Breast Cancer Sheet Cheat Cheat Sheet

by ACD Marketing Team (ACD Marketing) via cheatography.com/36805/cs/11888/

One Minute Pitch

Breast cancer is a complex disease with great clinical and molecular heterogeneity that requires accurate assessment of known breast cancer biomarkers, such as HER2, estrogen receptor (ER), and progesterone receptor (PgR), as well as the discovery of emerging potential targets, for the precise treatment of breast tumors. The RNAscope® in situ hybridization assay offers a very reliable and robust method for the detection and validation of breast cancer-related markers within the tissue environment and can be performed on routinely available FFPE samples..

Applications

Resolution of equivocal and heterogeneous cases of HER2 expression

Validation of transcriptome data

Sub-cellular localization of RNA in breast cancer

Detection of lncRNAs in breast cancer

Preclinical drug efficacy for breast cancer treatment

Assessment of potential prognostic markers for breast cancer

Known Breast Cancer Biomarkers

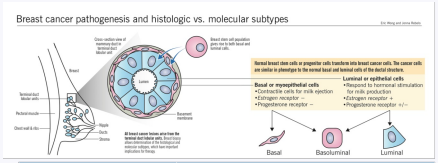
HER2 (ERBB2)

Estrogen receptor (ESR1)

Progesterone receptor (PGR)

Triple negative breast cancer (TNBC): Negative for HER2, ER, and PR

Breast Cancer Subtypes



Subtype	These tumors tend to be
Luminal A	ER+ and/ or PR+, HER2-, low Ki-67
Luminal B	ER+ and/ or PR+, HER2+ (or HER2- with high Ki-67
Triple negative/ basal-like	ER-, PR-, HER2-
HER2+	ER-, PR-, HER2+

ER= Estrogen Reseceptor, PR= Progerstserone Receptor, HER2= Human epidermal growth factor receptor 2

Marketing Materials

Breast Caner related publications: http://bit.ly/2q3dcKc

Examples of RNAscope in Breast Cancer Research

Resolution of equivocal and heterogeneous cases of HER2 expression: Standard HER2 testing methods are often hampered by equivocal testing and intratumoral heterogeneity. Wang et al. developed a fully automated, quantitative ISH assay using the RNAscope® technology to quantify single-cell HER2 mRNA levels. http://bit.ly/2qGSIWG

Patient-stratification for treatment regimens: Vassilakopoulou et al. used the RNAscope® assay to assess HER2 mRNA as a predictor of benefit from trastuzumab-based chemotherapy and to correlate it to HER2 protein and gene levels. http://bit.ly/2rtsyHZ

Validation of transcriptome data and sub-cellular localization of lncRNA in breast cancer: In their study Lin et al. selected lncRNA LINK-A as it shows frequently elevated expression in TNBC patients. RNAscope® ISH confirmed the array results, showing that expression of LINK-A was significantly increased in TNBC tissues. http://bit.ly/2qMojGT

Preclinical drug efficacy for breast cancer treatment: FGFR2 gene amplification is found in 4% of triple-negative breast cancers (TNBC). In their study, Sommer et al. demonstrate the preclinical efficacy of BAY1187982, a novel FGFR2-antibody drug conjugate (ADC). http://bit.ly/2rtlStB

Assessment of HOTAIR as a prognostic breast cancer biomarker for breast cancer: High expression of the large intergenic non-coding RNA (lincRNA) HOTAIR has been shown to be a significant predictor of poor prognosis and metastasis in breast carcinomas. Gökmen-Polar et al. showed that the prognostic role of HOTAIR is restricted to ER-/lymph node+ tumors, where its expression could be used as a potential prognostic marker. http://bit.ly/2rKKHxs

Related Breast Cancer Probes

ABCB1 ABCG2 ADAM23 AKT1 APC AR ATM BAD BCL2 BIRC5 BRCA1 BRCA2 CCNA1 CCND1 CCND2 CCNE1 CDH1 CDH13 CDK2 CDKN1A CDKN1C CDKN2A CSF1 CST6 CTNNB1 CTSD EGF EGFR ERBB2 ESR1 ESR2 FOXA1 GATA3 GLI1 GRB7 GSTP1 HIC1 ID1 IGF1 IGF1R IGFBP3 IL6 JUN KRT18 KRT19 KRT5 KRT8 MAPK1 MAPK3 MAPK8 MGMT MKI67 MLH1 MMP2 MMP9 MUC1 MYC NME1 NOTCH1 NR3C1 PGR PLAU PRDM2 PTEN PTGS2 PYCARD RARB RASSF1 RB1 SERPINE1 SFN SFRP1 SLC39A6 SLIT2 SNAI2 SRC TFF3 TGFB1 THBS1 TP53 TP73 TWIST1 VEGFA XBP1

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