston, TX, USA

**Background:** Inflammatory breast cancer (IBC) is a rare but aggressive subtype of breast cancer. Patients with triple negative IBC (TN-IBC) have the worst outcomes despite trimodality care (neoadjuvant chemotherapy, surgery and radiation). Taxane and anthracycline-containing regimen has been considered the cornerstone of primary systemic therapy for IBC.

**EGFR:** EGFR is overexpressed in 30% of IBC and linked to tumor aggressiveness and worse patient outcome. EGFR activation results in activation of the MAPK pathway, and induction of EMT, and increased cancer stem cell phenotype. Blocking EGFR signaling in re-wire models has been shown to inhibit metastasis.

**Preclinical data on EGFR inhibition in IBC:** [Graphs showing EGFR expression and treatment response]

**Hypothesis:** Panitumumab added to chemotherapy increases the pCR rate in TN-IBC compared to chemotherapy alone leading to better patient outcomes.

**Objectives:**

- Primary Objectives:**
  - To determine pCR rate in patients with primary TN-IBC treated with panitumumab, carboplatin and paclitaxel (PaCT) compared with carboplatin and paclitaxel alone (CT) followed by anthracycline and cyclophosphamide in a neoadjuvant setting.
- Secondary Objectives:**
  - To determine the disease-free survival (DFS), overall survival (OS) rates produced by either arm.
  - To determine the safety and tolerability of the combination of study drugs.
- Exploratory Objectives:**
  - To determine whether the pCR rate positively correlates with reduced nodal expression status, and inversely correlates with the arginine methylation status of EGFR.
  - To identify molecular biomarkers predictive of the pCR rate by genomic and proteomic analysis.
  - To determine whether inhibition of the EGFR pathway down regulates the COX-2 pathway and mesenchymal markers.

**Patient Population & Main Criteria:**

- Inclusion Criteria:**
  - Newly diagnosed primary TN-IBC.
  - Treatment naïve.
  - Adequate organ, bone marrow and cardiac functions.
  - Not pregnant and agree to use an acceptable birth control method while on the study.
  - Signed informed consent.
- Exclusion Criteria:**
  - Distant metastatic disease that are not amenable for locoregional treatment.
  - Recent malignancies (<5 years).
  - History of HIV or active Hepatitis B.
  - History of extensive interstitial lung disease, pneumonitis or pulmonary fibrosis.
  - Patients with a peripheral neuropathy.

**Trial Design:**

- Single center, open-label random trial.
- 36 patients per arm (72 total).



Photo Courtesy: MD Anderson Employees & Staff

Since 1977, the Symposium's mission has been to provide state-of-the-art information on breast cancer research. From a one-day regional conference, the Symposium has grown to a five-day program attended by a broad international audience of academic and private researchers and physicians from over 90 countries.

The Symposium aims to achieve a balance of clinical, translational, and basic research, providing a forum for interaction, communication, and education for a broad spectrum of researchers, health professionals, and those with a special interest in breast cancer. Its objective is designed to provide state-of-the-art information on the experimental biology, etiology, prevention, diagnosis, and therapy of breast cancer and premalignant breast disease, to an international audience of academic and private physicians and researchers.

The Morgan Welch Inflammatory Breast Cancer Research Program and Clinic had a great turnout at SABCS. As a program, a total of twelve abstracts were presented. Please join us in congratulating each program member on their recent presentations.

## 40<sup>th</sup> Annual San Antonio Breast Cancer Symposium Abstracts

**EPHA2-targeting enhances eicosapentaenoic acid cytotoxicity against triple-negative inflammatory breast cancer via ABCA1 inhibition-mediated membrane rigidity**

**Authors:** Torres-Adorno AM, Vitrac H, Qi Y, Tan L, Levental KR, Fan Y-Y, Yang P, Chapkin RS, Eckhardt BL, Ueno NT

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_348](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_348)

Issue 13: February 2018

## **Phase II study of the feasibility and safety of radium-223 dichloride in combination with hormonal therapy and denosumab for the treatment of patients with hormone receptor-positive breast cancer with bone-dominant metastasis**

**Authors:** Tahara RK, Fujii T, Saigal B, Ibrahim NK, Damodaran S, Barcenas CH, Murray JL, Chasen BA, Shen Y, Liu DD, Hortobagyi GN, Tripathy D, Ueno NT

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_60](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_60)

## **JNK signaling regulates tumor cell-tumor-associated macrophage cross-talk in triple-negative breast cancer**

**Authors:** Xie X, Otsuka S, Chu K, Lu AY, Tripathy D, Dalby KN, Hittelman WN, Van Laere S, Bartholomeusz C, Ueno NT

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_601&terms=](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_601&terms=)

## **Circulating protein biomarker profile for inflammatory breast cancer using a multiplexed proximity extension assay**

**Authors:** Cohen EN, Jayachandran G, Gao H, Tin S, Alvarez RH, Valero V, Lim B, Woodward WA, Ueno NT, Reuben JM

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_893&terms=](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_893&terms=)

## **Understanding the complexity of macrophage and mesenchymal stem cell interactions to improve treatment outcome for IBC patients**

**Authors:** Rahal OM, Wolfe AR, Mandal PK, Larson R, Tin S, Reuben JM, McMurray JS, Woodward WA

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_893&terms=](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_893&terms=)

## **Lymphoid and myeloid cell characterization of inflammatory breast cancer tumor microenvironment and correlation to pathological complete response**

**Authors:** Reddy SM, Reuben A, Jiang H, Roszik J, Tetzlaff MT, Reuben J, Wang L, Tsujikawa T, Barua S, Rao A, Villareal L, Wood A, Woodward W, Ueno NT, Krishnamurthy S, Wargo JA, Mittendorf EA

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_1032&terms=](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_1032&terms=)

## **EphA2: An emerging target in triple-negative breast cancer**

**Authors:** Eckhardt BL, Torres AM, Woodward WA, Krishnamurthy S, Meric-Bernstam F, Ueno NT

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_1638&terms=](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_1638&terms=)

## **CSF1/CSF1R axis reprograms epithelial-to-mesenchymal phenotypes in inflammatory breast cancer**

**Authors:** Kai K, Iwamoto T, Zhang D, Rao AUK, Thompson A, Sen S, Ueno NT

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_1702&terms=](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_1702&terms=)

## **Ongoing Clinical Trials Abstracts:**

### **A phase II study of anti-PD-1 (MK-3475) therapy in patients with metastatic inflammatory breast cancer (MIBC) or non-IBC triple negative breast cancer (non-IBC TNBC) who have achieved clinical response or stable disease to prior chemotherapy**

**Authors:** Willey JS, Parker CA, Valero V, Lim B, Reuben JM, Krishnamurthy S, Gong Y, Scoggins ME, Dryden MJ, Liu DD, Woodward WA, Ueno NT MD Anderson Cancer Center, Houston, TX

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_1104](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_1104)

### **A single arm phase II study of adjuvant anti-PD1 (pembrolizumab) in combination with hormonal therapy in patients with hormone receptor (HR)-positive localized inflammatory breast cancer (IBC) who did not achieve a pathological complete response (pCR) to neoadjuvant chemotherapy**

**Authors:** Alexander A, Willey J, Sun H, Parker CA, Marx AN, Wood AL, Reddy SM, Reuben JM, Bassett RL, Le-Petross HT, Krishnamurthy S, Gong Y, Woodward WA, Valero V, Ueno NT, Lim B

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_1367](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_1367)



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## **A phase II study using talimogene laherparepvec as a single agent for inflammatory breast cancer or non-inflammatory breast cancer patients with inoperable local recurrence**

**Authors:** Willey JS, Marx AN, Lim B, Ibrahim NK, Valero V, Mittendorf EA, Reuben JM, Le-Petross HT, Whitman GJ, Krishnamurthy S, Woodward WA, Lucci A, Liu DD, Shen Y, Ueno NT

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_1148](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_1148)

## **A randomized phase II study of neoadjuvant panitumumab /carboplatin/paclitaxel (PaCT) versus carboplatin/paclitaxel (CT) followed by adriamycin and cyclophosphamide (AC) for newly diagnosed primary triple-negative inflammatory breast cancer (TNIBC)**

**Authors:** Willey JS, Parker CA, Lim B, Valero V, Le-Petross HT, Krishnamurthy S, Woodward WA, Lucci A, Wood AL, Sun H, Babiera GV, Song J, Shen Y, Valero V, Wang X, Ueno NT

[https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L\\_1136&terms=](https://www.abstracts2view.com/sabcs/view.php?nu=SABCS17L_1136&terms=)

## Recent Awards and Grants

We congratulate the following individuals who have been recognized for their significant accomplishments in IBC research:

**Chandra Bartholomeusz, M.D., Ph.D., Assistant Professor**, received the American Cancer Society Research Scholar Grant titled “**Undertanding the role of Mcl-1 in MAPK driven tumors in Triple Negative Breast Cancer.**”

**Bora Lim, M.D., Assistant Professor**, Pilot project titled “**Defining Cell Types and States in Inflammatory Breast Cancer**” was selected for funding by ITSC. Funding will come from three sources – The Hope Foundation, the NCI U10 Translational Science Grant, and Institutional funds from CSHL or Jax.

**Wendy Woodward, M.D., Ph.D., Professor**, R21 joint project titled “**Wound Fluid as Regulator for Extracellular Matrix Remodeling and Recurrence in Inflammatory Breast Cancer**” was funded by NIH with Egyptian colleagues, Dr. Hirshon, Dr. Shinawi, and Dr. Mona Mostafa.

**Xiaoping Wang, Ph.D., Research Scientist, and Naoto Ueno, M.D., Ph.D., Professor**, whose work titled **Adipose stromal cell targeting: a new approach to breast cancer treatment** has received six percentiles for the R21 which will be funded.

**IBC Morgan Welch Inflammatory Breast Cancer Research Program and Clinic** were recognized by ExpertScape as the number 1 expert collection in the world. Credit goes to all clinic members and clinic staff.

Drs. Wendy Woodward, Naoto T Ueno, Anthony Lucci, Savitri Krishnamurthy, Thomas Buchholz, Vicente Valero, James Reuben, Gabriel Hortobagyi, Yun Gong, and Lei Huo. Further our collaborators and past MD Anderson Trainees, Drs. Tamer Fouad, Hiroko Masuda, Hideko Yamauchi, and Takayuki Iwamoto are mentioned.

See link for ranking details. <http://www.expertscape.com/ex/inflammatory+breast+neoplasms>

**Naoto Ueno, MD, Ph.D., Professor**, has been awarded “**The Unknown Hero Award**” in recognition of his efforts, contribution, and leadership in breast cancer treatment by the Run for the Cure Foundation in Japan. He will be accepting the award at the Pink Ball 2018 gala in March in Tokyo, Japan.





## Recent Publications/Presentations

**Neoadjuvant nivolumab versus combination ipilimumab and nivolumab followed by adjuvant nivolumab in patients with resectable stage III and oligometastatic stage IV melanoma: preliminary findings** was accepted for an oral presentation at the Society for Immunotherapy of Cancer (SITC)'s 32nd Annual Meeting Sangeetha Reddy

**Blocking IL4- and IL13-mediated phosphorylation of STAT6 (Tyr641) decreases M2 polarization of macrophages and protects against macrophage-mediated radioresistance of inflammatory breast cancer** was accepted by International Journal of Radiation Oncology Biology Physics.

Dr. Omar Rahal, and Wendy Woodward.

## Philanthropy

### **EILEEN MARIE CAMPBELL** **January 14, 1958 – January 30, 2018**

It is with great sadness that we mourn the passing of our dedicated IBC Ambassador, Eileen Campbell. Eileen was treated for breast cancer at MD Anderson in 2005 and has been a passionate advocate for the IBC Clinic and Research Program since its inception in 2006. As former Vice President of Human Resources and Vice President of Public Policy at Marathon Oil Corporation (retired 2014), Eileen was instrumental in providing support from Marathon Oil to the IBC Program. Eileen was a passionate advocate well known and loved throughout the breast cancer community. She served tirelessly in many volunteer roles including executive leadership for MD Anderson's Boot Walk to End Cancer®, Board President for Susan G. Komen Houston (2009 – 2011) as well as Chair of the Board for The Rose (2015 – 2017). She will be greatly missed. For more information on her inspirational life please see her obituary at: [http://obits.dignitymemorial.com/dignity-memorial/obituary.aspx?n=Eileen-Campbell&lc=2220&pid=188037932&mid=7746682&locale=en\\_US](http://obits.dignitymemorial.com/dignity-memorial/obituary.aspx?n=Eileen-Campbell&lc=2220&pid=188037932&mid=7746682&locale=en_US)



## News/Events

### BOOT WALK to #endcancer®

Register Donate Volunteer



121%

Goal:  
\$100,000.00

Raised:  
\$121,425.00



The second annual Boot Walk to End Cancer, sponsored by MD Anderson Cancer Center, and held on Saturday November 11, 2017 was a huge success. One hundred percent of funds raised in this event are designated towards cancer research at our institution. Team IBC Wranglers, led by Jie Willey and Angela Alexander, were the #1 team in the institution, raising a total of \$121,425 which will be used exclusively to support IBC research and includes funds earmarked for patient support to participate in clinical trials. Team "IBC Wranglers" members included both staff and faculty, as well as IBC patient advocates and survivors, whom we wish to thank for all their hard work towards this cause. We'd love to have you join us next year. If you were not on the team this year, but wish to participate in future events, please contact us at [ibcp@mdanderson.org](mailto:ibcp@mdanderson.org) and we will follow up with you later this spring/summer about how you can help.



Congratulations to Dr. Gayathri Devi, Ph.D., and the Duke University leaders for their success in creating the First Annual Meeting of the Duke Consortium for Inflammatory Breast Cancer. Their goal is to facilitate collaborations in IBC research and outreach efforts, the consortium will be holding this introductory/brainstorming meeting to bring together basic, translational, and clinical researchers, practicing physicians, patients, advocates, and community stakeholders. The meeting will be held February 28, 2018 and guest speakers include Drs. Naoto Ueno, and Wendy Woodward.

### Leaders:



**Gayathri Devi, Ph.D.**  
Program Director



**Kelly Marcom, M.D.**  
Clinical Director



**Holly Hough, Ph.D.**  
Program Manager

**Please Welcome:**



Rachel Layman, M.D., Associate Professor of Breast Medical Oncology who has joined the Morgan Welch IBC Research Program and Clinic. Rachel's interest is in ER+ disease. We are hoping that she can help develop innovative clinical trials or research related to ER+ IBC.

She will start seeing patients with IBC. She will not participate in the multi-team clinic, but will be our backup.

Her participation in our program will provide a new diversity and needed clinical force to improve the care of our patients.

## **facebook Live**

Join us monthly, every 3<sup>rd</sup> Thursday at Noon for a discussion with Dr. Naoto Ueno about medical oncology topics in IBC and clinical trials.

## Quarterly Oral Presentations

**Preclinical development of Microfluidics  
Platforms for the Capture & Molecular  
Characterization of Circulating Tumor Cells  
(CTCs)**

*Gitanjali Jayachandran, Ph.D.,  
Sr. Research Scientist  
Hematopathology – Research*

**Update Bartholomeusz Lab**

*Chandra Bartholomeusz, MD, Ph.D.,  
Assistant Professor  
Breast Medical Oncology Department*

**EphA2, an emerging target in aggressive breast  
cancer**

*Bedrich Eckhardt, Ph.D.  
Research Instructor  
Breast Medical Oncology*

**Surgical Oncology Update – CTCs in IBC Patients**

*Anthony Lucci, MD  
Professor  
Department of Breast Surgical Oncology*

## Current Clinical IBC Trials Open for New Patient Enrollment

**Neoadjuvant (newly diagnosed):**

2016-0177 – A randomized phase II study of neoadjuvant Carboplatin/Paclitaxel (CT) versus Panitumumab/Carboplatin/Paclitaxel (PaCT) Followed by Anthracycline-containing regimen for newly diagnosed primary triple-negative inflammatory breast cancer

2016-0537 - A phase 1b study of neratinib, pertuzumab and trastuzumab with taxol (3HT) in metastatic and locally advanced breast cancer, and phase II study of 3HT followed by AC in HER2 + primary IBC, and neratinib with taxol (NT) followed by AC in HR+ /HER2- primary IBC



**Adjuvant (after surgery and radiation):**

2016-0096 – A phase II study of anti-PD1 (Pembrolizumab) in combination with hormonal therapy in patients with hormone-receptor (HR)-positive localized inflammatory breast cancer (IBC) who did not achieve a pathological complete response (pCR) to neoadjuvant chemotherapy

**Metastatic IBC:**

2014-0034 – A phase II study using T-VEC as a single agent for inflammatory breast cancer (IBC) or non-IBC patients with inoperable local recurrence

2014-0533 – A phase II study of anti-PD1 (MK-3475) therapy in patients with metastatic inflammatory breast cancer (IBC) or non-IBC triple negative breast cancer (TNBC) who have achieved clinical response or stable disease to prior chemotherapy.

2016-1096 – A Phase I Study of OTS167PO, a MELK inhibitor, to Evaluate Safety, Tolerability and Pharmacokinetics in Patients with Advanced Breast Cancer and Dose-Expansion Study in Patients with Triple Negative Breast Cancer.

2016-0890 – A phase II study of triple combination of Atezolizumab, Cobimetinib and Eribulin (ACE) in patients with chemotherapy resistant metastatic inflammatory breast cancer

**Current Clinical IBC Lab Studies**

2006-1072 – IBC Registry

PA12-0097 – Prognostic utility of CTCs assessed by Adnagen Technology and Clinical Outcome of Patients with Stage III Breast Cancer

PA14-0778 – Gene profiles in androgen-receptor-positive CTC in patients with metastatic breast cancer

PA15-1026 – Department of Breast Medical Oncology University Blood Bio-Repositories

PA16-0507 – Monitoring of CTCs in newly diagnosed metastatic breast cancer

PA17-0437 – Genomic profiling of therapy resistance in mTNBC using liquid biopsies

PA17-0503 – Breast tissue comparison - cancer vs normal

PA17-0975 - Defining Cell Types and States in Inflammatory Breast Cancer (Pending activation)

PA17-1047 - Harvest of Circulating Tumor Cells (CTCs) from Patients with Metastatic Breast Cancer (MBC) using the Parsortix™ PC1 System (Pending Activation)

PA17-0542 – The clinical role of circulating adipose tumor cells and cancer associated macrophage like cells on obesity induced inflammation for patients with breast cancer

If you are interested in learning more about our clinical trials, or lab studies, please email the Morgan Welch Inflammatory Breast Cancer Research Program and Clinic directly at [ibcp@mdanderson.org](mailto:ibcp@mdanderson.org). We are happy to provide general information and eligibility guidelines for our clinical trials and lab studies.

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