



Evaluation of Discordance Rate of HER2, ER, PR Receptors Status between Primary Breast Cancer and Distant Metastasis or Locoregional Recurrences

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَأَنْزَلَ اللَّهُ عَلَيْكَ
الْكِتَابَ وَالْحِكْمَةَ
وَعَلَّمَكَ مَا لَمْ
تَكُن تَعْلَمُ
وَكَانَ فَضْلُ اللَّهِ
عَلَيْكَ عَظِيمًا

صدق الله العظيم

سورة النساء آية (113)

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List of Abbreviations

Abb.	Meaning
3D	Three dimensional
ADC	Antibody–drug conjugate
AF-1	Activation function 1 site
AI	Aromatase inhibitor
ALDH1A1	Aldehyde dehydrogenase 1 family, member A1
AR	Androgen receptor
ASCO	American Society of Clinical Oncology
ASCO-CAP	American Society of Clinical Oncology- College of American Pathologists
ATP	Adenosine triphosphate
BCI	Breast cancer index
BCT	Preast-conserving therapy
Bfgf	basic fibroblast growth factor
BIG	Breast International Group
BLBC	Basal-like breast cancer
BRCA1	Breast cancer type 1 susceptibility protein
BRCA2	Breast cancer type 2 susceptibility protein
CA15-3	Cancer Antigen 15-3
CALGB	Cancer and Leukemia Group B
CD	Cluster of differentiation

CDH1	E-Cadherin 1 gene
CEA	Carcinoembryonic antigen
CEP17	Chromosome 17 centromere
C-erbB-2	erythroblastosis oncogene B
CISH	Chromogenic in situ hybridization
CT	Computed tomography
DBD	DNA-binding domain
DCC	Dxtran-coated charcoal assay
DCE-MRI	Dynamic contrast-enhanced magnetic resonance imaging
DCIS	Ductal carcinoma in situ
DFS	Disease free survival
DNA	Deoxyribonucleic acid
ECD	Extracellular domain
ECE	Extra-capsular extension
ECOG	Eastern Cooperative Oncology Group
EGFR	Epidermal growth factor receptor
EIA	Enzyme immunoassay
EIO	European Institute of Oncology
ELISA	Enzyme-linked immunosorbent assay
EpCAM	Epithelial cell adhesion molecule
ER	Estrogen receptor
ETs	Endocrine therapies

FDA	US Food and Drug Administration
FDG-PET	Fluorodeoxyglucose positron emission tomography
FGF-2	Fibroblast growth factor-2
FISH	Florescent in situ hybridization
GnRH	gonadotropin-releasing hormone
HER2	Human epidermal growth factor 2
HER2/neu	Human epidermal growth factor 2
HER-3	Human epidermal growth factor 3
HER-4	Human epidermal growth factor 4
HOXB13	Antiapoptotic homeobox B13
HRT	Hormone replacement therapy
HS	Highly significant
IBC	Inflammatory breast cancer
IBTRs	Ipsilateral breast tumor recurrences
IDC	Invasive ductal carcinoma
IGF1R	Insulin-like growth factor 1 receptor
IHC	Immunohistochemistry
IL17BR	Interleukin 17B receptor
ILC	Invasive lobular carcinoma
LBD	Ligand binding domain
LCIS	Lobular carcinoma in situ
LOH	Loss of heterozygosity

LVI	Lympho-vascular invasion
MAPK	Mitogen-activated protein kinases
MBC	Metastatic breast cancer
OS	Overall survival
MGI	Molecular Grade Index
MR-DWI	Diffusion-weighted magnetic resonance
MRI	Magnetic resonance imaging
mTOR	Mammalian target of rapamycin
MUC1	Mucin 1, cell surface associated
NCI	National cancer institute
NOS	Not otherwise specified
NPI	Nottingham Prognostic Index
NS	Non significant
NSABP	National Surgical Adjuvant Breast and Bowel Project
OCT	Optimal cutting temperature
P185neu	Human epidermal growth factor 2 neu protein
P53	Tumor protein p53
PARP	Poly(ADP-ribose) polymerase
PCR	Polymerase chain reaction
PI3K/Akt	Phosphatidylinositol 3' kinase /Protein kinase B
PKB/Akt	Protein kinase B pathway
PMRT	Post-mastectomy radiotherapy

PR	Progesterone receptor
PRE	Progesterone receptor element
PRS	Post relapse survival
pTNM	Primary tumor–node–metastases staging system
RAF	Rapidly Accelerated Fibrosarcoma kinases protein
RANKL	Receptor activator of nuclear factor kappa-B ligand
RAS	The Ras protein subfamily
RNA	Ribonucleic acid
RR	Relative risk
RS	Recurrence score
RT	Radiation therapy
RT-PCR	Real-time polymerase chain reaction
S	Significant
SD	Standard deviation
SEER	Surveillance Epidemiology and End Results
SEM	Standard error of mean
SERMS	Selective estrogen receptor modulators
SH2	Src Homology 2 protein
SISH	Silver-enhanced in situ hybridization
SLNB	Sentinel lymph node biopsy
SP1	Specificity protein 1
SWOG	Southwest Oncology Group
T	Independent T Test

T-DM1	Trastuzumab emtansine
TN	Triple negative
TNBC	Triple negative breast cancer
TNM	Tumor–node–metastases staging system
TTF	Time to treatment failure
VEGF	Vascular endothelial growth factor
VEGFR-3	Vascular endothelial growth factor receptor-3
WBRT	Whole breast radiation therapy
WBRT	Whole-brain radiotherapy
WHI	Women's Health Initiative
Wnt	Wnt signaling pathway
X^2	Chi square Test

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