



Sample Information

Patient Name: 李長陵
Gender: Male
ID No.: H101581799
History No.: 46960796
Age: 71

Ordering Doctor: DOC3153J 黃煦晴
Ordering REQ.: D75NA26
Signing in Date: 2023/05/18

Path No.: M112-00102
MP No.: F23035
Assay: Oncomine Focus Assay
Sample Type: FFPE
Block No.: S112-20671A+B
Percentage of tumor cells: 30%

Reporting Doctor: DOC5466K 葉奕成 (Phone: 8#5466)

Note:

Sample Cancer Type: Non-Small Cell Lung Cancer

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Relevant Non-Small Cell Lung Cancer Variants

Gene	Finding	Gene	Finding
ALK	None detected	NTRK1	None detected
BRAF	None detected	NTRK2	None detected
EGFR	EGFR p.(G719A) c.2156G>C	NTRK3	None detected
ERBB2	ERBB2 amplification	RET	None detected
KRAS	None detected	ROS1	None detected
MET	None detected		

Relevant Biomarkers

Tier	Genomic Alteration	Relevant Therapies (In this cancer type)	Relevant Therapies (In other cancer type)	Clinical Trials
IA	EGFR p.(G719A) c.2156G>C epidermal growth factor receptor Allele Frequency: 15.50%	afatinib ^{1, 2} gefitinib * ² bevacizumab + erlotinib dacomitinib erlotinib erlotinib + ramucirumab osimertinib	None	5
IIC	ERBB2 amplification erb-b2 receptor tyrosine kinase 2	None	ado-trastuzumab emtansine ^{1, 2} irbinitinib + trastuzumab ¹ irbinitinib + trastuzumab + chemotherapy ^{1, 2} lapatinib + chemotherapy ^{1, 2} lapatinib + hormone therapy ^{1, 2} lapatinib + trastuzumab ² margetuximab + chemotherapy ¹ neratinib ^{1, 2} neratinib + chemotherapy ¹ pembrolizumab + trastuzumab + chemotherapy ¹ pertuzumab + trastuzumab + chemotherapy ^{1, 2} pertuzumab/trastuzumab/hyaluronidase-zzxf + chemotherapy ^{1, 2} trastuzumab and hyaluronidase-oysk ¹ trastuzumab and hyaluronidase-oysk + chemotherapy ¹ trastuzumab deruxtecan ^{1, 2} trastuzumab * ^{1, 2} trastuzumab* + chemotherapy ^{1, 2} trastuzumab* + hormone therapy ² hormone therapy lapatinib + trastuzumab + hormone therapy margetuximab pertuzumab + trastuzumab pertuzumab + trastuzumab + hormone therapy pertuzumab + trastuzumab + hormone therapy + chemotherapy trastuzumab + hormone therapy + chemotherapy	2

Public data sources included in relevant therapies: FDA¹, NCCN, EMA², ESMO

Tier Reference: Li et al. *Standards and Guidelines for the Interpretation and Reporting of Sequence Variants in Cancer: A Joint Consensus Recommendation of the Association for Molecular Pathology, American Society of Clinical Oncology, and College of American Pathologists.* J Mol Diagn. 2017 Jan;19(1):4-23.

* Includes biosimilars/generics

Variants (Exclude variant in Taiwan BioBank with >1% allele frequency)

DNA Sequence Variants

Gene	Amino Acid Change	Coding	Variant ID	Locus	Allele Frequency	Transcript	Variant Effect	Coverage
EGFR	p.(G719A)	c.2156G>C	COSM6239	chr7:55241708	15.50%	NM_005228.5	missense	2000

Variants (Exclude variant in Taiwan BioBank with >1% allele frequency) (continued)

Copy Number Variations

Gene	Locus	Copy Number
ERBB2	chr17:37868126	284.27

Biomarker Descriptions

EGFR (epidermal growth factor receptor)

Background: The EGFR gene encodes the epidermal growth factor receptor (EGFR) tyrosine kinase, a member of the ERBB/human epidermal growth factor receptor (HER) family. In addition to EGFR/ERBB1/HER1, other members of the ERBB/HER family include ERBB2/HER2, ERBB3/HER3, and ERBB4/HER4¹. EGFR ligand induced dimerization results in kinase activation and leads to stimulation of oncogenic signaling pathways including the PI3K/AKT/MTOR and RAS/RAF/MEK/ERK pathways. Activation of these pathways promote cell proliferation, differentiation, and survival^{2,3}.

Alterations and prevalence: Recurrent somatic mutations in the tyrosine kinase domain (TKD) of EGFR are observed in approximately 10-20% of lung adenocarcinoma, and at higher frequencies in never-smoker, female, and Asian populations^{4,5,6,7}. The most common mutations occur near the ATP-binding pocket of the TKD and include short in-frame deletions in exon 19 (EGFR exon 19 deletion) and the L858R amino acid substitution in exon 21⁸. These mutations constitutively activate EGFR resulting in downstream signaling, and represent 80% of the EGFR mutations observed in lung cancer. A second group of less prevalent activating mutations include E709K, G719X, S768I, L861Q, and short in-frame insertion mutations in exon 20^{9,10,11,12}. EGFR activating mutations in lung cancer tend to be mutually exclusive to KRAS activating mutations¹³. In contrast, a different set of recurrent activating EGFR mutations in the extracellular domain include R108K, A289V and G598V and are primarily observed in glioblastoma^{8,14}. Amplification of EGFR is observed in several cancer types including 30% of glioblastoma, 12% of esophageal cancer, 10% of head and neck cancer, 5% of bladder cancer, and 5% of lung squamous cell carcinoma^{5,6,7,14,15}. Deletion of exons 2-7, encoding the extracellular domain of EGFR (EGFRvIII), results in overexpression of a ligand-independent constitutively active protein and is observed in approximately 30% of glioblastoma^{16,17,18}.

Potential relevance: Approved first-generation EGFR tyrosine kinase inhibitors (TKIs) include erlotinib¹⁹ (2004) and gefitinib²⁰ (2015), which block the activation of downstream signaling by reversible interaction with the ATP-binding site. Although initially approved for advanced lung cancer, the discovery that drug sensitivity was associated with exon 19 and exon 21 activating mutations allowed first-generation TKIs to become subsequently approved for front-line therapy in lung cancer tumors containing exon 19 or exon 21 activating mutations. Second-generation TKIs afatinib²¹ (2013) and dacomitinib²² (2018) bind EGFR and other ERBB/HER gene family members irreversibly and were subsequently approved. First- and second-generation TKIs afatinib, dacomitinib, erlotinib, and gefitinib are recommended for the treatment NSCLC harboring EGFR exon 19 insertions, exon 19 deletions, point mutations L861Q, L858R, S768I, and codon 719 mutations, whereas most EGFR exon 20 insertions, except p.A763_Y764insFQEA, confer resistance to the same therapies^{23,24,25,26}. However, in 2021, the irreversible tyrosine kinase inhibitor, mobocertinib²⁷ was FDA approved for the treatment of NSCLC with EGFR exon 20 insertion mutations. Additionally, in 2022, the FDA granted breakthrough therapy designation to the irreversible EGFR inhibitors, CLN-081 (TPC-064)²⁸ and sunvozertinib²⁹, for locally advanced or metastatic non-small cell lung cancer harboring EGFR exon 20 insertion mutations. In lung cancer containing EGFR exon 19 or 21 activating mutations, treatment with TKIs is eventually associated with the emergence of drug resistance³⁰. The primary resistance mutation that emerges following treatment with first-generation TKI is T790M, accounting for 50-60% of resistant cases⁸. Third generation TKIs were developed to maintain sensitivity in the presence of T790M. Osimertinib³¹ (2015) is an irreversible inhibitor indicated for metastatic EGFR T790M positive lung cancer and for the first-line treatment of metastatic NSCLC containing EGFR exon 19 deletions or exon 21 L858R mutations. Like first-generation TKIs, treatment with osimertinib is associated with acquired resistance. In this case, resistance is associated with the C797S mutation and occurs in 22-44% of cases³⁰. The T790M and C797S mutations may be each selected following sequential treatment with a first-generation TKI followed by a third-generation TKI or vice versa³². T790M and C797S can occur in either cis or trans allelic orientation³². If C797S is observed following progression after treatment with a third-generation TKI in the first-line setting, sensitivity may be retained to first-generation TKIs³². If C797S co-occurs in trans with T790M following sequential treatment with first- and third-generation TKIs, patients may exhibit sensitivity to combination first- and third-generation TKIs, but resistance to third-generation TKIs alone^{32,33}. However, C797S occurring in cis conformation with T790M, confers resistance to first- and third-generation TKIs³². Fourth-generation TKIs are in development to overcome acquired C797S and T790M resistance mutations after osimertinib treatment. EGFR targeting antibodies including cetuximab (2004), panitumumab (2006), and necitumumab (2016) are under investigation in combination with EGFR-targeting TKIs for efficacy against EGFR mutations. The bispecific antibody, amivantamab³⁴, targeting EGFR and MET was approved (2021) NSCLC tumors harboring EGFR exon 20 insertion mutations. The Oncoprex immunogene therapy quaratusugene ozeplasmid³⁵ in combination with osimertinib received a fast track designation from the FDA (2020) for NSCLC tumors harboring EGFR mutations that progressed on osimertinib alone. BDTX-189³⁶ was granted a fast track designation (2020) for the treatment of solid tumors harboring an EGFR exon 20 insertion mutation.

Biomarker Descriptions (continued)

ERBB2 (erb-b2 receptor tyrosine kinase 2)

Background: The ERBB2 gene encodes the erb-b2 receptor tyrosine kinase 2, a member of the human epidermal growth factor receptor (HER) family. Along with ERBB2/HER2, EGFR/ERBB1/HER1, ERBB3/HER3, and ERBB4/HER4 make up the HER protein family¹. All ERBB/HER proteins encode transmembrane receptor tyrosine kinases. However, ERBB2/HER2 is an orphan receptor with no known ligand. ERBB2 preferentially binds other ligand bound ERBB/HER family members to form hetero-dimers resulting in the activation of ERBB2 tyrosine kinase activity and subsequent activation of the PI3K/AKT/MTOR and RAS/RAF/MAPK/ERK signaling pathways which promote cell proliferation, differentiation, and survival³. Recurrent focal amplification of the ERBB2 gene leads to increased expression in several cancer types. ERBB2 overexpression in immortalized cell lines is oncogenic and leads to ERBB2 homo-dimerization and activation without ligand binding^{37,38,39}.

Alterations and prevalence: ERBB2 gene amplification occurs in 10-20% of breast, esophageal, and gastric cancers, 5-10% of bladder, cervical, pancreas, and uterine cancers, and 1-5% of colorectal, lung, and ovarian cancers^{5,6,7,40,41,42,43,44}. Recurrent somatic activating mutations in ERBB2/HER2 occur at low frequencies (<1%) in diverse cancer types^{7,45,46}. In breast, bladder, and colorectal cancers, the most common recurrent ERBB2 activating mutations include kinase domain mutations L755S and V777L and the extracellular domain mutation S310F. In lung cancer, the most common recurrent ERBB2 activating mutations include in-frame exon 20 insertions, particularly Y772_A775dup.

Potential relevance: The discovery of ERBB2/HER2 as an important driver of breast cancer in 1987 led to the development of trastuzumab, a humanized monoclonal antibody with specificity to the extracellular domain of HER2^{47,48}. Trastuzumab⁴⁹ was FDA approved for the treatment of HER2 positive breast cancer in 1998, and subsequently in HER2 positive metastatic gastric and gastroesophageal junction adenocarcinoma in 2010. Additional monoclonal antibody therapies have been approved by the FDA for HER2-positive breast cancer including pertuzumab⁵⁰ (2012), a humanized monoclonal antibody that inhibits HER2 dimerization, and ado-trastuzumab emtansine⁵¹ (2013), a conjugate of trastuzumab and a potent antimicrotubule agent. The combination of pertuzumab, trastuzumab, and a taxane is the preferred front-line regimen for HER2-positive metastatic breast cancer⁵². In addition to monoclonal antibodies, the small molecule inhibitor lapatinib⁵³, with specificity for both EGFR and ERBB2, was FDA approved (2007) for the treatment of patients with advanced HER2-positive breast cancer who have received prior therapy including trastuzumab. In 2017, the FDA approved the use of neratinib⁵⁴, an irreversible kinase inhibitor of EGFR, ERBB2/HER2, and ERBB4, for the extended adjuvant treatment of adult patients with early stage HER2-positive breast cancer. In 2020, the FDA approved neratinib⁵⁴ in combination with capecitabine for HER2-positive advanced or metastatic patients after two or more prior HER2-directed therapies. Also in 2020, the TKI irbinetinib⁵⁵ was FDA approved for HER2 overexpressing or amplified breast cancer in combination with trastuzumab and capecitabine. In 2021, the PD-1 blocking antibody, pembrolizumab, in combination with trastuzumab, fluoropyrimidine- and platinum-based chemotherapy, was approved for HER2 amplified gastric or gastroesophageal (GEJ) adenocarcinoma in the first line⁵⁶. The vaccine, nelipepimut-S⁵⁷, was granted fast-track designation by the FDA (2016) in patients with low to intermediate HER2 expressing (IHC score 1+ or 2+) breast cancer. In 2018 fast-track designation was granted to the monoclonal antibody margetuximab⁵⁸ in patients with ERBB2 positive breast cancer previously treated with an anti-HER2 therapy. In 2019, fast track designation was granted to the HER2-targeting antibody drug conjugate, amcenestrant⁵⁹, for HER2-positive advanced or metastatic breast cancer after one or more prior anti-HER2 based regimens. Additionally, in 2019, the novel bispecific antibody, zanidatamab⁶⁰, received fast-track designation in combination with standard chemotherapy for patients with HER2-overexpressing gastroesophageal adenocarcinoma (GEA) and breakthrough therapy designation (2020) as a monotherapy for patients with HER2-amplified biliary tract cancer⁶¹. In 2020, BDTX-189³⁶ received fast-track designation for adult patients with solid tumors harboring an allosteric human ERBB2 mutation or exon 20 insertion, and the humanized anti-HER2 antibody drug conjugate disitamab vedotin received breakthrough designation for adult patients with HER2-positive urothelial cancer after previous platinum-chemotherapy treatment⁶². In 2021, the antibody-drug conjugate ARX788⁶³ received fast-track designation as a monotherapy for advanced or metastatic HER2-positive breast cancer that have progressed on one or more anti-HER2 regimens. Additionally, in 2021, fast track designation was granted to HER2 targeted chimeric antigen receptor macrophage (CAR-M), CT-0508⁶⁴, for HER2-overexpressing solid tumors. Certain activating mutations have been observed to impart sensitivity to neratinib, afatinib, lapatinib, and trastuzumab, or dacomitinib in early and ongoing clinical studies^{65,66,67,68,69}. ERBB2 kinase domain mutations R896G and V659E both showed response to afatinib in two NSCLC case studies^{70,71}. Additionally, acquired HER2 mutations in estrogen receptor-positive (ER+) breast cancer have been shown to confer resistance to hormone therapy⁷². However, this was shown to be overcome by neratinib in combination with therapies targeting ER⁷².

Relevant Therapy Summary

☒ In this cancer type
 ☐ In other cancer type
 ☒ In this cancer type and other cancer types
 ✕ No evidence

EGFR p.(G719A) c.2156G>C

Relevant Therapy	FDA	NCCN	EMA	ESMO	Clinical Trials*
afatinib	●	●	●	●	✕
gefitinib	✕	●	●	✕	✕
osimertinib	✕	●	✕	●	● (II)
bevacizumab + erlotinib	✕	●	✕	✕	✕
dacomitinib	✕	●	✕	✕	✕
erlotinib	✕	●	✕	✕	✕
erlotinib + ramucirumab	✕	●	✕	✕	✕
gefitinib (Mylan)	✕	✕	●	✕	✕
sunvozertinib	✕	✕	✕	✕	● (I/II)
BAY-2927088	✕	✕	✕	✕	● (I)
lazertinib, amivantamab, chemotherapy	✕	✕	✕	✕	● (I)
TNO-155, nazartinib	✕	✕	✕	✕	● (I)

ERBB2 amplification

Relevant Therapy	FDA	NCCN	EMA	ESMO	Clinical Trials*
ado-trastuzumab emtansine	○	○	○	○	✕
irbinitinib + trastuzumab + capecitabine	○	○	○	○	✕
lapatinib + capecitabine	○	○	○	○	✕
neratinib	○	○	○	○	✕
pertuzumab + trastuzumab + chemotherapy	○	○	○	○	✕
pertuzumab + trastuzumab + docetaxel	○	○	○	○	✕
trastuzumab + docetaxel	○	○	○	○	✕
trastuzumab deruxtecan	○	○	○	○	✕
trastuzumab	○	○	○	✕	✕
trastuzumab + capecitabine + cisplatin	○	○	○	✕	✕
trastuzumab + carboplatin + docetaxel	○	○	○	✕	✕
trastuzumab + cisplatin + fluorouracil	○	○	○	✕	✕
trastuzumab + paclitaxel	○	○	○	✕	✕
irbinitinib + trastuzumab	○	○	✕	✕	✕

* Most advanced phase (IV, III, II/III, II, I/II, I) is shown and multiple clinical trials may be available.

Relevant Therapy Summary (continued)

☒ In this cancer type
 ☐ In other cancer type
 ☒ In this cancer type and other cancer types
 ✕ No evidence

ERBB2 amplification (continued)

Relevant Therapy	FDA	NCCN	EMA	ESMO	Clinical Trials*
neratinib + capecitabine	<input type="radio"/>	<input type="radio"/>	✕	✕	✕
lapatinib + letrozole	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
pertuzumab/trastuzumab/hyaluronidase-zzxf + cyclophosphamide + doxorubicin	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
pertuzumab/trastuzumab/hyaluronidase-zzxf + docetaxel	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Biocon)	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Biocon) + capecitabine + cisplatin	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Biocon) + carboplatin + docetaxel	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Biocon) + cisplatin + fluorouracil	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Biocon) + docetaxel	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Biocon) + paclitaxel	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Celltrion)	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Celltrion) + capecitabine + cisplatin	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Celltrion) + carboplatin + docetaxel	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Celltrion) + cisplatin + fluorouracil	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Celltrion) + docetaxel	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Celltrion) + paclitaxel	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Pfizer)	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Pfizer) + capecitabine + cisplatin	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Pfizer) + carboplatin + docetaxel	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Pfizer) + cisplatin + fluorouracil	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Pfizer) + docetaxel	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Pfizer) + paclitaxel	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Samsung Bioepis)	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Samsung Bioepis) + capecitabine + cisplatin	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Samsung Bioepis) + carboplatin + docetaxel	<input type="radio"/>	✕	<input type="radio"/>	✕	✕
trastuzumab (Samsung Bioepis) + cisplatin + fluorouracil	<input type="radio"/>	✕	<input type="radio"/>	✕	✕

* Most advanced phase (IV, III, II/III, II, I/II, I) is shown and multiple clinical trials may be available.

Relevant Therapy Summary (continued)

● In this cancer type
 ○ In other cancer type
 ● In this cancer type and other cancer types
 ✕ No evidence

ERBB2 amplification (continued)

Relevant Therapy	FDA	NCCN	EMA	ESMO	Clinical Trials*
trastuzumab (Samsung Bioepis) + docetaxel	○	✕	○	✕	✕
trastuzumab (Samsung Bioepis) + paclitaxel	○	✕	○	✕	✕
trastuzumab (Synthon)	○	✕	○	✕	✕
trastuzumab (Synthon) + capecitabine + cisplatin	○	✕	○	✕	✕
trastuzumab (Synthon) + carboplatin + docetaxel	○	✕	○	✕	✕
trastuzumab (Synthon) + cisplatin + fluorouracil	○	✕	○	✕	✕
trastuzumab (Synthon) + docetaxel	○	✕	○	✕	✕
trastuzumab (Synthon) + paclitaxel	○	✕	○	✕	✕
margetuximab + chemotherapy	○	✕	✕	○	✕
pembrolizumab + trastuzumab + chemotherapy + fluoropyrimidine	○	✕	✕	✕	✕
trastuzumab and hyaluronidase-oysk	○	✕	✕	✕	✕
trastuzumab and hyaluronidase-oysk + carboplatin + docetaxel	○	✕	✕	✕	✕
trastuzumab and hyaluronidase-oysk + cyclophosphamide + doxorubicin + paclitaxel	○	✕	✕	✕	✕
trastuzumab and hyaluronidase-oysk + docetaxel	○	✕	✕	✕	✕
trastuzumab and hyaluronidase-oysk + paclitaxel	○	✕	✕	✕	✕
lapatinib + trastuzumab	✕	○	○	○	✕
pertuzumab + trastuzumab	✕	○	✕	○	✕
pertuzumab + trastuzumab + hormone therapy + chemotherapy	✕	○	✕	○	✕
pertuzumab + trastuzumab + paclitaxel	✕	○	✕	○	✕
tamoxifen	✕	○	✕	○	✕
trastuzumab + chemotherapy	✕	○	✕	○	✕
trastuzumab + hormone therapy + chemotherapy	✕	○	✕	○	✕
aromatase inhibitor	✕	○	✕	✕	✕
fulvestrant	✕	○	✕	✕	✕
hormone therapy	✕	○	✕	✕	✕
lapatinib + aromatase inhibitor	✕	○	✕	✕	✕

* Most advanced phase (IV, III, II/III, II, I/II, I) is shown and multiple clinical trials may be available.

Relevant Therapy Summary (continued)

 In this cancer type
  In other cancer type
  In this cancer type and other cancer types
  No evidence

ERBB2 amplification (continued)

Relevant Therapy	FDA	NCCN	EMA	ESMO	Clinical Trials*
lapatinib + trastuzumab + aromatase inhibitor	×	○	×	×	×
margetuximab + capecitabine	×	○	×	×	×
margetuximab + eribulin	×	○	×	×	×
margetuximab + gemcitabine	×	○	×	×	×
margetuximab + vinorelbine	×	○	×	×	×
neratinib + paclitaxel	×	○	×	×	×
pembrolizumab + trastuzumab + capecitabine + cisplatin	×	○	×	×	×
pembrolizumab + trastuzumab + capecitabine + oxaliplatin	×	○	×	×	×
pembrolizumab + trastuzumab + cisplatin + fluorouracil	×	○	×	×	×
pembrolizumab + trastuzumab + fluorouracil + oxaliplatin	×	○	×	×	×
pertuzumab + trastuzumab + carboplatin + docetaxel	×	○	×	×	×
trastuzumab + aromatase inhibitor	×	○	×	×	×
trastuzumab + capecitabine	×	○	×	×	×
trastuzumab + capecitabine + oxaliplatin	×	○	×	×	×
trastuzumab + carboplatin + docetaxel + fluorouracil	×	○	×	×	×
trastuzumab + carboplatin + paclitaxel	×	○	×	×	×
trastuzumab + chemotherapy (other)	×	○	×	×	×
trastuzumab + cisplatin + docetaxel	×	○	×	×	×
trastuzumab + cisplatin + docetaxel + fluorouracil	×	○	×	×	×
trastuzumab + cisplatin + paclitaxel	×	○	×	×	×
trastuzumab + cyclophosphamide + docetaxel	×	○	×	×	×
trastuzumab + docetaxel + fluorouracil	×	○	×	×	×
trastuzumab + docetaxel + fluorouracil + oxaliplatin	×	○	×	×	×
trastuzumab + fluorouracil	×	○	×	×	×
trastuzumab + fluorouracil + irinotecan	×	○	×	×	×
trastuzumab + fluorouracil + oxaliplatin	×	○	×	×	×

* Most advanced phase (IV, III, II/III, II, I/II, I) is shown and multiple clinical trials may be available.

Relevant Therapy Summary (continued)

● In this cancer type
 ○ In other cancer type
 ① In this cancer type and other cancer types
 ✕ No evidence

ERBB2 amplification (continued)

Relevant Therapy	FDA	NCCN	EMA	ESMO	Clinical Trials*
trastuzumab + fulvestrant	✕	○	✕	✕	✕
trastuzumab + tamoxifen	✕	○	✕	✕	✕
trastuzumab + vinorelbine	✕	○	✕	✕	✕
pertuzumab/trastuzumab/hyaluronidase-zzxf + carboplatin + docetaxel	✕	✕	○	✕	✕
pertuzumab/trastuzumab/hyaluronidase-zzxf + cyclophosphamide + doxorubicin + fluorouracil	✕	✕	○	✕	✕
pertuzumab/trastuzumab/hyaluronidase-zzxf + cyclophosphamide + epirubicin	✕	✕	○	✕	✕
pertuzumab/trastuzumab/hyaluronidase-zzxf + paclitaxel	✕	✕	○	✕	✕
trastuzumab (Biocon) + anastrozole	✕	✕	○	✕	✕
trastuzumab (Biocon) + CMF + doxorubicin + paclitaxel	✕	✕	○	✕	✕
trastuzumab (Celltrion) + anastrozole	✕	✕	○	✕	✕
trastuzumab (Celltrion) + CMF + doxorubicin + paclitaxel	✕	✕	○	✕	✕
trastuzumab (Henlius)	✕	✕	○	✕	✕
trastuzumab (Henlius) + anastrozole	✕	✕	○	✕	✕
trastuzumab (Henlius) + capecitabine + cisplatin	✕	✕	○	✕	✕
trastuzumab (Henlius) + carboplatin + docetaxel	✕	✕	○	✕	✕
trastuzumab (Henlius) + cisplatin + fluorouracil	✕	✕	○	✕	✕
trastuzumab (Henlius) + CMF + doxorubicin + paclitaxel	✕	✕	○	✕	✕
trastuzumab (Henlius) + docetaxel	✕	✕	○	✕	✕
trastuzumab (Henlius) + paclitaxel	✕	✕	○	✕	✕
trastuzumab (Pfizer) + anastrozole	✕	✕	○	✕	✕
trastuzumab (Pfizer) + CMF + doxorubicin + paclitaxel	✕	✕	○	✕	✕
trastuzumab (Samsung Bioepis) + anastrozole	✕	✕	○	✕	✕
trastuzumab (Samsung Bioepis) + CMF + doxorubicin + paclitaxel	✕	✕	○	✕	✕
trastuzumab (Synthon) + anastrozole	✕	✕	○	✕	✕

* Most advanced phase (IV, III, II/III, II, I/II, I) is shown and multiple clinical trials may be available.

Relevant Therapy Summary (continued)

● In this cancer type
 ○ In other cancer type
 ● In this cancer type and other cancer types
 ✕ No evidence

ERBB2 amplification (continued)

Relevant Therapy	FDA	NCCN	EMA	ESMO	Clinical Trials*
trastuzumab (Synthon) + CMF + doxorubicin + paclitaxel	✕	✕	○	✕	✕
trastuzumab + anastrozole	✕	✕	○	✕	✕
trastuzumab + CMF + doxorubicin + paclitaxel	✕	✕	○	✕	✕
aromatase inhibitor + luteinizing hormone-releasing factor	✕	✕	✕	○	✕
lapatinib + hormone therapy	✕	✕	✕	○	✕
lapatinib + trastuzumab + hormone therapy	✕	✕	✕	○	✕
margetuximab	✕	✕	✕	○	✕
neratinib + chemotherapy	✕	✕	✕	○	✕
pertuzumab + trastuzumab + hormone therapy	✕	✕	✕	○	✕
pertuzumab + trastuzumab + nab-paclitaxel	✕	✕	✕	○	✕
trastuzumab + hormone therapy	✕	✕	✕	○	✕
SAR-443216	✕	✕	✕	✕	● (I)
SHR-A1811	✕	✕	✕	✕	● (I)

* Most advanced phase (IV, III, II/III, II, I/II, I) is shown and multiple clinical trials may be available.

Relevant Therapy Details

Current FDA Information

☒ In this cancer type ☐ In other cancer type ☒ In this cancer type and other cancer types

FDA information is current as of 2023-03-15. For the most up-to-date information, search www.fda.gov.

EGFR p.(G719A) c.2156G>C

☒ afatinib

Cancer type: Non-Small Cell Lung Cancer

Label as of: 2022-04-07

Variant class: EGFR G719 mutation

Indications and usage:

GILOTRIF® is a kinase inhibitor indicated for:

- First-line treatment of patients with metastatic non-small cell lung cancer (NSCLC) whose tumors have non-resistant epidermal growth factor receptor (EGFR) mutations as detected by an FDA-approved test.

Limitations of Use: Safety and efficacy of GILOTRIF® were not established in patients whose tumors have resistant EGFR mutations

- Treatment of patients with metastatic, squamous NSCLC progressing after platinum-based chemotherapy

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2022/201292s017lbl.pdf

ERBB2 amplification

☐ ado-trastuzumab emtansine

Cancer type: Breast Cancer

Label as of: 2022-02-02

Variant class: ERBB2 overexpression or ERBB2 amplification

Indications and usage:

KADCYLA® is a HER2-targeted antibody and microtubule inhibitor conjugate indicated, as a single agent, for:

- the treatment of patients with HER2-positive, metastatic breast cancer who previously received trastuzumab and a taxane, separately or in combination. Patients should have either:
 - received prior therapy for metastatic disease, or
 - developed disease recurrence during or within six months of completing adjuvant therapy.
- the adjuvant treatment of patients with HER2-positive early breast cancer who have residual invasive disease after neoadjuvant taxane and trastuzumab-based treatment.

Select patients for therapy based on an FDA-approved companion diagnostic for KADCYLA®

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2022/125427s111lbl.pdf

ERBB2 amplification (continued)**○ irbinitinib + trastuzumab, irbinitinib + trastuzumab + capecitabine****Cancer type:** Breast Cancer, Colorectal Cancer **Label as of:** 2023-01-19**Variant class:** ERBB2 amplification or ERBB2 overexpression**Other criteria:** RAS wild type**Indications and usage:**

TUKYSA® is a kinase inhibitor indicated:

- in combination with trastuzumab and capecitabine for treatment of adult patients with advanced unresectable or metastatic HER2-positive breast cancer, including patients with brain metastases, who have received one or more prior anti-HER2-based regimens in the metastatic setting.
- in combination with trastuzumab for the treatment of adult patients with RAS wild-type HER2-positive unresectable or metastatic colorectal cancer that has progressed following treatment with fluoropyrimidine-, oxaliplatin-, and irinotecan-based chemotherapy.

This indication is approved under accelerated approval based on tumor response rate and durability of response. Continued approval for this indication may be contingent upon verification and description of clinical benefit in confirmatory trials.

Reference:https://www.accessdata.fda.gov/drugsatfda_docs/label/2023/213411s004lbl.pdf**○ lapatinib + capecitabine, lapatinib + letrozole****Cancer type:** Breast Cancer**Label as of:** 2022-03-27**Variant class:** ERBB2 overexpression**Other criteria:** ER positive, PR positive**Indications and usage:**

TYKERB® is a kinase inhibitor indicated in combination with:

- capecitabine for the treatment of patients with advanced or metastatic breast cancer whose tumors overexpress human epidermal growth factor receptor 2 (HER2) and who have received prior therapy including an anthracycline, a taxane, and trastuzumab.
- Limitations of Use: Patients should have disease progression on trastuzumab prior to initiation of treatment with TYKERB® in combination with capecitabine.
- letrozole for the treatment of postmenopausal women with hormone receptor-positive metastatic breast cancer that overexpresses the HER2 receptor for whom hormonal therapy is indicated.

TYKERB® in combination with an aromatase inhibitor has not been compared to a trastuzumab-containing chemotherapy regimen for the treatment of metastatic breast cancer.

Reference:https://www.accessdata.fda.gov/drugsatfda_docs/label/2022/022059s031lbl.pdf

ERBB2 amplification (continued)

○ margetuximab + chemotherapy

Cancer type: Breast Cancer

Label as of: 2020-12-16

Variant class: ERBB2 overexpression or ERBB2 amplification

Indications and usage:

MARGENZA™ is a HER2/neu receptor antagonist indicated, in combination with chemotherapy, for the treatment of adult patients with metastatic HER2 positive breast cancer who have received two or more prior anti-HER2 regimens, at least one of which was for metastatic disease.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2020/761150s000lbl.pdf

○ neratinib, neratinib + capecitabine

Cancer type: Breast Cancer

Label as of: 2021-06-28

Variant class: ERBB2 overexpression

Indications and usage:

NERLYNX® is a kinase inhibitor indicated:

- As a single agent, for the extended adjuvant treatment of adult patients with early stage HER2-positive breast cancer, to follow adjuvant trastuzumab-based therapy.
- In combination with capecitabine, for the treatment of adult patients with advanced or metastatic HER2-positive breast cancer who have received two or more prior anti-HER2 based regimens in the metastatic setting.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2021/208051s009lbl.pdf

ERBB2 amplification (continued)

○ pembrolizumab + trastuzumab + chemotherapy + fluoropyrimidine

Cancer type: Gastric Cancer,
Gastroesophageal Junction Adenocarcinoma

Label as of: 2023-01-26

Variant class: ERBB2 overexpression

Indications and usage:

KEYTRUDA® is a programmed death receptor-1 (PD-1)-blocking antibody indicated:

Melanoma

- for the treatment of patients with unresectable or metastatic melanoma.
- for the adjuvant treatment of adult and pediatric (12 years and older) patients with Stage IIB, IIC, or III melanoma following complete resection.

Non-Small Cell Lung Cancer (NSCLC)

- in combination with pemetrexed and platinum chemotherapy, as first-line treatment of patients with metastatic nonsquamous NSCLC, with no EGFR or ALK genomic tumor aberrations.
- in combination with carboplatin and either paclitaxel or paclitaxel protein-bound, as first-line treatment of patients with metastatic squamous NSCLC.
- as a single agent for the first-line treatment of patients with NSCLC expressing PD-L1 [Tumor Proportion Score (TPS) $\geq 1\%$] as determined by an FDA-approved test, with no EGFR or ALK genomic tumor aberrations, and is:
 - stage III where patients are not candidates for surgical resection or definitive chemoradiation, or
 - metastatic.
- as a single agent for the treatment of patients with metastatic NSCLC whose tumors express PD-L1 (TPS $\geq 1\%$) as determined by an FDA-approved test, with disease progression on or after platinum-containing chemotherapy. Patients with EGFR or ALK genomic tumor aberrations should have disease progression on FDA-approved therapy for these aberrations prior to receiving KEYTRUDA®.
- as a single agent, for adjuvant treatment following resection and platinum-based chemotherapy for adult patients with stage IB (T2a ≥ 4 cm), II, or IIIA NSCLC.

Head and Neck Squamous Cell Cancer (HNSCC)

- in combination with platinum and FU for the first-line treatment of patients with metastatic or with unresectable, recurrent HNSCC.
- as a single agent for the first-line treatment of patients with metastatic or with unresectable, recurrent HNSCC whose tumors express PD-L1 [Combined Positive Score (CPS) ≥ 1] as determined by an FDA-approved test.
- as a single agent for the treatment of patients with recurrent or metastatic HNSCC with disease progression on or after platinum-containing chemotherapy.

Classical Hodgkin Lymphoma (cHL)

- for the treatment of adult patients with relapsed or refractory cHL.
- for the treatment of pediatric patients with refractory cHL, or cHL that has relapsed after 2 or more lines of therapy.

Primary Mediastinal Large B-Cell Lymphoma (PMBCL)

- for the treatment of adult and pediatric patients with refractory PMBCL, or who have relapsed after 2 or more prior lines of therapy.
- Limitations of Use: KEYTRUDA® is not recommended for treatment of patients with PMBCL who require urgent cytoreductive therapy.

Urothelial Carcinoma

- for the treatment of patients with locally advanced or metastatic urothelial carcinoma who:
 - are not eligible for any platinum-containing chemotherapy, or
 - who have disease progression during or following platinum-containing chemotherapy or within 12 months of neoadjuvant or adjuvant treatment with platinum-containing chemotherapy.
- for the treatment of patients with Bacillus Calmette-Guerin (BCG)-unresponsive, high-risk, non-muscle invasive bladder cancer (NMIBC) with carcinoma in situ (CIS) with or without papillary tumors who are ineligible for or have elected not to undergo cystectomy.

Microsatellite Instability-High or Mismatch Repair Deficient Cancer

ERBB2 amplification (continued)

- for the treatment of adult and pediatric patients with unresectable or metastatic microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR) solid tumors, as determined by an FDA-approved test, that have progressed following prior treatment and who have no satisfactory alternative treatment options.¹
- Limitations of Use: The safety and effectiveness of KEYTRUDA® in pediatric patients with MSI-H central nervous system cancers have not been established.

Microsatellite Instability-High or Mismatch Repair Deficient Colorectal Cancer (CRC)

- for the treatment of patients with unresectable or metastatic MSI-H or dMMR colorectal cancer (CRC) as determined by an FDA-approved test.

Gastric Cancer

- in combination with trastuzumab, fluoropyrimidine- and platinum-containing chemotherapy, for the first-line treatment of patients with locally advanced unresectable or metastatic HER2-positive gastric or gastroesophageal junction (GEJ) adenocarcinoma.¹

Esophageal Cancer

- for the treatment of patients with locally advanced or metastatic esophageal or gastroesophageal junction (GEJ) (tumors with epicenter 1 to 5 centimeters above the GEJ) carcinoma that is not amenable to surgical resection or definitive chemoradiation either:
 - in combination with platinum- and fluoropyrimidine-based chemotherapy, or
 - as a single agent after one or more prior lines of systemic therapy for patients with tumors of squamous cell histology that express PD-L1 (CPS ≥ 10) as determined by an FDA-approved test.

Cervical Cancer

- in combination with chemotherapy, with or without bevacizumab, for the treatment of patients with persistent, recurrent, or metastatic cervical cancer whose tumors express PD-L1 (CPS ≥ 1) as determined by an FDA-approved test.
- as a single agent for the treatment of patients with recurrent or metastatic cervical cancer with disease progression on or after chemotherapy whose tumors express PD-L1 (CPS ≥ 1) as determined by an FDA-approved test.

Hepatocellular Carcinoma (HCC)

- for the treatment of patients with HCC who have been previously treated with sorafenib.¹

Merkel Cell Carcinoma (MCC)

- for the treatment of adult and pediatric patients with recurrent locally advanced or metastatic Merkel cell carcinoma.¹

Renal Cell Carcinoma (RCC)

- in combination with axitinib, for the first-line treatment of adult patients with advanced RCC.
- in combination with lenvatinib, for the first-line treatment of adult patients with advanced RCC.
- for the adjuvant treatment of patients with RCC at intermediate-high or high risk of recurrence following nephrectomy, or following nephrectomy and resection of metastatic lesions.

Endometrial Carcinoma

- in combination with lenvatinib, for the treatment of patients with advanced endometrial carcinoma that is mismatch repair proficient (pMMR) as determined by an FDA-approved test or not MSI-H, who have disease progression following prior systemic therapy in any setting and are not candidates for curative surgery or radiation.
- as a single agent, for the treatment of patients with advanced endometrial carcinoma that is MSI-H or dMMR, as determined by an FDA-approved test, who have disease progression following prior systemic therapy in any setting and are not candidates for curative surgery or radiation.

Tumor Mutational Burden-High (TMB-H) Cancer

- for the treatment of adult and pediatric patients with unresectable or metastatic tumor mutational burden-high (TMB-H) [≥ 10 mutations/megabase (mut/Mb)] solid tumors, as determined by an FDA-approved test, that have progressed following prior treatment and who have no satisfactory alternative treatment options.¹
- Limitations of Use: The safety and effectiveness of KEYTRUDA® in pediatric patients with TMB-H central nervous system cancers have not been established.

Cutaneous Squamous Cell Carcinoma (cSCC)

- for the treatment of patients with recurrent or metastatic cSCC or locally advanced cSCC that is not curable by surgery or radiation.

Triple-Negative Breast Cancer (TNBC)

ERBB2 amplification (continued)

- for the treatment of patients with high-risk early-stage TNBC in combination with chemotherapy as neoadjuvant treatment, and then continued as a single agent as adjuvant treatment after surgery.
- in combination with chemotherapy, for the treatment of patients with locally recurrent unresectable or metastatic TNBC whose tumors express PD-L1 (CPS ≥ 10) as determined by an FDA approved test.

Adult Classical Hodgkin Lymphoma and Adult Primary Mediastinal Large B-Cell Lymphoma: Additional Dosing Regimen of 400 mg Every 6 Weeks

- for use at an additional recommended dosage of 400 mg every 6 weeks for Classical Hodgkin Lymphoma and Primary Mediastinal Large B-Cell Lymphoma in adults ²

¹ This indication is approved under accelerated approval based on tumor response rate and durability of response. Continued approval for this indication may be contingent upon verification and description of clinical benefit in the confirmatory trials.

² This indication is approved under accelerated approval based on pharmacokinetic data, the relationship of exposure to efficacy, and the relationship of exposure to safety. Continued approval for this dosing may be contingent upon verification and description of clinical benefit in the confirmatory trials.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2023/125514s128lbl.pdf

○ pertuzumab + trastuzumab + chemotherapy, pertuzumab + trastuzumab + docetaxel

Cancer type: Breast Cancer

Label as of: 2020-01-16

Variant class: ERBB2 amplification or ERBB2 overexpression

Indications and usage:

PERJETA® is a HER2/neu receptor antagonist indicated for:

- Use in combination with trastuzumab and docetaxel for treatment of patients with HER2-positive metastatic breast cancer (MBC) who have not received prior anti-HER2 therapy or chemotherapy for metastatic disease.
- Use in combination with trastuzumab and chemotherapy as
 - neoadjuvant treatment of patients with HER2-positive, locally advanced, inflammatory, or early stage breast cancer (either greater than 2 cm in diameter or node positive) as part of a complete treatment regimen for early breast cancer.
 - adjuvant treatment of patients with HER2-positive early breast cancer at high risk of recurrence

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2020/125409s124lbl.pdf

○ pertuzumab/trastuzumab/hyaluronidase-zzxf + cyclophosphamide + doxorubicin

Cancer type: Breast Cancer

Label as of: 2020-06-29

Variant class: ERBB2 amplification

Indications and usage:

PHESGO™ is a combination of pertuzumab and trastuzumab, HER2/neu receptor antagonists, and hyaluronidase, an endoglycosidase, indicated for:

- Use in combination with chemotherapy as:
 - neoadjuvant treatment of patients with HER2-positive, locally advanced, inflammatory, or early stage breast cancer (either greater than 2 cm in diameter or node positive) as part of a complete treatment regimen for early breast cancer.
 - adjuvant treatment of patients with HER2-positive early breast cancer at high risk of recurrence
- Use in combination with docetaxel for treatment of patients with HER2 positive metastatic breast cancer (MBC) who have not received prior anti-HER2 therapy or chemotherapy for metastatic disease.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2020/761170s000lbl.pdf

ERBB2 amplification (continued)

○ pertuzumab/trastuzumab/hyaluronidase-zzxf + docetaxel, pertuzumab/trastuzumab/hyaluronidase-zzxf + cyclophosphamide + doxorubicin

Cancer type: Breast Cancer

Label as of: 2020-06-29

Variant class: ERBB2 overexpression

Indications and usage:

PHESGO™ is a combination of pertuzumab and trastuzumab, HER2/neu receptor antagonists, and hyaluronidase, an endoglycosidase, indicated for:

- Use in combination with chemotherapy as:
 - neoadjuvant treatment of patients with HER2-positive, locally advanced, inflammatory, or early stage breast cancer (either greater than 2 cm in diameter or node positive) as part of a complete treatment regimen for early breast cancer.
 - adjuvant treatment of patients with HER2-positive early breast cancer at high risk of recurrence
- Use in combination with docetaxel for treatment of patients with HER2 positive metastatic breast cancer (MBC) who have not received prior anti-HER2 therapy or chemotherapy for metastatic disease.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2020/761170s000lbl.pdf

○ trastuzumab (Biocon), trastuzumab (Biocon) + docetaxel, trastuzumab (Biocon) + paclitaxel, trastuzumab (Biocon) + capecitabine + cisplatin, trastuzumab (Biocon) + carboplatin + docetaxel, trastuzumab (Biocon) + cisplatin + fluorouracil

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma

Label as of: 2019-04-17

Variant class: ERBB2 overexpression or ERBB2 amplification

Indications and usage:

OGIVRI™ is a HER2/neu receptor antagonist indicated for:

- The treatment of HER2-overexpressing breast cancer.
- The treatment of HER2-overexpressing metastatic gastric or gastroesophageal junction adenocarcinoma.

Select patients for therapy based on an FDA-approved companion diagnostic for a trastuzumab product.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/761074s004lbl.pdf

○ trastuzumab (Celltrion), trastuzumab (Celltrion) + docetaxel, trastuzumab (Celltrion) + paclitaxel, trastuzumab (Celltrion) + capecitabine + cisplatin, trastuzumab (Celltrion) + carboplatin + docetaxel, trastuzumab (Celltrion) + cisplatin + fluorouracil

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma

Label as of: 2019-05-16

Variant class: ERBB2 amplification or ERBB2 overexpression

Indications and usage:

HERZUMA® is a HER2/neu receptor antagonist indicated for:

- the treatment of HER2-overexpressing breast cancer.
- the treatment of HER2-overexpressing metastatic gastric or gastroesophageal junction adenocarcinoma.

Select patients for therapy based on an FDA-approved companion diagnostic for a trastuzumab product.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/761091s001s002lbl.pdf

ERBB2 amplification (continued)

- **trastuzumab (Pfizer), trastuzumab (Pfizer) + docetaxel, trastuzumab (Pfizer) + paclitaxel, trastuzumab (Pfizer) + capecitabine + cisplatin, trastuzumab (Pfizer) + carboplatin + docetaxel, trastuzumab (Pfizer) + cisplatin + fluorouracil**

Cancer type: Breast Cancer, Gastric Cancer, **Label as of:** 2019-03-11
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression or
ERBB2 amplification

Indications and usage:

TRAZIMERA™ is a HER2/neu receptor antagonist indicated for:

- The treatment of HER2-overexpressing breast cancer.
- The treatment of HER2-overexpressing metastatic gastric or gastroesophageal junction adenocarcinoma.

Select patients for therapy based on an FDA-approved companion diagnostic for a trastuzumab product.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/761081s000lbl.pdf

- **trastuzumab (Samsung Bioepis), trastuzumab (Samsung Bioepis) + docetaxel, trastuzumab (Samsung Bioepis) + paclitaxel, trastuzumab (Samsung Bioepis) + capecitabine + cisplatin, trastuzumab (Samsung Bioepis) + carboplatin + docetaxel, trastuzumab (Samsung Bioepis) + cisplatin + fluorouracil**

Cancer type: Breast Cancer, Gastric Cancer, **Label as of:** 2019-01-18
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression or
ERBB2 amplification

Indications and usage:

Ontruzant® is a HER2/neu receptor antagonist indicated for:

- The treatment of HER2-overexpressing breast cancer.
- The treatment of HER2-overexpressing metastatic gastric or gastroesophageal junction adenocarcinoma.

Select patients for therapy based on an FDA-approved companion diagnostic for a trastuzumab product.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/761100s000lbl.pdf

- **trastuzumab (Synthon), trastuzumab (Synthon) + docetaxel, trastuzumab (Synthon) + paclitaxel, trastuzumab (Synthon) + capecitabine + cisplatin, trastuzumab (Synthon) + carboplatin + docetaxel, trastuzumab (Synthon) + cisplatin + fluorouracil**

Cancer type: Breast Cancer, Gastric Cancer, **Label as of:** 2019-10-25
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or
ERBB2 overexpression

Indications and usage:

KANJINTI™ is a HER2/neu receptor antagonist indicated for:

- the treatment of HER2 overexpressing breast cancer.
- the treatment of HER2 overexpressing metastatic gastric or gastroesophageal junction adenocarcinoma.

Select patients for therapy based on an FDA-approved companion diagnostic for a trastuzumab product.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2020/761073Orig1s001lbl.pdf

ERBB2 amplification (continued)

- **trastuzumab (Synthon), trastuzumab (Synthon) + docetaxel, trastuzumab (Synthon) + paclitaxel, trastuzumab (Synthon) + capecitabine + cisplatin, trastuzumab (Synthon) + carboplatin + docetaxel, trastuzumab (Synthon) + cisplatin + fluorouracil**

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma
Label as of: 2019-10-25

Variant class: ERBB2 overexpression or ERBB2 amplification

Indications and usage:

KANJINTI™ is a HER2/neu receptor antagonist indicated for:

- the treatment of HER2 overexpressing breast cancer.
- the treatment of HER2 overexpressing metastatic gastric or gastroesophageal junction adenocarcinoma.

Select patients for therapy based on an FDA-approved companion diagnostic for a trastuzumab product.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2020/761073Orig1s001lbl.pdf

- **trastuzumab and hyaluronidase-oysk, trastuzumab and hyaluronidase-oysk + docetaxel, trastuzumab and hyaluronidase-oysk + paclitaxel, trastuzumab and hyaluronidase-oysk + carboplatin + docetaxel**

Cancer type: Breast Cancer

Label as of: 2019-02-28

Variant class: ERBB2 amplification

Indications and usage:

HERCEPTIN HYLECTA™ is a combination of trastuzumab, a HER2/neu receptor antagonist, and hyaluronidase, an endoglycosidase, indicated in adults for:

- The treatment of HER2-overexpressing breast cancer.

Select patients for therapy based on an FDA-approved companion diagnostic for trastuzumab.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/761106Orig1s000lbl.pdf

- **trastuzumab and hyaluronidase-oysk, trastuzumab and hyaluronidase-oysk + docetaxel, trastuzumab and hyaluronidase-oysk + paclitaxel, trastuzumab and hyaluronidase-oysk + carboplatin + docetaxel, trastuzumab and hyaluronidase-oysk + cyclophosphamide + doxorubicin + paclitaxel**

Cancer type: Breast Cancer

Label as of: 2019-02-28

Variant class: ERBB2 overexpression

Other criteria: ER negative, PR negative

Indications and usage:

HERCEPTIN HYLECTA™ is a combination of trastuzumab, a HER2/neu receptor antagonist, and hyaluronidase, an endoglycosidase, indicated in adults for:

- The treatment of HER2-overexpressing breast cancer.

Select patients for therapy based on an FDA-approved companion diagnostic for trastuzumab.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/761106Orig1s000lbl.pdf

ERBB2 amplification (continued)

○ trastuzumab deruxtecan

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma
Label as of: 2022-11-04

Variant class: ERBB2 overexpression

Indications and usage:

ENHERTU® is a HER2-directed antibody and topoisomerase inhibitor conjugate indicated for the treatment of:

- adult patients with unresectable or metastatic HER2-positive breast cancer who have received a prior anti-HER2-based regimen either:
 - in the metastatic setting, or
 - in the neoadjuvant or adjuvant setting and have developed disease recurrence during or within six months of completing therapy.
- adult patients with unresectable or metastatic HER2-low (IHC 1+ or IHC 2+/ISH-) breast cancer, as determined by an FDA-approved test, who have received a prior chemotherapy in the metastatic setting or developed disease recurrence during or within 6 months of completing adjuvant chemotherapy.
- adult patients with unresectable or metastatic non-small cell lung cancer (NSCLC) whose tumors have activating HER2 (ERBB2) mutations, as detected by an FDA-approved test, and who have received a prior systemic therapy.
 - This indication is approved under accelerated approval based on objective response rate and duration of response. Continued approval for this indication may be contingent upon verification and description of clinical benefit in a confirmatory trial.
- adult patients with locally advanced or metastatic HER2-positive gastric or gastroesophageal junction adenocarcinoma who have received a prior trastuzumab-based regimen.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2022/761139s024lbl.pdf

○ trastuzumab deruxtecan

Cancer type: Breast Cancer

Label as of: 2022-11-04

Variant class: ERBB2 amplification

Indications and usage:

ENHERTU® is a HER2-directed antibody and topoisomerase inhibitor conjugate indicated for the treatment of:

- adult patients with unresectable or metastatic HER2-positive breast cancer who have received a prior anti-HER2-based regimen either:
 - in the metastatic setting, or
 - in the neoadjuvant or adjuvant setting and have developed disease recurrence during or within six months of completing therapy.
- adult patients with unresectable or metastatic HER2-low (IHC 1+ or IHC 2+/ISH-) breast cancer, as determined by an FDA-approved test, who have received a prior chemotherapy in the metastatic setting or developed disease recurrence during or within 6 months of completing adjuvant chemotherapy.
- adult patients with unresectable or metastatic non-small cell lung cancer (NSCLC) whose tumors have activating HER2 (ERBB2) mutations, as detected by an FDA-approved test, and who have received a prior systemic therapy.
 - This indication is approved under accelerated approval based on objective response rate and duration of response. Continued approval for this indication may be contingent upon verification and description of clinical benefit in a confirmatory trial.
- adult patients with locally advanced or metastatic HER2-positive gastric or gastroesophageal junction adenocarcinoma who have received a prior trastuzumab-based regimen.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2022/761139s024lbl.pdf

ERBB2 amplification (continued)

- **trastuzumab, trastuzumab + docetaxel, trastuzumab + paclitaxel, trastuzumab + capecitabine + cisplatin, trastuzumab + carboplatin + docetaxel, trastuzumab + cisplatin + fluorouracil**

Cancer type: Breast Cancer, Gastric Cancer, **Label as of:** 2018-11-29
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression or
ERBB2 amplification

Indications and usage:

HERCEPTIN® is a HER2/neu receptor antagonist indicated for:

- The treatment of HER2-overexpressing breast cancer.
- The treatment of HER2-overexpressing metastatic gastric or gastroesophageal junction adenocarcinoma.

Select patients for therapy based on an FDA-approved companion diagnostic for HERCEPTIN®.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2018/103792s5345lbl.pdf

Current NCCN Information

☒ In this cancer type ☐ In other cancer type ☐ In this cancer type and other cancer types

NCCN information is current as of 2023-03-01. For the most up-to-date information, search www.nccn.org.
For NCCN International Adaptations & Translations, search www.nccn.org/global/international_adaptations.aspx.

EGFR p.(G719A) c.2156G>C

● afatinib

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR G719 mutation

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Biomarker discovered prior to first line therapy (First-line therapy); Preferred intervention
- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Biomarker discovered during first line therapy (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]

● afatinib

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR G719 mutation

Other criteria: EGFR T790M mutation negative

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Progression, Symptomatic, Asymptomatic (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]

● bevacizumab + erlotinib

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR G719 mutation

Other criteria: EGFR T790M mutation negative

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Non-squamous Cell; Advanced, Metastatic, Progression, Symptomatic, Asymptomatic (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]

EGFR p.(G719A) c.2156G>C (continued)**● dacomitinib****Cancer type:** Non-Small Cell Lung Cancer**Variant class:** EGFR G719 mutation**NCCN Recommendation category:** 2A**Population segment (Line of therapy):**

- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Biomarker discovered prior to first line therapy (First-line therapy); Other recommended intervention
- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Biomarker discovered during first line therapy (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]**● dacomitinib****Cancer type:** Non-Small Cell Lung Cancer**Variant class:** EGFR G719 mutation**Other criteria:** EGFR T790M mutation negative**NCCN Recommendation category:** 2A**Population segment (Line of therapy):**

- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Progression, Symptomatic, Asymptomatic (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]**● erlotinib****Cancer type:** Non-Small Cell Lung Cancer**Variant class:** EGFR G719 mutation**NCCN Recommendation category:** 2A**Population segment (Line of therapy):**

- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Biomarker discovered prior to first line therapy (First-line therapy); Other recommended intervention
- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Biomarker discovered during first line therapy (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]**● erlotinib****Cancer type:** Non-Small Cell Lung Cancer**Variant class:** EGFR G719 mutation**Other criteria:** EGFR T790M mutation negative**NCCN Recommendation category:** 2A**Population segment (Line of therapy):**

- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Progression, Symptomatic, Asymptomatic (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]

EGFR p.(G719A) c.2156G>C (continued)**● erlotinib + ramucirumab**

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR G719 mutation

Other criteria: EGFR T790M mutation negative

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Progression, Symptomatic, Asymptomatic (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]

● gefitinib

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR G719 mutation

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Biomarker discovered prior to first line therapy (First-line therapy); Other recommended intervention
- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Biomarker discovered during first line therapy (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]

● gefitinib

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR G719 mutation

Other criteria: EGFR T790M mutation negative

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Progression, Symptomatic, Asymptomatic (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]

● osimertinib

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR G719 mutation

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Biomarker discovered prior to first line therapy (First-line therapy); Preferred intervention
- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Biomarker discovered during first line therapy (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]

EGFR p.(G719A) c.2156G>C (continued)

● osimertinib

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR G719 mutation

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Advanced, Metastatic, Progression, Symptomatic, Asymptomatic (Subsequent therapy)
- Adenocarcinoma, Large Cell, Squamous Cell, Not otherwise specified (NOS); Leptomeningeal Metastases, Progression (Subsequent therapy); Consider

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 2.2023]

● afatinib

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFRi sensitizing mutation

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Brain Metastases (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Central Nervous System Cancers [Version 2.2022]

● gefitinib

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFRi sensitizing mutation

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Brain Metastases (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Central Nervous System Cancers [Version 2.2022]

ERBB2 amplification

○ irbinitinib + trastuzumab + capecitabine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Third-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ pertuzumab + trastuzumab + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor negative

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Ductal, Lobular, Mixed, Micropapillary; Invasive (Adjuvant therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ pertuzumab + trastuzumab + docetaxel

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ pertuzumab + trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Ductal, Lobular, Mixed, Micropapillary; Invasive (Adjuvant therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + capecitabine + cisplatin

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

ERBB2 amplification (continued)

○ trastuzumab + capecitabine + cisplatin

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor negative

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Ductal, Lobular, Mixed, Micropapillary; Invasive (Adjuvant therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + cisplatin + fluorouracil

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ trastuzumab + cisplatin + fluorouracil

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

ERBB2 amplification (continued)

○ trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Ductal, Lobular, Mixed, Micropapillary; Invasive (Adjuvant therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab deruxtecan

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Second-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ ado-trastuzumab emtansine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Invasive (Adjuvant therapy); Useful in certain circumstances

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ ado-trastuzumab emtansine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Third-line therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ ado-trastuzumab emtansine

Cancer type: Head and Neck Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Salivary Gland Neoplasm; Recurrent, Unresectable, Metastatic (Line of therapy not specified); Useful in certain circumstances

Reference: NCCN Guidelines® - NCCN-Head and Neck Cancers [Version 1.2023]

○ aromatase inhibitor

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ fulvestrant

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Ductal, Lobular, Mixed, Micropapillary; Invasive (Adjuvant therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ irbinitinib + trastuzumab

Cancer type: Colon Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: BRAF wild type, RAS wild type

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Unresectable, Metachronous Metastatic (First-line therapy)
- Advanced, Metastatic (First-line therapy)
- Advanced, Metastatic, Progression (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Colon Cancer [Version 3.2022]

○ irbinitinib + trastuzumab

Cancer type: Rectal Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: BRAF wild type, RAS wild type

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Unresectable, Metachronous Metastatic (First-line therapy)
- Advanced, Metastatic (First-line therapy)
- Advanced, Metastatic, Progression (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Rectal Cancer [Version 4.2022]

○ lapatinib + aromatase inhibitor

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ lapatinib + capecitabine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ lapatinib + capecitabine

Cancer type: Breast Cancer

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Brain Metastases (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Central Nervous System Cancers [Version 2.2022]

○ lapatinib + trastuzumab

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ lapatinib + trastuzumab

Cancer type: Colon Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: BRAF wild type, RAS wild type

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Unresectable, Metachronous Metastatic (First-line therapy)
- Advanced, Metastatic (First-line therapy)
- Advanced, Metastatic, Progression (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Colon Cancer [Version 3.2022]

○ lapatinib + trastuzumab

Cancer type: Rectal Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: BRAF wild type, RAS wild type

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Unresectable, Metachronous Metastatic (First-line therapy)
- Advanced, Metastatic (First-line therapy)
- Advanced, Metastatic, Progression (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Rectal Cancer [Version 4.2022]

ERBB2 amplification (continued)

○ lapatinib + trastuzumab + aromatase inhibitor

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ margetuximab + capecitabine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ margetuximab + eribulin

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ margetuximab + gemcitabine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ margetuximab + vinorelbine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ neratinib

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Ductal, Lobular, Mixed, Micropapillary; Invasive (Adjuvant therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ neratinib

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Invasive (Adjuvant therapy); Useful in certain circumstances

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ neratinib + capecitabine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ neratinib + capecitabine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Brain Metastases (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Central Nervous System Cancers [Version 2.2022]

○ pembrolizumab + trastuzumab + capecitabine + cisplatin

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ pembrolizumab + trastuzumab + capecitabine + cisplatin

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ pembrolizumab + trastuzumab + capecitabine + oxaliplatin

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

ERBB2 amplification (continued)

○ pembrolizumab + trastuzumab + capecitabine + oxaliplatin

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ pembrolizumab + trastuzumab + cisplatin + fluorouracil

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ pembrolizumab + trastuzumab + cisplatin + fluorouracil

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ pembrolizumab + trastuzumab + cisplatin + fluorouracil

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

ERBB2 amplification (continued)

○ pembrolizumab + trastuzumab + fluorouracil + oxaliplatin

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ pembrolizumab + trastuzumab + fluorouracil + oxaliplatin

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ pertuzumab + trastuzumab

Cancer type: Colon Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: BRAF wild type, RAS wild type

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Unresectable, Metachronous Metastatic (First-line therapy)
- Advanced, Metastatic (First-line therapy)
- Advanced, Metastatic, Progression (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Colon Cancer [Version 3.2022]

○ pertuzumab + trastuzumab

Cancer type: Head and Neck Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Salivary Gland Neoplasm; Recurrent, Unresectable, Metastatic (Line of therapy not specified); Useful in certain circumstances

Reference: NCCN Guidelines® - NCCN-Head and Neck Cancers [Version 1.2023]

ERBB2 amplification (continued)

○ pertuzumab + trastuzumab

Cancer type: Extrahepatic Cholangiocarcinoma, Gallbladder Carcinoma, Intrahepatic Cholangiocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Unresectable, Metastatic, Progression (Subsequent therapy); Useful in certain circumstances

Reference: NCCN Guidelines® - NCCN-Hepatobiliary Cancers [Version 5.2022]

○ pertuzumab + trastuzumab

Cancer type: Rectal Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: BRAF wild type, RAS wild type

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Unresectable, Metachronous Metastatic (First-line therapy)
- Advanced, Metastatic (First-line therapy)
- Advanced, Metastatic, Progression (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Rectal Cancer [Version 4.2022]

○ pertuzumab + trastuzumab + carboplatin + docetaxel

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Recurrent, Invasive (Adjuvant therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ pertuzumab + trastuzumab + paclitaxel

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Invasive (Adjuvant therapy); Useful in certain circumstances

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ pertuzumab + trastuzumab + paclitaxel

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ tamoxifen

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab

Cancer type: Head and Neck Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Salivary Gland Neoplasm; Recurrent, Unresectable, Metastatic (Line of therapy not specified); Useful in certain circumstances

Reference: NCCN Guidelines® - NCCN-Head and Neck Cancers [Version 1.2023]

○ trastuzumab + aromatase inhibitor

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ trastuzumab + capecitabine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + capecitabine

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ trastuzumab + capecitabine

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + capecitabine + oxaliplatin

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

ERBB2 amplification (continued)

○ trastuzumab + capecitabine + oxaliplatin

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + carboplatin + docetaxel

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Recurrent, Invasive (Adjuvant therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + carboplatin + paclitaxel

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + carboplatin + paclitaxel

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

ERBB2 amplification (continued)

○ trastuzumab + carboplatin + paclitaxel

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + carboplatin + paclitaxel

Cancer type: Endometrial Serous Adenocarcinoma Variant class: ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage III/IV; Recurrent (First-line therapy); Preferred intervention
- Stage III/IV (Primary therapy, Adjuvant therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Uterine Neoplasms [Version 1.2023]

○ trastuzumab + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor negative

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Ductal, Lobular, Mixed, Micropapillary; Invasive (Adjuvant therapy); Consider

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + chemotherapy (other)

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ trastuzumab + cisplatin + docetaxel

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ trastuzumab + cisplatin + docetaxel

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + cisplatin + docetaxel + fluorouracil

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + cisplatin + fluorouracil

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

ERBB2 amplification (continued)

○ trastuzumab + cisplatin + paclitaxel

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ trastuzumab + cisplatin + paclitaxel

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + cyclophosphamide + docetaxel

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Recurrent, Invasive (Adjuvant therapy); Useful in certain circumstances

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + docetaxel

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ trastuzumab + docetaxel

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ trastuzumab + docetaxel

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + docetaxel

Cancer type: Head and Neck Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Salivary Gland Neoplasm; Recurrent, Unresectable, Metastatic (Line of therapy not specified); Useful in certain circumstances

Reference: NCCN Guidelines® - NCCN-Head and Neck Cancers [Version 1.2023]

○ trastuzumab + docetaxel + fluorouracil

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

ERBB2 amplification (continued)

○ trastuzumab + docetaxel + fluorouracil + oxaliplatin

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + fluorouracil

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ trastuzumab + fluorouracil

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + fluorouracil + irinotecan

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

ERBB2 amplification (continued)

○ trastuzumab + fluorouracil + irinotecan

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + fluorouracil + oxaliplatin

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ trastuzumab + fluorouracil + oxaliplatin

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ trastuzumab + fluorouracil + oxaliplatin

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

ERBB2 amplification (continued)

○ trastuzumab + fulvestrant

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Ductal, Lobular, Mixed, Micropapillary; Invasive (Adjuvant therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + paclitaxel

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Invasive (Adjuvant therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + paclitaxel

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ trastuzumab + paclitaxel

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Recurrent, Invasive (Adjuvant therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + paclitaxel

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

○ trastuzumab + paclitaxel

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + tamoxifen

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ trastuzumab + vinorelbine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (Fourth-line therapy, Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab deruxtecan

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor status

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Stage IV; Invasive, Recurrent, Unresectable, Local, Regional (First-line therapy); Consider

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab deruxtecan

Cancer type: Colon Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: BRAF wild type, RAS wild type

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Unresectable, Metachronous Metastatic (First-line therapy)
- Advanced, Metastatic, Progression (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Colon Cancer [Version 3.2022]

○ trastuzumab deruxtecan

Cancer type: Esophageal Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (Second-line therapy, Subsequent therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 1.2023]

ERBB2 amplification (continued)

○ trastuzumab deruxtecan

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (Second-line therapy, Subsequent therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab deruxtecan

Cancer type: Rectal Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: BRAF wild type, RAS wild type

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Advanced, Metastatic, Progression (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Rectal Cancer [Version 4.2022]

○ hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Mixed, Micropapillary, Ductal, Lobular; Invasive (Adjuvant therapy); Consider

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Ductal, Lobular, Mixed, Micropapillary; Invasive (Adjuvant therapy); Consider

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ trastuzumab + carboplatin + docetaxel + fluorouracil

Cancer type: Gastric Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Adenocarcinoma; Unresectable, Locally Advanced, Recurrent, Metastatic (First-line therapy); Other recommended intervention

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2022]

○ trastuzumab + carboplatin + paclitaxel

Cancer type: Uterine Corpus Carcinosarcoma

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Stage III/IV (Primary therapy, Adjuvant therapy); Preferred intervention
- Stage III/IV; Recurrent (First-line therapy); Preferred intervention

Reference: NCCN Guidelines® - NCCN-Uterine Neoplasms [Version 1.2023]

○ trastuzumab + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor negative

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Ductal, Lobular, Mixed, Micropapillary; Invasive (Adjuvant therapy); Consider

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Mixed, Micropapillary, Ductal, Lobular; Invasive (Adjuvant therapy); Consider

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

ERBB2 amplification (continued)

○ trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 overexpression

Other criteria: Hormone receptor positive

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Ductal, Lobular, Mixed, Micropapillary; Invasive (Adjuvant therapy); Consider

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 2.2023]

○ trastuzumab deruxtecan

Cancer type: Head and Neck Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Salivary Gland Neoplasm; Recurrent, Unresectable, Metastatic (Line of therapy not specified); Useful in certain circumstances

Reference: NCCN Guidelines® - NCCN-Head and Neck Cancers [Version 1.2023]

○ irbinitinib + trastuzumab + capecitabine

Cancer type: Breast Cancer

Variant class: ERBB2 positive

NCCN Recommendation category: 1

Population segment (Line of therapy):

- Brain Metastases (Subsequent therapy)

Reference: NCCN Guidelines® - NCCN-Central Nervous System Cancers [Version 2.2022]

○ ado-trastuzumab emtansine

Cancer type: Breast Cancer

Variant class: ERBB2 positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Brain Metastases (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Central Nervous System Cancers [Version 2.2022]

○ pertuzumab + trastuzumab

Cancer type: Breast Cancer

Variant class: ERBB2 positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Brain Metastases (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Central Nervous System Cancers [Version 2.2022]

ERBB2 amplification (continued)

○ trastuzumab + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Leptomeningeal Metastases, Spine Metastases (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Central Nervous System Cancers [Version 2.2022]

○ trastuzumab deruxtecan

Cancer type: Breast Cancer

Variant class: ERBB2 positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):

- Brain Metastases (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Central Nervous System Cancers [Version 2.2022]

○ neratinib + paclitaxel

Cancer type: Breast Cancer

Variant class: ERBB2 positive

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Brain Metastases (Line of therapy not specified)

Reference: NCCN Guidelines® - NCCN-Central Nervous System Cancers [Version 2.2022]

Current EMA Information

- ☒ In this cancer type ☐ In other cancer type ☒ In this cancer type and other cancer types

EMA information is current as of 2023-03-15. For the most up-to-date information, search www.ema.europa.eu/ema.

EGFR p.(G719A) c.2156G>C

☒ afatinib

Cancer type: Non-Small Cell Lung Cancer

Label as of: 2021-04-21

Variant class: EGFR G719 mutation

Reference:

https://www.ema.europa.eu/en/documents/product-information/giotrif-epar-product-information_en.pdf

☒ gefitinib

Cancer type: Non-Small Cell Lung Cancer

Label as of: 2022-07-05

Variant class: EGFR G719 mutation

Reference:

https://www.ema.europa.eu/en/documents/product-information/iressa-epar-product-information_en.pdf

☒ gefitinib (Mylan)

Cancer type: Non-Small Cell Lung Cancer

Label as of: 2022-06-16

Variant class: EGFR G719 mutation

Reference:

https://www.ema.europa.eu/en/documents/product-information/gefitinib-mylan-epar-product-information_en.pdf

ERBB2 amplification

☐ ado-trastuzumab emtansine

Cancer type: Breast Cancer

Label as of: 2023-03-16

Variant class: ERBB2 overexpression or ERBB2 amplification

Reference:

https://www.ema.europa.eu/en/documents/product-information/kadcyla-epar-product-information_en.pdf

☐ irbinitinib + trastuzumab + capecitabine

Cancer type: Breast Cancer

Label as of: 2023-02-27

Variant class: ERBB2 amplification or ERBB2 overexpression

Reference:

https://www.ema.europa.eu/en/documents/product-information/tukysa-epar-product-information_en.pdf

ERBB2 amplification (continued)**○ lapatinib + capecitabine, lapatinib + letrozole, lapatinib + trastuzumab**

Cancer type: Breast Cancer

Label as of: 2022-03-07

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: Hormone receptor negative or Hormone receptor positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/tyverb-epar-product-information_en.pdf**○ neratinib**

Cancer type: Breast Cancer

Label as of: 2022-12-05

Variant class: ERBB2 overexpression or ERBB2 amplification

Other criteria: Hormone receptor positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/nerlynx-epar-product-information_en.pdf**○ pertuzumab + trastuzumab + chemotherapy, pertuzumab + trastuzumab + docetaxel**

Cancer type: Breast Cancer

Label as of: 2021-12-09

Variant class: ERBB2 amplification or ERBB2 overexpression

Reference:

https://www.ema.europa.eu/en/documents/product-information/perjeta-epar-product-information_en.pdf**○ pertuzumab/trastuzumab/hyaluronidase-zzxf + docetaxel, pertuzumab/trastuzumab/hyaluronidase-zzxf + paclitaxel, pertuzumab/trastuzumab/hyaluronidase-zzxf + carboplatin + docetaxel, pertuzumab/trastuzumab/hyaluronidase-zzxf + cyclophosphamide + doxorubicin, pertuzumab/trastuzumab/hyaluronidase-zzxf + cyclophosphamide + epirubicin, pertuzumab/trastuzumab/hyaluronidase-zzxf + cyclophosphamide + doxorubicin + fluorouracil**

Cancer type: Breast Cancer

Label as of: 2022-03-02

Variant class: ERBB2 overexpression or ERBB2 amplification

Reference:

https://www.ema.europa.eu/en/documents/product-information/phesgo-epar-product-information_en.pdf

ERBB2 amplification (continued)

- **trastuzumab (Biocon), trastuzumab (Biocon) + anastrozole, trastuzumab (Biocon) + docetaxel, trastuzumab (Biocon) + paclitaxel, trastuzumab (Biocon) + capecitabine + cisplatin, trastuzumab (Biocon) + carboplatin + docetaxel, trastuzumab (Biocon) + cisplatin + fluorouracil, trastuzumab (Biocon) + CMF + doxorubicin + paclitaxel**

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma

Label as of: 2022-09-30

Variant class: ERBB2 overexpression

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/ogivri-epar-product-information_en.pdf

- **trastuzumab (Biocon), trastuzumab (Biocon) + anastrozole, trastuzumab (Biocon) + docetaxel, trastuzumab (Biocon) + paclitaxel, trastuzumab (Biocon) + carboplatin + docetaxel, trastuzumab (Biocon) + CMF + doxorubicin + paclitaxel**

Cancer type: Breast Cancer

Label as of: 2022-09-30

Variant class: ERBB2 amplification

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/ogivri-epar-product-information_en.pdf

- **trastuzumab (Celltrion), trastuzumab (Celltrion) + anastrozole, trastuzumab (Celltrion) + docetaxel, trastuzumab (Celltrion) + paclitaxel, trastuzumab (Celltrion) + capecitabine + cisplatin, trastuzumab (Celltrion) + carboplatin + docetaxel, trastuzumab (Celltrion) + cisplatin + fluorouracil, trastuzumab (Celltrion) + CMF + doxorubicin + paclitaxel**

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma

Label as of: 2023-01-25

Variant class: ERBB2 overexpression

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/herzuma-epar-product-information_en.pdf

- **trastuzumab (Celltrion), trastuzumab (Celltrion) + anastrozole, trastuzumab (Celltrion) + docetaxel, trastuzumab (Celltrion) + paclitaxel, trastuzumab (Celltrion) + carboplatin + docetaxel, trastuzumab (Celltrion) + CMF + doxorubicin + paclitaxel**

Cancer type: Breast Cancer

Label as of: 2023-01-25

Variant class: ERBB2 amplification

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/herzuma-epar-product-information_en.pdf

ERBB2 amplification (continued)

- **trastuzumab (Henlius), trastuzumab (Henlius) + anastrozole, trastuzumab (Henlius) + docetaxel, trastuzumab (Henlius) + paclitaxel, trastuzumab (Henlius) + capecitabine + cisplatin, trastuzumab (Henlius) + carboplatin + docetaxel, trastuzumab (Henlius) + cisplatin + fluorouracil, trastuzumab (Henlius) + CMF + doxorubicin + paclitaxel**

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma

Label as of: 2023-02-09

Variant class: ERBB2 overexpression

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/zercepac-epar-product-information_en.pdf

- **trastuzumab (Henlius), trastuzumab (Henlius) + anastrozole, trastuzumab (Henlius) + docetaxel, trastuzumab (Henlius) + paclitaxel, trastuzumab (Henlius) + carboplatin + docetaxel, trastuzumab (Henlius) + CMF + doxorubicin + paclitaxel**

Cancer type: Breast Cancer

Label as of: 2023-02-09

Variant class: ERBB2 amplification

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/zercepac-epar-product-information_en.pdf

- **trastuzumab (Pfizer), trastuzumab (Pfizer) + anastrozole, trastuzumab (Pfizer) + docetaxel, trastuzumab (Pfizer) + paclitaxel, trastuzumab (Pfizer) + capecitabine + cisplatin, trastuzumab (Pfizer) + carboplatin + docetaxel, trastuzumab (Pfizer) + cisplatin + fluorouracil, trastuzumab (Pfizer) + CMF + doxorubicin + paclitaxel**

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma

Label as of: 2022-10-17

Variant class: ERBB2 overexpression

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/trazimera-epar-product-information_en.pdf

- **trastuzumab (Pfizer), trastuzumab (Pfizer) + anastrozole, trastuzumab (Pfizer) + docetaxel, trastuzumab (Pfizer) + paclitaxel, trastuzumab (Pfizer) + carboplatin + docetaxel, trastuzumab (Pfizer) + CMF + doxorubicin + paclitaxel**

Cancer type: Breast Cancer

Label as of: 2022-10-17

Variant class: ERBB2 amplification

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/trazimera-epar-product-information_en.pdf

ERBB2 amplification (continued)

- trastuzumab (Samsung Bioepis), trastuzumab (Samsung Bioepis) + anastrozole, trastuzumab (Samsung Bioepis) + docetaxel, trastuzumab (Samsung Bioepis) + paclitaxel, trastuzumab (Samsung Bioepis) + capecitabine + cisplatin, trastuzumab (Samsung Bioepis) + carboplatin + docetaxel, trastuzumab (Samsung Bioepis) + cisplatin + fluorouracil, trastuzumab (Samsung Bioepis) + CMF + doxorubicin + paclitaxel

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma
Label as of: 2022-09-20

Variant class: ERBB2 overexpression

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/ontruzant-epar-product-information_en.pdf

- trastuzumab (Samsung Bioepis), trastuzumab (Samsung Bioepis) + anastrozole, trastuzumab (Samsung Bioepis) + docetaxel, trastuzumab (Samsung Bioepis) + paclitaxel, trastuzumab (Samsung Bioepis) + carboplatin + docetaxel, trastuzumab (Samsung Bioepis) + CMF + doxorubicin + paclitaxel

Cancer type: Breast Cancer

Label as of: 2022-09-20

Variant class: ERBB2 amplification

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/ontruzant-epar-product-information_en.pdf

- trastuzumab (Synthon), trastuzumab (Synthon) + anastrozole, trastuzumab (Synthon) + docetaxel, trastuzumab (Synthon) + paclitaxel, trastuzumab (Synthon) + capecitabine + cisplatin, trastuzumab (Synthon) + carboplatin + docetaxel, trastuzumab (Synthon) + cisplatin + fluorouracil, trastuzumab (Synthon) + CMF + doxorubicin + paclitaxel

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma
Label as of: 2022-01-21

Variant class: ERBB2 overexpression

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/kanjinti-epar-product-information_en.pdf

- trastuzumab (Synthon), trastuzumab (Synthon) + anastrozole, trastuzumab (Synthon) + docetaxel, trastuzumab (Synthon) + paclitaxel, trastuzumab (Synthon) + carboplatin + docetaxel, trastuzumab (Synthon) + CMF + doxorubicin + paclitaxel

Cancer type: Breast Cancer

Label as of: 2022-01-21

Variant class: ERBB2 amplification

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/kanjinti-epar-product-information_en.pdf

ERBB2 amplification (continued)

○ trastuzumab deruxtecan

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma

Label as of: 2023-02-16

Variant class: ERBB2 overexpression or ERBB2 amplification

Reference:

https://www.ema.europa.eu/en/documents/product-information/enhertu-epar-product-information_en.pdf

○ trastuzumab, trastuzumab + anastrozole, trastuzumab + docetaxel, trastuzumab + paclitaxel, trastuzumab + capecitabine + cisplatin, trastuzumab + carboplatin + docetaxel, trastuzumab + cisplatin + fluorouracil, trastuzumab + CMF + doxorubicin + paclitaxel

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma

Label as of: 2021-09-10

Variant class: ERBB2 overexpression

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/herceptin-epar-product-information_en.pdf

○ trastuzumab, trastuzumab + anastrozole, trastuzumab + docetaxel, trastuzumab + paclitaxel, trastuzumab + carboplatin + docetaxel, trastuzumab + CMF + doxorubicin + paclitaxel

Cancer type: Breast Cancer

Label as of: 2021-09-10

Variant class: ERBB2 amplification

Other criteria: ER positive, PR positive

Reference:

https://www.ema.europa.eu/en/documents/product-information/herceptin-epar-product-information_en.pdf

Current ESMO Information

☒ In this cancer type ☐ In other cancer type ☒ In this cancer type and other cancer types

ESMO information is current as of 2023-03-01. For the most up-to-date information, search www.esmo.org.

EGFR p.(G719A) c.2156G>C

☒ osimertinib

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR G719 mutation

ESMO Level of Evidence/Grade of Recommendation: I / A

Population segment (Line of therapy):

- Stage IV; Advanced, Metastatic (First-line therapy); ESMO-MCBS v1.1 score: 4

Reference: ESMO Clinical Practice Guidelines - ESMO-Oncogene-addicted Metastatic Non-Small-Cell Lung Cancer [Annals of Oncology (2023), doi: <https://doi.org/10.1016/j.annonc.2022.12.009> (pre-proof)]

☒ afatinib

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR G719 mutation

ESMO Level of Evidence/Grade of Recommendation: III / B

Population segment (Line of therapy):

- Stage IV; Advanced, Metastatic (First-line therapy); ESMO-MCBS v1.1 score: 4

Reference: ESMO Clinical Practice Guidelines - ESMO-Oncogene-addicted Metastatic Non-Small-Cell Lung Cancer [Annals of Oncology (2023), doi: <https://doi.org/10.1016/j.annonc.2022.12.009> (pre-proof)]

ERBB2 amplification

☐ ado-trastuzumab emtansine

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

ESMO Level of Evidence/Grade of Recommendation: I / A

Population segment (Line of therapy):

- Residual, Invasive, Local (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

☐ pertuzumab + trastuzumab + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: ER negative, PR negative

ESMO Level of Evidence/Grade of Recommendation: I / A

Population segment (Line of therapy):

- Local (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

ERBB2 amplification (continued)

○ pertuzumab + trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR status

ESMO Level of Evidence/Grade of Recommendation: I / A

Population segment (Line of therapy):

- Luminal B; Local (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

○ trastuzumab + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: ER negative, PR negative

ESMO Level of Evidence/Grade of Recommendation: I / A

Population segment (Line of therapy):

- Local (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

○ trastuzumab + chemotherapy

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

ESMO Level of Evidence/Grade of Recommendation: I / A

Population segment (Line of therapy):

- Advanced, Metastatic, Unresectable (First-line therapy); ESMO-MCBS v1.1 score: 3

Reference: ESMO Clinical Practice Guidelines - ESMO-Gastric Cancer [Annals of Oncology (JUL2022), doi: <https://doi.org/10.1016/j.annonc.2022.07.004>.]

○ trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR status

ESMO Level of Evidence/Grade of Recommendation: I / A

Population segment (Line of therapy):

- Luminal B; Local (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

ERBB2 amplification (continued)

○ pertuzumab + trastuzumab + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

ESMO Level of Evidence/Grade of Recommendation: II / B

Population segment (Line of therapy):

- Local (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

○ trastuzumab deruxtecan

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

ESMO Level of Evidence/Grade of Recommendation: II / B

Population segment (Line of therapy):

- Advanced, Metastatic (Second-line therapy, Subsequent therapy); ESMO-MCBS v1.1 score: 4

Reference: ESMO Clinical Practice Guidelines - ESMO-Gastric Cancer [Annals of Oncology (JUL2022), doi: <https://doi.org/10.1016/j.annonc.2022.07.004>.]

○ pertuzumab + trastuzumab

Cancer type: Cholangiocarcinoma, Gallbladder Carcinoma

Variant class: ERBB2 amplification

ESMO Level of Evidence/Grade of Recommendation: III / A

Population segment (Line of therapy):

- Advanced, Metastatic, Progression (Second-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Biliary Cancer [Annals of Oncology (2022), doi: <https://doi.org/10.1016/j.annonc.2022.10.506>]

○ ado-trastuzumab emtansine

Cancer type: Head and Neck Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

ESMO Level of Evidence/Grade of Recommendation: III / B

Population segment (Line of therapy):

- Salivary duct carcinoma; Locally Recurrent, Metastatic (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Salivary Gland Cancer [Annals of Oncology (2022); <https://doi.org/10.1016/j.esmoop.2022.100602> (Published)]

ERBB2 amplification (continued)

○ pertuzumab + trastuzumab + hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR status

ESMO Level of Evidence/Grade of Recommendation: III / B

Population segment (Line of therapy):

- Luminal B; Local (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

○ trastuzumab + docetaxel

Cancer type: Head and Neck Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

ESMO Level of Evidence/Grade of Recommendation: III / B

Population segment (Line of therapy):

- Salivary duct carcinoma; Locally Recurrent, Metastatic (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Salivary Gland Cancer [Annals of Oncology (2022); <https://doi.org/10.1016/j.esmoop.2022.100602> (Published)]

○ trastuzumab + hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR status

ESMO Level of Evidence/Grade of Recommendation: III / B

Population segment (Line of therapy):

- Luminal B; Local (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

○ lapatinib + trastuzumab

Cancer type: Colorectal Cancer

Variant class: ERBB2 amplification

Other criteria: RAS wild type

ESMO Level of Evidence/Grade of Recommendation: III / C

Population segment (Line of therapy):

- Stage IV; Unresectable, Progression (Third-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Colorectal Cancer [Ann Oncol (2022); <https://doi.org/10.1016/j.annonc.2022.10.003> (In press)]

ERBB2 amplification (continued)

○ lapatinib + trastuzumab

Cancer type: Colorectal Cancer

Variant class: ERBB2 overexpression

ESMO Level of Evidence/Grade of Recommendation: III / C

Population segment (Line of therapy):

- Stage IV; Unresectable, Progression (Third-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Colorectal Cancer [Ann Oncol (2022); <https://doi.org/10.1016/j.annonc.2022.10.003> (In press)]

○ pertuzumab + trastuzumab

Cancer type: Colorectal Cancer

Variant class: ERBB2 amplification

Other criteria: RAS wild type

ESMO Level of Evidence/Grade of Recommendation: III / C

Population segment (Line of therapy):

- Stage IV; Unresectable, Progression (Third-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Colorectal Cancer [Ann Oncol (2022); <https://doi.org/10.1016/j.annonc.2022.10.003> (In press)]

○ pertuzumab + trastuzumab

Cancer type: Colorectal Cancer

Variant class: ERBB2 overexpression

ESMO Level of Evidence/Grade of Recommendation: III / C

Population segment (Line of therapy):

- Stage IV; Unresectable, Progression (Third-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Colorectal Cancer [Ann Oncol (2022); <https://doi.org/10.1016/j.annonc.2022.10.003> (In press)]

○ trastuzumab deruxtecan

Cancer type: Colorectal Cancer

Variant class: ERBB2 amplification

Other criteria: RAS wild type

ESMO Level of Evidence/Grade of Recommendation: III / C

Population segment (Line of therapy):

- Stage IV; Unresectable, Progression (Third-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Colorectal Cancer [Ann Oncol (2022); <https://doi.org/10.1016/j.annonc.2022.10.003> (In press)]

ERBB2 amplification (continued)

○ trastuzumab deruxtecan

Cancer type: Colorectal Cancer

Variant class: ERBB2 overexpression

ESMO Level of Evidence/Grade of Recommendation: III / C

Population segment (Line of therapy):

- Stage IV; Unresectable, Progression (Third-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Colorectal Cancer [Ann Oncol (2022); <https://doi.org/10.1016/j.annonc.2022.10.003> (In press)]

○ tamoxifen

Cancer type: Breast Cancer

Variant class: ERBB2 amplification

Other criteria: ER positive, PR status

ESMO Level of Evidence/Grade of Recommendation: IV / A

Population segment (Line of therapy):

- Luminal-like, Ductal, Male Breast Cancer; Invasive (Adjuvant therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

○ tamoxifen

Cancer type: Breast Cancer

Variant class: ERBB2 overexpression

Other criteria: ER positive, PR status

ESMO Level of Evidence/Grade of Recommendation: IV / A

Population segment (Line of therapy):

- Luminal A, Luminal B, Ductal; Invasive, Local (Adjuvant therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

○ aromatase inhibitor + luteinizing hormone-releasing factor

Cancer type: Breast Cancer

Variant class: ERBB2 amplification

Other criteria: ER positive, PR status

ESMO Level of Evidence/Grade of Recommendation: IV / B

Population segment (Line of therapy):

- Luminal A, Luminal B, Ductal, Male Breast Cancer; Local, Invasive (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

ERBB2 amplification (continued)

○ aromatase inhibitor + luteinizing hormone-releasing factor

Cancer type: Breast Cancer

Variant class: ERBB2 overexpression

Other criteria: ER positive, PR status

ESMO Level of Evidence/Grade of Recommendation: IV / B

Population segment (Line of therapy):

- Luminal A, Luminal B, Ductal; Invasive, Local (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

○ trastuzumab + hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive

ESMO Level of Evidence/Grade of Recommendation: V / A

Population segment (Line of therapy):

- Luminal B; Local (Line of therapy not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

○ ado-trastuzumab emtansine

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / A

Population segment (Line of therapy):

- Advanced, Metastatic, Progression (Second-line therapy); ESMO-MCBS v1.1 score: 4
- Advanced, Metastatic (Third-line therapy); ESMO-MCBS v1.1 score: 4

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ irbinitinib + trastuzumab + capecitabine

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / A

Population segment (Line of therapy):

- Advanced, Metastatic (Third-line therapy); ESMO-MCBS v1.1 score: 3

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

ERBB2 amplification (continued)

○ pertuzumab + trastuzumab + docetaxel

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / A

Population segment (Line of therapy):

- Advanced, Metastatic (First-line therapy); ESMO-MCBS v1.1 score: 4

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ trastuzumab deruxtecan

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / A

Population segment (Line of therapy):

- Advanced, Metastatic, Progression (Second-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ lapatinib + trastuzumab

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / B

Population segment (Line of therapy):

- Advanced, Metastatic (Subsequent therapy); ESMO-MCBS v1.1 score: 4

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ margetuximab

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / B

Population segment (Line of therapy):

- Advanced, Metastatic (Subsequent therapy); ESMO-MCBS v1.1 score: 2

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

ERBB2 amplification (continued)

○ margetuximab + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / B

Population segment (Line of therapy):

- Advanced, Metastatic (Subsequent therapy); ESMO-MCBS v1.1 score: 2

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ lapatinib + capecitabine

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / C

Population segment (Line of therapy):

- Advanced, Metastatic (Subsequent therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ lapatinib + hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / C

Population segment (Line of therapy):

- Advanced, Metastatic (Subsequent therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ lapatinib + trastuzumab

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / C

Population segment (Line of therapy):

- Advanced, Metastatic (Subsequent therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

ERBB2 amplification (continued)

○ neratinib

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / C

Population segment (Line of therapy):

- Advanced, Metastatic (Subsequent therapy); ESMO-MCBS v1.1 score: 1

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ neratinib + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: I / C

Population segment (Line of therapy):

- Advanced, Metastatic (Subsequent therapy); ESMO-MCBS v1.1 score: 1

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ irbinitinib + trastuzumab + capecitabine

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: II / A

Population segment (Line of therapy):

- Advanced, Brain Metastases (Second-line therapy, Third-line therapy); ESMO-MCBS v1.1 score: 3

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ pertuzumab + trastuzumab + hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 positive

Other criteria: Hormone receptor positive

ESMO Level of Evidence/Grade of Recommendation: II / A

Population segment (Line of therapy):

- Advanced, Metastatic (Maintenance therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

ERBB2 amplification (continued)

○ pertuzumab + trastuzumab + nab-paclitaxel

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: II / A

Population segment (Line of therapy):

- Advanced, Metastatic (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ pertuzumab + trastuzumab + paclitaxel

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: II / A

Population segment (Line of therapy):

- Advanced, Metastatic (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ trastuzumab deruxtecan

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: II / A

Population segment (Line of therapy):

- Advanced, Brain Metastases (Second-line therapy)
- Advanced, Brain Metastases (Subsequent therapy); ESMO-MCBS v1.1 score: 2

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ lapatinib + hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 positive

Other criteria: Hormone receptor positive

ESMO Level of Evidence/Grade of Recommendation: II / B

Population segment (Line of therapy):

- Advanced, Metastatic (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

ERBB2 amplification (continued)

○ lapatinib + trastuzumab + hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 positive

Other criteria: Hormone receptor positive

ESMO Level of Evidence/Grade of Recommendation: II / B

Population segment (Line of therapy):

- Advanced, Metastatic (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ pertuzumab + trastuzumab

Cancer type: Breast Cancer

Variant class: ERBB2 positive

Other criteria: Hormone receptor negative

ESMO Level of Evidence/Grade of Recommendation: II / B

Population segment (Line of therapy):

- Advanced, Metastatic (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ pertuzumab + trastuzumab + hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 positive

Other criteria: Hormone receptor positive

ESMO Level of Evidence/Grade of Recommendation: II / B

Population segment (Line of therapy):

- Advanced, Metastatic (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ trastuzumab + hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 positive

Other criteria: Hormone receptor positive

ESMO Level of Evidence/Grade of Recommendation: II / B

Population segment (Line of therapy):

- Advanced, Metastatic (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

ERBB2 amplification (continued)

○ trastuzumab + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: III / A

Population segment (Line of therapy):

- Advanced, Metastatic, Progression (Subsequent therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

○ trastuzumab deruxtecan

Cancer type: Breast Cancer

Variant class: ERBB2 positive

ESMO Level of Evidence/Grade of Recommendation: III / A

Population segment (Line of therapy):

- Advanced, Metastatic (Third-line therapy); ESMO-MCBS v1.1 score: 2

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

Clinical Trials in Taiwan region:

Clinical Trials Summary

EGFR p.(G719A) c.2156G>C

NCT ID	Title	Phase
NCT03778229	A Phase II Study Assessing the Efficacy of Osimertinib in Combination With Savolitinib in Patients With EGFRm+ and MET+, Locally Advanced or Metastatic Non Small Cell Lung Cancer Who Have Progressed Following Treatment With Osimertinib.	II
NCT05099172	An Open Label, First-in-human Study of BAY 2927088 in Participants With Advanced Non-small Cell Lung Cancer (NSCLC) Harboring an EGFR and/or HER2 Mutation	I
NCT03114319	An Open-label, Multi-center, Phase I, Dose Finding Study of Oral TNO155 in Adult Patients With Advanced Solid Tumors.	I
NCT03974022	A Phase I/II, Open-Label, Multicenter Study to Assess the Safety, Tolerability, Pharmacokinetics and Anti-tumor Efficacy of DZD9008 in Patients With Advanced Non-Small Cell Lung Cancer (NSCLC) with EGFR or HER2 Mutation	I/II
NCT04077463	An Open-label Phase I/Ib Study to Evaluate the Safety and Pharmacokinetics of JNJ-73841937 (Lazertinib), a Third Generation EGFR-TKI, as Monotherapy or in Combinations With JNJ-61186372, a Human Bispecific EGFR and cMet Antibody in Participants With Advanced Non-Small Cell Lung Cancer	I

ERBB2 amplification

NCT ID	Title	Phase
NCT05013554	A Phase I/Ib Open-label, First-in-human, Single Agent, Dose Escalation and Expansion Study for the Evaluation of Safety, Pharmacokinetics, Pharmacodynamics, and Anti-tumor Activity of SAR443216 in Participants with Relapsed/Refractory HER2 Expressing Solid Tumors.	I
NCT04446260	A Phase I Multi-Country, Multi-Center, Open-Label Study to Evaluate the Safety, Tolerability, Pharmacokinetics and Efficacy of SHR-A1811 in HER2 Expressing or Mutated Advanced Malignant Solid Tumor Subjects	I

Alerts Informed By Public Data Sources

Current FDA Information

 Contraindicated  Not recommended  Resistance  Breakthrough  Fast Track

FDA information is current as of 2023-03-15. For the most up-to-date information, search www.fda.gov.

EGFR p.(G719A) c.2156G>C

patritumab deruxtecan

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR G719 mutation

Supporting Statement:

The FDA has granted Breakthrough Therapy Designation to a potential first-in-class HER3 directed antibody-drug conjugate, patritumab deruxtecan, for metastatic or locally advanced, EGFR-mutant non-small cell lung cancer.

Reference:

<https://www.cancernetwork.com/view/fda-grants-breakthrough-therapy-status-to-patritumab-deruxtecan-for-egfr-metastatic-nslc>

osimertinib + quaratusugene ozeplasmid

Cancer type: Non-Small Cell Lung Cancer

Variant class: EGFR mutation

Supporting Statement:

The FDA has granted Fast Track Designation to the immunogene therapy, quaratusugene ozeplasmid, in combination with EGFR inhibitor osimertinib for the treatment of non-small cell lung cancer (NSCLC) with EFGR mutations that progressed after treatment with osimertinib alone.

Reference:

<https://www.genprex.com/news/genprex-receives-u-s-fda-fast-track-designation-for-gene-therapy-that-targets-lung-cancer/>

ERBB2 amplification

zanidatamab

Cancer type: Biliary Tract Carcinoma

Variant class: ERBB2 amplification

Supporting Statement:

The FDA has granted Breakthrough Therapy Designation to the HER2 targeted bispecific antibody, zanidatamab, for previously-treated HER2 gene-amplified biliary tract cancer (BTC).

Reference:

<https://www.targetedonc.com/view/fda-grants-breakthrough-designation-to-zanidatamab-for-her2-amplified-biliary-tract-cancer>

ERBB2 amplification (continued)

disitamab vedotinaide

Cancer type: Bladder Urothelial Carcinoma

Variant class: ERBB2 positive

Supporting Statement:

The FDA has granted Breakthrough Therapy Designation to the humanized anti-HER2 antibody drug conjugate (ADC), disitamab vedotin, for the second-line treatment of HER2 positive locally advanced or metastatic urothelial cancer (UC) after previous platinum-containing chemotherapy treatment.

Reference:

<https://www.prnewswire.com/news-releases/remegen-announces-us-fda-has-granted-breakthrough-therapy-designation-for-disitamab-vedotin-rc48-in-urothelial-cancer-301138315.html>

CT-0508

Cancer type: Solid Tumor

Variant class: ERBB2 overexpression

Supporting Statement:

The FDA has granted Fast Track Designation to the HER2 targeted chimeric antigen receptor macrophage (CAR-M), CT-0508, for HER2-overexpressing solid tumors.

Reference:

<https://www.prnewswire.com/news-releases/carisma-therapeutics-announces-us-food-and-drug-administration-grants-fast-track-designation-to-ct-0508-for-the-treatment-of-patients-with-solid-tumors-301381843.html>

DB-1303

Cancer type: Endometrial Carcinoma

Variant class: ERBB2 overexpression

Supporting Statement:

The FDA has granted Fast Track Designation (FTD) to a novel antibody-drug conjugate, DB-1303, for the treatment of patients with HER2 overexpression in advanced, recurrent or metastatic endometrial carcinoma who have progressed on or after standard systemic treatment.

Reference:

<https://www.dualitybiologics.com/newsinfo/index/67.html>

zanidatamab + chemotherapy

Cancer type: Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression

Supporting Statement:

The FDA has granted Fast Track Designation to the HER2 targeted bispecific antibody, zanidatamab, for HER2-overexpressing gastroesophageal adenocarcinoma (GEA) to be used in combination with standard-of-care chemotherapy.

Reference:

<https://www.targetedonc.com/view/her2targeted-antibody-zw25-earns-fda-fast-track-designation-in-gea>

ERBB2 amplification (continued)

evorpacept

Cancer type: Gastric Cancer,
Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 positive

Supporting Statement:

The FDA has granted Fast Track Designation to ALX148, a CD47 checkpoint inhibitor, for the second-line treatment of patients with HER2-positive gastric or gastroesophageal junction carcinoma.

Reference:

<https://www.targetedonc.com/view/two-fda-fast-track-designations-granted-to-alx148-for-hnsc-and-gastric-gj-adenocarcinomas>

Current ESMO Information

 Contraindicated  Not recommended  Resistance  Breakthrough  Fast Track

ESMO information is current as of 2023-03-01. For the most up-to-date information, search www.esmo.org.

ERBB2 amplification

lapatinib + trastuzumab + chemotherapy

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

ESMO Level of Evidence/Grade of Recommendation: I / E

Summary:

ESMO Clinical Practice Guidelines include the following supporting statement(s):

- "Dual blockade with trastuzumab/lapatinib has not led to improved long-term outcomes and cannot therefore be recommended [I, E]."

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

aromatase inhibitor

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR status

ESMO Level of Evidence/Grade of Recommendation: IV / E

Summary:

ESMO Clinical Practice Guidelines include the following supporting statement(s):

- "An AI alone should not be used as adjuvant ET in male breast cancer patients [IV, E]."

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

ERBB2 amplification (continued)

– trastuzumab + anthracycline

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

ESMO Level of Evidence/Grade of Recommendation: I / D

Summary:

ESMO Clinical Practice Guidelines include the following supporting statement(s):

- "Trastuzumab should usually not be given concomitantly with anthracycline-based ChT [I, D]."

Reference: ESMO Clinical Practice Guidelines - ESMO-Early Breast Cancer [Ann Oncol (2019); 30: 1194-1220.]

– trastuzumab

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

Summary:

ESMO Clinical Practice Guidelines include the following supporting statement:

- "Treatment with trastuzumab is not recommended after first-line therapy in HER2-positive advanced gastric cancer [I, D]."

Reference: ESMO Clinical Practice Guidelines - ESMO-Gastric Cancer [Annals of Oncology (JUL2022), doi: <https://doi.org/10.1016/j.annonc.2022.07.004>.]

– hormone therapy

Cancer type: Breast Cancer

Variant class: ERBB2 positive

Other criteria: Hormone receptor positive

ESMO Level of Evidence/Grade of Recommendation: III / C

Summary:

ESMO™ Clinical Practice Guidelines include the following supporting statement:

- "The use of single-agent ET without a HER2-targeted therapy is not routinely recommended unless cardiac disease precludes the safe use of HER2-directed therapies [III, C]"

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Breast Cancer [Ann Oncol (2021) VOLUME 32, ISSUE 12, P1475-1495, DECEMBER 01, 2021; DOI:<https://doi.org/10.1016/j.annonc.2021.09.019>]

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