Molecular Tumor Board:

Using Molecular Profiling to Improve the Care of Patients with Advanced Breast Cancer

CME Information

TARGET AUDIENCE

This program is intended for medical oncologists, breast and general surgeons, radiation oncologists and other allied healthcare professionals involved in the treatment of breast cancer.

OVERVIEW OF ACTIVITY

Breast cancer remains the most frequently diagnosed cancer in women, and in 2017 in the United States alone the disease will culminate in an estimated 255,180 new cases and 41,070 deaths. Our improved understanding of the biologic mechanisms of breast cancer pathogenesis and advances in diagnosis have helped identify potentially actionable tumor mutations and predictive biomarkers, but the incorporation of these advances into clinical practice remains challenging to community-based oncologists. To address these concerns, a closed molecular tumor board was held featuring discussions among breast cancer clinical investigators and pathologists regarding recent research in the detection and clinical application of relevant molecular biomarkers. These video-recorded proceedings of that meeting will assist medical oncologists and other healthcare professionals in incorporating new information on molecular biomarkers into evidence-based strategies for the treatment of breast cancer.

LEARNING OBJECTIVES

- Foster interdisciplinary collaboration among medical oncologists, pathologists and other healthcare team members to improve the diagnosis and management of early and advanced breast cancer.
- Recognize the clinical significance of BRCA1/2 mutations and other homologous repair deficiency biomarkers, and understand the biologic rationale for the investigation of PARP inhibition as monotherapy and in combination with other systemic approaches for the treatment of breast cancer.
- Consider available and emerging research regarding the detection of estrogen receptor mutations, and appreciate the significance of these mutations in prognosis and treatment selection.
- Appreciate current investigational efforts to identify biomarkers for disease prognosis and response to checkpoint inhibition (tumor mutational burden, tumor-infiltrating lymphocytes, et cetera), and consider how such markers may be used in future clinical practice.
- Recall ongoing evaluation of novel immunotherapeutic approaches and combination approaches to the treatment of triple-negative and ER-positive breast cancer, and counsel appropriately selected patients about the availability of and participation in clinical trials.

ACCREDITATION STATEMENT

Research To Practice is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

CREDIT DESIGNATION STATEMENT

Research To Practice designates this enduring material for a maximum of 2.75 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

AMERICAN BOARD OF INTERNAL MEDICINE (ABIM) — MAINTENANCE OF CERTIFICATION (MOC)

Successful completion of this CME activity, which includes participation in the evaluation component, enables the participant to earn up to 2.75 Medical Knowledge MOC points in the American Board of Internal Medicine's (ABIM) Maintenance of Certification (MOC) program. Participants will earn MOC points equivalent to the amount of CME credits claimed for the activity. It is the CME activity provider's responsibility to submit participant completion information to ACCME for the purpose of granting ABIM MOC credit.

Please note, this program has been specifically designed for the following ABIM specialty: **medical oncology**.

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HOW TO USE THIS CME ACTIVITY

This CME activity consists of a video component. To receive credit, the participant should review the CME information, watch the video, complete the Post-test with a score of 80% or better and fill out the Educational Assessment and Credit Form located at **ResearchToPractice.com/MolecularTumorBoardBC17/CME**.

CONTENT VALIDATION AND DISCLOSURES

Research To Practice (RTP) is committed to providing its participants with high-quality, unbiased and state-of-the-art education. We assess conflicts of interest with faculty, planners and managers of CME activities. Conflicts of interest are identified and resolved through a conflict of interest resolution process. In addition, all activity content is reviewed by both a member of the RTP scientific staff and an external, independent physician reviewer for fair balance, scientific objectivity of studies referenced and patient care recommendations.

FACULTY — The following faculty (and their spouses/partners) reported relevant conflicts of interest, which have been resolved through a conflict of interest resolution process:

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CONSULTING MEDICAL ONCOLOGISTS — The following consulting medical oncologists (and their spouses/partners) reported relevant conflicts of interest, which have been resolved through a conflict of interest resolution process:

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No relevant conflicts of interest to disclose.

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MODERATOR — **Dr Love** is president and CEO of Research To Practice, which receives funds in the form of educational grants to develop CME activities from the following commercial interests: AbbVie Inc, Acerta Pharma, Adaptive Biotechnologies, Agendia Inc, Agios Pharmaceuticals Inc, Amgen Inc, Ariad Pharmaceuticals Inc, Array BioPharma Inc, Astellas Pharma Global Development Inc, AstraZeneca Pharmaceuticals LP, Baxalta Inc, Bayer HealthCare Pharmaceuticals, Biodesix Inc, bioTheranostics Inc, Boehringer Ingelheim Pharmaceuticals Inc, Boston Biomedical Pharma Inc, Bristol-Myers Squibb Company, Celgene Corporation, Clovis Oncology, CTI BioPharma Corp, Dendreon Pharmaceuticals Inc, Eisai Inc, Exelixis Inc, Foundation Medicine, Genentech BioOncology, Genomic Health Inc, Gilead Sciences Inc, Halozyme Inc, ImmunoGen Inc, Incyte Corporation, Infinity Pharmaceuticals Inc, Ipsen Biopharmaceuticals Inc, Janssen Biotech Inc, administered by Janssen Scientific Affairs LLC, Jazz Pharmaceuticals Inc, Kite Pharma Inc, Lexicon Pharmaceuticals Inc, Lilly, Medivation Inc, a Pfizer Company, Merck, Merrimack Pharmaceuticals Inc, Myriad Genetic Laboratories

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Hardware/Software Requirements:
A high-speed Internet connection
A monitor set to 1280 x 1024 pixels or more
Internet Explorer 7 or later, Firefox 3.0 or later, Chrome, Safari 3.0 or later
Adobe Flash Player 10.2 plug-in or later
Adobe Acrobat Reader
(Optional) Sound card and speakers for audio

Last review date: December 2017

Expiration date: December 2018

Select Publications

Augusto L et al. **Prognostic and predictive value of circulating ESR1 mutations in metastatic breast cancer patients (mBC) progressing under aromatase inhibitor (AI) treatment.** *Proc ASCO* 2016;**Abstract 511**.

Bryant HE et al. **Specific killing of BRCA2-deficient tumours with inhibitors of poly(ADP-ribose) polymerase.** *Nature* 2005;434(7035):913-7.

Castéra L et al. **Next-generation sequencing for the diagnosis of hereditary breast and ovarian cancer using genomic capture targeting multiple candidate genes.** *Eur J Hum Genet* 2014;22(11):1305-13.

Chandarlapaty S et al. **cfDNA analysis from BOLERO-2 plasma samples identifies a high rate of ESR1 mutations: Exploratory analysis for prognostic and predictive correlation of mutations reveals different efficacy outcomes of endocrine therapy-based regimens.** San Antonio Breast Cancer Symposium 2015;**Abstract S2-07**.

Chen DS, Mellman I. **Oncology meets immunology: The cancer-immunity cycle.** *Immunity* 2013;39(1):1-10.

Couch FJ et al. **Inherited mutations in 17 breast cancer susceptibility genes among a large triple-negative breast cancer cohort unselected for family history of breast cancer.** *J Clin Oncol* 2015;33(4):304-11.

Farmer H et al. **Targeting the DNA repair defect in BRCA mutant cells as a therapeutic strategy.** *Nature* 2005;434(7035):917-21.

Foulkes WD. **Inherited susceptibility to common cancers.** *N Engl J Med* 2008;359(20):2143-53.

Fridman WH et al. **The immune contexture in human tumours: Impact on clinical outcome.** *Nature Rev Cancer* 2012;12(4):298-306.

Harvey JM et al. **Estrogen receptor status by immunohistochemistry is superior to the ligand-binding assay for predicting response to adjuvant endocrine therapy in breast cancer.** *J Clin Oncol* 1999;17(5):1474-81.

Khoshnoud MR et al. **Immunohistochemistry compared to cytosol assays for determination of estrogen receptor and prediction of the long-term effect of adjuvant tamoxifen.** *Breast Cancer Res Treat* 2011;126(2):421-30.

Kurian AW et al. **Clinical evaluation of a multiple-gene sequencing panel for hereditary cancer risk assessment.** *J Clin Oncol* 2014;32(19):2001-9.

Lawrence MS et al. **Mutational heterogeneity in cancer and the search for new cancer-associated genes.** *Nature* 2013;499(7457):214-8.

Mittendorf EA et al. **PD-L1 expression in triple-negative breast cancer.** *Cancer Immunol Res* 2014;2(4):361-70.

Reisenbichler ES et al. **Interobserver concordance in implementing the 2010 ASCO/CAP recommendations for reporting ER in breast carcinomas: A demonstration of the difficulties of consistently reporting low levels of ER expression by manual quantification.** *Am J Clin Pathol* 2013;140(4):487-94.

Robins HS et al. **Digital quantification of tumor infiltrating lymphocytes.** *Sci Transl Med* 2013;5(214):214ra169.

Toy W et al. **Activating ESR1 mutations differentially affect the efficacy of ER antagonists.** *Cancer Discov* 2017;7(3):277-87.

Turner NC et al. **Efficacy of palbociclib plus fulvestrant (P+F) in patients (pts) with metastatic breast cancer (MBC) and ESR1 mutations (mus) in circulating tumor DNA (ctDNA).** *Proc ASCO* 2016;**Abstract 512**.

Tutt A et al. **Oral poly(ADP-ribose) polymerase inhibitor olaparib in patients with BRCA1 or BRCA2 mutations and advanced breast cancer: A proof-of-concept trial.** *Lancet* 2010;376(9737):235-44.