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Oncofocus®

Precision Oncology

ONCOFOCUS® TEST REPORT

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Lead Clinical Scientist: Keeda Hardisty **Clinical Scientist:** Kaiya Chowdhary

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Patient demographics

ONC19			
Surname		**Requester**	
Forename		**Contact details**	
DOB		**Date requested**	09/08/2019
Gender			
Histology #		**Tumour %**	60%
Primary site	Pancreas	**Tumour %**	-
Tumour subtype	Metastatic Adenocarcinoma	**(macrodissected)**	
Tissue Type	Liver Biopsy		

Comment

Five blocks were received for this sample. The tissue extracted from blocks A2 and A4 was pooled to optimise the amount of material available. The DNA and RNA extracted from this pooled sample was of optimal quality. The Oncofocus assay on which the sample was run met all assay specific quality metrics.

Oncofocus currently targets 505 genes covering oncogenes, fusion genes, genes susceptible to copy number variation and tumour suppressors. Actionable genetic variants detected by Oncofocus are currently linked to 764 anti-cancer targeted therapies/therapy combinations.

The clinically significant bio-markers identified in this case are summarised on page 2
Please note; There is conflicting evidence available in the literature to determine the pathogenicity of the CDKN2A p.(Y44*) c.132C>A variant. Therefore, assuming pathogenicity is confirmed, the following therapies would be applicable.

Within the 'Current Clinical Trials Information' section of this report, starting on page 59, the NCT numbers are hyperlinks to the clinicaltrials.gov webpages which should be accessed to gain further trial specific information

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Clinically Significant Biomarkers

Indicated Contraindicated

Genomic Alteration	Relevant Therapies (In this cancer type)	Relevant Therapies (In other cancer type)	Clinical Trials
ERBB2 amplification	Clinical trials and/or off-label	ado-trastuzumab emtansine [1, 2] lapatinib + trastuzumab [1] lapatinib + chemotherapy [1, 2] lapatinib + letrozole [1, 2] neratinib [1, 2] pertuzumab + trastuzumab + chemotherapy [1, 2] trastuzumab* + chemotherapy [1, 2] trastuzumab* [1, 2] trastuzumab* + anastrozole [1] trastuzumab + hormone therapy + chemotherapy trastuzumab containing regimen trastuzumab + hormone therapy pertuzumab + trastuzumab hormone therapy lapatinib + aromatase inhibitor lapatinib + trastuzumab + aromatase inhibitor pertuzumab + trastuzumab + hormone therapy + chemotherapy trastuzumab + aromatase inhibitor trastuzumab + fulvestrant trastuzumab + tamoxifen	23
KRAS p.(G12D) c.35G>A	Clinical trials and/or off-label	cetuximab + chemotherapy [1] cetuximab [1, 2] panitumumab + chemotherapy [1] panitumumab [2]	17
CDKN2A p.(Y44) c.132C>A*	Clinical trials and/or off-label	Clinical trials and/or off-label	3
TP53 p.(C229fs) c.686_687delGT	Clinical trials and/or off-label	Clinical trials and/or off-label	3

Sources included in relevant therapies: EMA1, FDA2, ESMO, NCCN
*** Includes biosimilars**

Hotspot variants with >10% alternate allele reads are classified as 'detected' with an assay sensitivity and positive predictive value(PPV) of 99%. Copy number variants; amplifications of CN> 6 with the 5% confidence value of ≥4 after normalization and deletions with 95% CI ≤1 are classified as present when the tumour% >50% with a sensitivity of 80% and PPV 100%. Gene Fusions are reported when occurring in >40 counts and meeting the thresholds of assay specific internal RNA quality control with a sensitivity of 92% and PPV of 99%.Other mutations, copy number variations, or fusions that were detected but not classified by the Oncofocus Test as actionable by a known therapeutic targeted agent are not listed in the results section of this report. Supplementary technical information is available upon request.

Other Relevant Findings

Gene	Finding
NTRK1	No variants detected in the regions analysed

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Other Relevant Findings

Gene	Finding
NTRK2	No variants detected in the regions analysed
NTRK3	No variants detected in the regions analysed

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Biomarker Descriptions

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 family[1]. 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 survival[2]. Recurrent focal amplification of the ERBB2 gene leads to increased expression in several cancer types. ERBB2 over-expression in immortalized cell lines is oncogenic and leads to ERBB2 homo-dimerization and activation without ligand binding[3,4,5].

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[6,7,8,9,10,11,12,13]. Recurrent somatic activating mutations in ERBB2/HER2 occur at low frequencies (<1%) in diverse cancer types[13,14,15]. 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 clinical relevance: The discovery of ERBB2/HER2 as an important driver of breast cancer in 1987[16] led to the development of trastuzumab, a humanized monoclonal antibody with specificity to the extracellular domain of HER2[17]. Trastuzumab[18] 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 pertuzumab[19] (2012), a humanized monoclonal antibody that inhibits HER2 dimerization, and ado-trastuzumab emtansine[20] (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 cancer[21]. In addition to monoclonal antibodies, the small molecule inhibitor lapatinib[22], 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 neratinib[23], 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. Certain activating mutations have been observed to impart sensitivity to neratinib, afatinib, lapatinib, and trastuzumab, or dacomitinib in early and ongoing clinical studies[24,25,26,27,28]. Additionally, acquired HER2 mutations in ER+ breast cancer have been shown to confer resistance to hormone therapy[29]. However, this was shown to be overcome by neratinib in combination with therapies targeting ER[29].

KRAS (KRAS proto-oncogene, GTPase)

Background: The KRAS proto-oncogene encodes a GTPase that functions in signal transduction and is a member of the RAS superfamily which also includes NRAS and HRAS. RAS proteins mediate the transmission of growth signals from the cell surface to the nucleus via the PI3K/AKT/MTOR and RAS/RAF/MEK/ERK pathways, which regulate cell division, differentiation, and survival[30,31,32].

Alterations and prevalence: Recurrent mutations in RAS oncogenes cause constitutive activation and are found in 20-30% of cancers. KRAS mutations are observed in up to 10-20% of uterine cancer, 30-35% of lung adenocarcinoma and colorectal cancer, and about 60% of pancreatic cancer[12]. The majority of KRAS mutations consist of point mutations occurring at G12, G13, and Q61[12,33,34]. Mutations at A59, K117, and A146 have also been observed but are less frequent[13,35].

Potential clinical relevance: Currently, no therapies are approved for KRAS aberrations. The EGFR antagonists, cetuximab and panitumumab, are contraindicated for treatment of colorectal cancer patients with KRAS mutations in exon 2 (codons 12 and 13), exon 3 (codons 59 and 61), and exon 4 (codons 117 and 146)[35,36,37]. Additionally, KRAS mutations are associated with poor prognosis in non-small cell lung cancer[38].

TP53 (tumor protein p53)

Background: The TP53 gene encodes the p53 tumor suppressor protein that binds to DNA and activates transcription in response to diverse cellular stresses to induce cell cycle arrest, apoptosis, or DNA repair. In unstressed cells, TP53 is kept inactive by targeted degradation via MDM2, a substrate recognition factor for ubiquitin-dependent proteolysis. Alterations in TP53 is required

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Biomarker Descriptions (continued)

for oncogenesis as they result in loss of protein function and gain of transforming potential[39]. Germline mutations in TP53 are the underlying cause of Li-Fraumeni syndrome, a complex hereditary cancer predisposition disorder associated with early-onset cancers[40,41].

Alterations and prevalence: TP53 is the most frequently mutated gene in the cancer genome with approximately half of all cancers experiencing TP53 mutations. Ovarian, head and neck, esophageal, and lung squamous cancers have particularly high TP53 mutation rates (60-90%)[12,13,42,43,44,45]. Approximately two-thirds of TP53 mutations are missense mutations and several recurrent missense mutations are common including substitutions at codons R158, R175, R248, R273, and R282[12,13]. Invariably, recurrent missense mutations in TP53 inactivate its ability to bind DNA and activate transcription of target genes[46,47,48,49].

Potential clinical relevance: Currently, no targeted therapies are approved for TP53 aberrations. TP53 mutations confer poor prognosis in acute myeloid leukemias, as well as myelodysplastic syndromes and myeloproliferative neoplasms[50,51,52]. Several investigational therapies including drugs aimed at restoring wild type p53 activity, affecting downstream targets, or compounds that induce synthetic lethality are under clinical evaluation[53,54].

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Tier Criteria Met

Genomic Alteration	Tier Classification for Pancreatic Cancer
ERBB2 amplification Tier: IIC	IIC: Biomarker predicts response or resistance to EMA or FDA approved therapies in other cancer types IIC: Biomarker is included in ESMO or NCCN guidelines that predict response or resistance to therapies in other cancer types IIC: Biomarker is an inclusion criteria for clinical trials
KRAS p.(G12D) c.35G>A Tier: IIC	IIC: Biomarker predicts response or resistance to EMA or FDA approved therapies in other cancer types IIC: Biomarker is included in ESMO or NCCN guidelines that predict response or resistance to therapies in other cancer types IIC: Biomarker is an inclusion criteria for clinical trials
CDKN2A p.(Y44) c.132C>A* Tier: IIC	IIC: Biomarker is an inclusion criteria for clinical trials
TP53 p.(C229fs) c.686_687delGT Tier: IIC	IIC: Biomarker is an inclusion criteria for clinical trials

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.

Relevant Therapy Summary

● In this cancer type ○ In other cancer type ◐ In this cancer type and other cancer types ⊘ Contraindicated ⚠ Both for use and contraindicated ✖ No evidence

ERBB2 amplification

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

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

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Relevant Therapy Summary (continued)

● In this cancer type ○ In other cancer type ◑ In this cancer type and other cancer types ⊘ Contraindicated ⚠ Both for use and contraindicated ✖ No evidence

ERBB2 amplification (continued)

Relevant Therapy	EMA	FDA	ESMO	NCCN	Clinical Trials*
neratinib	○	○	✖	✖	✖
trastuzumab (Biocon)	○	○	✖	✖	✖
trastuzumab (Biocon) + capecitabine + cisplatin	○	○	✖	✖	✖
trastuzumab (Biocon) + carboplatin + docetaxel	○	○	✖	✖	✖
trastuzumab (Biocon) + cisplatin + fluorouracil	○	○	✖	✖	✖
trastuzumab (Biocon) + paclitaxel	○	○	✖	✖	✖
trastuzumab (Celltrion)	○	○	✖	✖	✖
trastuzumab (Celltrion) + capecitabine + cisplatin	○	○	✖	✖	✖
trastuzumab (Celltrion) + carboplatin + docetaxel	○	○	✖	✖	✖
trastuzumab (Celltrion) + cisplatin + fluorouracil	○	○	✖	✖	✖
trastuzumab (Celltrion) + cyclophosphamide + doxorubicin + paclitaxel	○	○	✖	✖	✖
trastuzumab (Celltrion) + paclitaxel	○	○	✖	✖	✖
trastuzumab (Pfizer)	○	○	✖	✖	✖
trastuzumab (Pfizer) + capecitabine + cisplatin	○	○	✖	✖	✖
trastuzumab (Pfizer) + carboplatin + docetaxel	○	○	✖	✖	✖
trastuzumab (Pfizer) + cisplatin + fluorouracil	○	○	✖	✖	✖
trastuzumab (Pfizer) + cyclophosphamide + doxorubicin + paclitaxel	○	○	✖	✖	✖
trastuzumab (Samsung Bioepis)	○	○	✖	✖	✖
trastuzumab (Samsung Bioepis) + capecitabine + cisplatin	○	○	✖	✖	✖
trastuzumab (Samsung Bioepis) + carboplatin + docetaxel	○	○	✖	✖	✖
trastuzumab (Samsung Bioepis) + cisplatin + fluorouracil	○	○	✖	✖	✖
trastuzumab (Samsung Bioepis) + paclitaxel	○	○	✖	✖	✖

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Relevant Therapy Summary (continued)

● In this cancer type ○ In other cancer type ◑ In this cancer type and other cancer types ⊘ Contraindicated ⚠ Both for use and contraindicated ✖ No evidence

ERBB2 amplification (continued)

Relevant Therapy	EMA	FDA	ESMO	NCCN	Clinical Trials*
trastuzumab + cyclophosphamide + doxorubicin + paclitaxel	○	○	✖	✖	✖
lapatinib + trastuzumab	○	✖	○	○	✖
trastuzumab + docetaxel	○	✖	✖	○	✖
trastuzumab (Biocon) + anastrozole	○	✖	✖	✖	✖
trastuzumab (Biocon) + docetaxel	○	✖	✖	✖	✖
trastuzumab (Celltrion) + anastrozole	○	✖	✖	✖	✖
trastuzumab (Celltrion) + docetaxel	○	✖	✖	✖	✖
trastuzumab (Pfizer) + anastrozole	○	✖	✖	✖	✖
trastuzumab (Pfizer) + docetaxel	○	✖	✖	✖	✖
trastuzumab (Pfizer) + paclitaxel	○	✖	✖	✖	✖
trastuzumab (Samsung Bioepis) + anastrozole	○	✖	✖	✖	✖
trastuzumab (Samsung Bioepis) + docetaxel	○	✖	✖	✖	✖
trastuzumab (Synthon)	○	✖	✖	✖	✖
trastuzumab (Synthon) + anastrozole	○	✖	✖	✖	✖
trastuzumab (Synthon) + capecitabine + cisplatin	○	✖	✖	✖	✖
trastuzumab (Synthon) + carboplatin + docetaxel	○	✖	✖	✖	✖
trastuzumab (Synthon) + cisplatin + fluorouracil	○	✖	✖	✖	✖
trastuzumab (Synthon) + cyclophosphamide + docetaxel + doxorubicin	○	✖	✖	✖	✖
trastuzumab (Synthon) + cyclophosphamide + doxorubicin + paclitaxel	○	✖	✖	✖	✖
trastuzumab (Synthon) + docetaxel	○	✖	✖	✖	✖
trastuzumab (Synthon) + paclitaxel	○	✖	✖	✖	✖
trastuzumab + anastrozole	○	✖	✖	✖	✖

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Relevant Therapy Summary (continued)

● In this cancer type ○ In other cancer type ◑ In this cancer type and other cancer types ⊘ Contraindicated ⚠ Both for use and contraindicated ✖ No evidence

ERBB2 amplification (continued)

Relevant Therapy	EMA	FDA	ESMO	NCCN	Clinical Trials*
trastuzumab (Biocon) + cyclophosphamide + docetaxel + doxorubicin	✖	○	✖	✖	✖
trastuzumab (Biocon) + cyclophosphamide + doxorubicin + paclitaxel	✖	○	✖	✖	✖
trastuzumab (Celltrion) + cyclophosphamide + docetaxel + doxorubicin	✖	○	✖	✖	✖
trastuzumab (Enhanze)	✖	○	✖	✖	✖
trastuzumab (Enhanze) + carboplatin + docetaxel	✖	○	✖	✖	✖
trastuzumab (Enhanze) + cyclophosphamide + docetaxel + doxorubicin	✖	○	✖	✖	✖
trastuzumab (Enhanze) + cyclophosphamide + doxorubicin + paclitaxel	✖	○	✖	✖	✖
trastuzumab (Enhanze) + paclitaxel	✖	○	✖	✖	✖
trastuzumab (Pfizer) + cyclophosphamide + docetaxel + doxorubicin	✖	○	✖	✖	✖
trastuzumab (Samsung Bioepis) + cyclophosphamide + docetaxel + doxorubicin	✖	○	✖	✖	✖
trastuzumab (Samsung Bioepis) + cyclophosphamide + doxorubicin + paclitaxel	✖	○	✖	✖	✖
trastuzumab + cyclophosphamide + docetaxel + doxorubicin	✖	○	✖	✖	✖
pertuzumab + trastuzumab + paclitaxel	✖	✖	○	○	✖
trastuzumab + chemotherapy	✖	✖	○	○	✖
trastuzumab + hormone therapy + chemotherapy	✖	✖	○	○	✖
trastuzumab + vinorelbine	✖	✖	○	○	✖
pertuzumab + trastuzumab	✖	✖	○	✖	● (II)
pertuzumab + trastuzumab + capecitabine	✖	✖	○	✖	✖
pertuzumab + trastuzumab + nab-paclitaxel	✖	✖	○	✖	✖
pertuzumab + trastuzumab + vinorelbine	✖	✖	○	✖	✖

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Relevant Therapy Summary (continued)

● In this cancer type ○ In other cancer type ◑ In this cancer type and other cancer types ⊘ Contraindicated ⚠ Both for use and contraindicated ✖ No evidence

ERBB2 amplification (continued)

Relevant Therapy	EMA	FDA	ESMO	NCCN	Clinical Trials*
trastuzumab + hormone therapy	✖	✖	○	✖	✖
trastuzumab + taxane	✖	✖	○	✖	✖
trastuzumab containing regimen	✖	✖	○	✖	✖
hormone therapy	✖	✖	✖	○	✖
lapatinib + aromatase inhibitor	✖	✖	✖	○	✖
lapatinib + trastuzumab + aromatase inhibitor	✖	✖	✖	○	✖
pertuzumab + trastuzumab + carboplatin + docetaxel	✖	✖	✖	○	✖
pertuzumab + trastuzumab + hormone therapy + chemotherapy	✖	✖	✖	○	✖
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 + oxaliplatin	✖	✖	✖	○	✖
trastuzumab + fluorouracil	✖	✖	✖	○	✖
trastuzumab + fluorouracil + irinotecan	✖	✖	✖	○	✖
trastuzumab + fluorouracil + oxaliplatin	✖	✖	✖	○	✖
trastuzumab + fulvestrant	✖	✖	✖	○	✖
trastuzumab + tamoxifen	✖	✖	✖	○	✖

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Relevant Therapy Summary (continued)

● In this cancer type ○ In other cancer type ◑ In this cancer type and other cancer types ⊘ Contraindicated ⚠ Both for use and contraindicated ✖ No evidence

ERBB2 amplification (continued)

Relevant Therapy	EMA	FDA	ESMO	NCCN	Clinical Trials*
lapatinib	✖	✖	✖	✖	● (II)
A-166	✖	✖	✖	✖	● (I/II)
ACTR087 + trastuzumab, ACTR707 + trastuzumab	✖	✖	✖	✖	● (I)
ARX-788	✖	✖	✖	✖	● (I)
atezolizumab + PRS-343	✖	✖	✖	✖	● (I)
BTRC-4017A	✖	✖	✖	✖	● (I)
CART cell therapy	✖	✖	✖	✖	● (I)
CART-HER-2	✖	✖	✖	✖	● (I)
everolimus + neratinib, neratinib + palbociclib, neratinib + trametinib	✖	✖	✖	✖	● (I)
FATE-NK100 + trastuzumab	✖	✖	✖	✖	● (I)
MP-0274	✖	✖	✖	✖	● (I)
NJH-395	✖	✖	✖	✖	● (I)
pirotinib	✖	✖	✖	✖	● (I)
PRS-343	✖	✖	✖	✖	● (I)
pyrotinib	✖	✖	✖	✖	● (I)
RC-48	✖	✖	✖	✖	● (I)
ZW-25	✖	✖	✖	✖	● (I)

KRAS p.(G12D) c.35G>A

Relevant Therapy	EMA	FDA	ESMO	NCCN	Clinical Trials*
cetuximab	⊘	⊘	⊘	⊘	✖
cetuximab + oxaliplatin	⊘	✖	✖	✖	✖
panitumumab + oxaliplatin	⊘	✖	✖	✖	✖
panitumumab	✖	⊘	⊘	⊘	✖

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

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Relevant Therapy Summary (continued)

● In this cancer type ○ In other cancer type ◑ In this cancer type and other cancer types ⊘ Contraindicated ⚠ Both for use and contraindicated ✖ No evidence

KRAS p.(G12D) c.35G>A (continued)

Relevant Therapy	EMA	FDA	ESMO	NCCN	Clinical Trials*
cetuximab + chemotherapy	✖	✖	⊘	✖	✖
panitumumab + chemotherapy	✖	✖	⊘	✖	✖
adavosertib + olaparib	✖	✖	✖	✖	● (II)
sorafenib	✖	✖	✖	✖	● (II)
aldesleukin + anti-KRAS G12D mTCR + chemotherapy	✖	✖	✖	✖	● (I/II)
ASTX029	✖	✖	✖	✖	● (I/II)
avelumab + binimetinib, avelumab + binimetinib + talazoparib	✖	✖	✖	✖	● (I/II)
cobimetinib	✖	✖	✖	✖	● (I/II)
navitoclax + trametinib	✖	✖	✖	✖	● (I/II)
PNT-737 + chemotherapy	✖	✖	✖	✖	● (I/II)
abemaciclib + LY3214996 , LY3214996 , LY3214996 + chemotherapy, LY3214996 + midazolam	✖	✖	✖	✖	● (I)
belvarafenib	✖	✖	✖	✖	● (I)
belvarafenib + cobimetinib	✖	✖	✖	✖	● (I)
erlotinib + ixazomib	✖	✖	✖	✖	● (I)
everolimus + RO-5126766, RO-5126766	✖	✖	✖	✖	● (I)
KO-947	✖	✖	✖	✖	● (I)
LXH254 , LXH254 + spartalizumab	✖	✖	✖	✖	● (I)
neratinib + trametinib	✖	✖	✖	✖	● (I)
RMC-4630	✖	✖	✖	✖	● (I)

CDKN2A p.(Y44*) c.132C>A

Relevant Therapy	EMA	FDA	ESMO	NCCN	Clinical Trials*
palbociclib	✖	✖	✖	✖	● (II)

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

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Relevant Therapy Summary (continued)

● In this cancer type ○ In other cancer type ◑ In this cancer type and other cancer types ⊘ Contraindicated ⚠ Both for use and contraindicated ✖ No evidence

TP53 p.(C229fs) c.686_687delGT

Relevant Therapy	EMA	FDA	ESMO	NCCN	Clinical Trials*
adavosertib + olaparib	✖	✖	✖	✖	● (II)
PNT-737 + chemotherapy	✖	✖	✖	✖	● (I/II)
LY3143921	✖	✖	✖	✖	● (I)

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

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Relevant Therapy Details

Current EMA Information

● In this cancer type ○ In other cancer type ◑ In this cancer type and other cancer types ⊘ Contraindicated 👎 Not recommended 🛡 Resistance

EMA information is current as of 2019-05-29. For the most up-to-date information, search www.ema.europa.eu/ema.

ERBB2 amplification

○ ado-trastuzumab emtansine

Cancer type: Breast Cancer **Label as of:** 2018-09-19 **Variant class:** ERBB2 amplification or ERBB2 overexpression

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

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○ lapatinib + capecitabine, lapatinib + letrozole, lapatinib + trastuzumab

Cancer type: Breast Cancer **Label as of:** 2019-01-25 **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR positive or Hormone receptor negative

Reference:
https://www.ema.europa.eu/documents/product-information/tyverb-epar-product-information_en.pdf

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○ neratinib

Cancer type: Breast Cancer **Label as of:** 2019-05-23 **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR positive

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

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

Cancer type: Breast Cancer **Label as of:** 2019-04-15 **Variant class:** ERBB2 amplification or ERBB2 overexpression

Reference:
https://www.ema.europa.eu/documents/product-information/perjeta-epar-product-information_en.pdf

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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

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma **Label as of:** 2019-04-25 **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

Cancer type: Breast Cancer **Label as of:** 2019-04-25 **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) + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma **Label as of:** 2019-05-21 **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) + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer **Label as of:** 2019-05-21 **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

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ERBB2 amplification (continued)

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) + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma **Label as of:** 2019-05-08 **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) + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer **Label as of:** 2019-05-08 **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

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

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma **Label as of:** 2019-03-27 **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

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ERBB2 amplification (continued)

trastuzumab (Samsung Bioepis), trastuzumab (Samsung Bioepis) + anastrozole, trastuzumab (Samsung Bioepis) + docetaxel, trastuzumab (Samsung Bioepis) + paclitaxel, trastuzumab (Samsung Bioepis) + carboplatin + docetaxel

Cancer type: Breast Cancer **Label as of:** 2019-03-27 **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) + cyclophosphamide + docetaxel + doxorubicin, trastuzumab (Synthon) + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma **Label as of:** 2019-05-06 **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) + cyclophosphamide + docetaxel + doxorubicin, trastuzumab (Synthon) + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer **Label as of:** 2019-05-06 **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

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ERBB2 amplification (continued)

trastuzumab, trastuzumab + anastrozole, trastuzumab + docetaxel, trastuzumab + paclitaxel, trastuzumab + capecitabine + cisplatin, trastuzumab + carboplatin + docetaxel, trastuzumab + cisplatin + fluorouracil, trastuzumab + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma **Label as of:** 2019-05-27 **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 + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer **Label as of:** 2019-05-27 **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

KRAS p.(G12D) c.35G>A

cetuximab, cetuximab + oxaliplatin

Cancer type: Colorectal Cancer **Label as of:** 2019-03-25 **Variant class:** KRAS exon 2 mutation

Reference:

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

panitumumab + oxaliplatin

Cancer type: Colorectal Cancer **Label as of:** 2018-09-11 **Variant class:** KRAS exon 2 mutation

Reference:

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

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Current FDA Information

● In this cancer type ○ In other cancer type ◑ In this cancer type and other cancer types ⊘ Contraindicated 👎 Not recommended 🛡 Resistance

FDA information is current as of 2019-05-29. For the most up-to-date information, search www.fda.gov.

ERBB2 amplification

○ ado-trastuzumab emtansine

Cancer type: Breast Cancer **Label as of:** 2019-05-03 **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/2019/125427s105lbl.pdf

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○ lapatinib + capecitabine, lapatinib + letrozole

Cancer type: Breast Cancer **Label as of:** 2018-12-06 **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/2018/022059s024lbl.pdf

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ERBB2 amplification (continued)

neratinib

Cancer type: Breast Cancer **Label as of:** 2018-06-28 **Variant class:** ERBB2 amplification or ERBB2 overexpression

Indications and usage:
NERLYNX® is a kinase inhibitor indicated for the extended adjuvant treatment of adult patients with early stage HER2-overexpressed/amplified breast cancer, to follow adjuvant trastuzumab-based therapy.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2018/208051s002lbl.pdf

pertuzumab + trastuzumab + chemotherapy, pertuzumab + trastuzumab + docetaxel

Cancer type: Breast Cancer **Label as of:** 2018-12-18 **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/2018/125409s123lbl.pdf

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ERBB2 amplification (continued)

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

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma **Label as of:** 2019-04-17 **Variant class:** ERBB2 overexpression or ERBB2 amplification

Other criteria: ER negative, PR negative

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

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

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma **Label as of:** 2019-05-16 **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER negative, PR negative

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

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ERBB2 amplification (continued)

trastuzumab (Enhanze), trastuzumab (Enhanze) + paclitaxel, trastuzumab (Enhanze) + carboplatin + docetaxel, trastuzumab (Enhanze) + cyclophosphamide + docetaxel + doxorubicin, trastuzumab (Enhanze) + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer **Label as of:** 2019-02-28 **Variant class:** ERBB2 amplification or 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

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trastuzumab (Pfizer), trastuzumab (Pfizer) + capecitabine + cisplatin, trastuzumab (Pfizer) + carboplatin + docetaxel, trastuzumab (Pfizer) + cisplatin + fluorouracil, trastuzumab (Pfizer) + cyclophosphamide + docetaxel + doxorubicin, trastuzumab (Pfizer) + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma **Label as of:** 2019-03-11 **Variant class:** ERBB2 overexpression or ERBB2 amplification

Other criteria: ER negative, PR negative

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

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ERBB2 amplification (continued)

trastuzumab (Samsung Bioepis), trastuzumab (Samsung Bioepis) + paclitaxel, trastuzumab (Samsung Bioepis) + capecitabine + cisplatin, trastuzumab (Samsung Bioepis) + carboplatin + docetaxel, trastuzumab (Samsung Bioepis) + cisplatin + fluorouracil, trastuzumab (Samsung Bioepis) + cyclophosphamide + docetaxel + doxorubicin, trastuzumab (Samsung Bioepis) + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma **Label as of:** 2019-01-18 **Variant class:** ERBB2 overexpression or ERBB2 amplification

Other criteria: ER negative, PR negative

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

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trastuzumab, trastuzumab + paclitaxel, trastuzumab + capecitabine + cisplatin, trastuzumab + carboplatin + docetaxel, trastuzumab + cisplatin + fluorouracil, trastuzumab + cyclophosphamide + docetaxel + doxorubicin, trastuzumab + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer, Gastric Cancer, Gastroesophageal Junction Adenocarcinoma **Label as of:** 2018-11-29 **Variant class:** ERBB2 overexpression or ERBB2 amplification

Other criteria: ER negative, PR negative

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

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KRAS p.(G12D) c.35G>A

cetuximab

Cancer type: Colorectal Cancer **Label as of:** 2019-04-23 **Variant class:** KRAS G12 mutation

Indications and usage:

Erbitux® is an epidermal growth factor receptor (EGFR) antagonist indicated for treatment of:

Head and Neck Cancer

- Locally or regionally advanced squamous cell carcinoma of the head and neck in combination with radiation therapy.
- Recurrent locoregional disease or metastatic squamous cell carcinoma of the head and neck in combination with platinum-based therapy with fluorouracil.
- Recurrent or metastatic squamous cell carcinoma of the head and neck progressing after platinum-based therapy.

Colorectal Cancer

K-Ras wild-type, EGFR-expressing, metastatic colorectal cancer as determined by FDA-approved test

- in combination with FOLFIRI for first-line treatment,
- in combination with irinotecan in patients who are refractory to irinotecan-based chemotherapy,
- as a single agent in patients who have failed oxaliplatin- and irinotecan-based chemotherapy or who are intolerant to irinotecan.

Limitations of Use: Erbitux® is not indicated for treatment of Ras-mutant colorectal cancer or when the results of the Ras mutation tests are unknown.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/125084s273lbl.pdf

panitumumab

Cancer type: Colorectal Cancer **Label as of:** 2017-06-29 **Variant class:** KRAS G12 mutation

Indications and usage:

VECTIBIX® is an epidermal growth factor receptor (EGFR) antagonist indicated for the treatment of wild-type RAS (defined as wild-type in both KRAS and NRAS as determined by an FDA-approved test for this use) metastatic colorectal cancer (mCRC):

- In combination with FOLFOX for first-line treatment.
- As monotherapy following disease progression after prior treatment with fluoropyrimidine, oxaliplatin, and irinotecan-containing chemotherapy.
- Limitation of Use: VECTIBIX® is not indicated for the treatment of patients with RAS-mutant mCRC or for whom RAS mutation status is unknown.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2017/125147s207lbl.pdf

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Current ESMO Information

In this cancer type | In other cancer type | In this cancer type and other cancer types | Contraindicated | Not recommended | Resistance

ESMO information is current as of 2019-02-14. For the most up-to-date information, search www.esmo.org.

ERBB2 amplification

trastuzumab + capecitabine + cisplatin

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

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

Population segment (Line of therapy):
- Advanced Gastric Adenocarcinoma (Not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Gastric Cancer [Ann Oncol (2016) 27 (suppl 5): v38-v49.]

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):
- ERBB2(+) Non-Luminal Cancer; Except very low risk, such as T1aN0 (Neoadjuvant therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Primary Breast Cancer [Ann Oncol (2015) 26 (suppl 5): v8-v30.]

trastuzumab + chemotherapy

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):
- Primary Breast Cancer (Neoadjuvant therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Primary Breast Cancer [Ann Oncol (2015) 26 (suppl 5): v8-v30.]

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ERBB2 amplification (continued)

trastuzumab + cisplatin + fluorouracil

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

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

Population segment (Line of therapy):
- Advanced Gastric Adenocarcinoma (Not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Gastric Cancer [Ann Oncol (2016) 27 (suppl 5): v38-v49.]

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trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive

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

Population segment (Line of therapy):
- Luminal B ERBB2-positive Breast Cancer; Except low-risk T1a (Neoadjuvant therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Primary Breast Cancer [Ann Oncol (2015) 26 (suppl 5): v8-v30.]

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trastuzumab containing regimen

Cancer type: Esophageal Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

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

Population segment (Line of therapy):
- Metastatic Esophageal Adenocarcinoma (Not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-Oesophageal Cancer [Ann Oncol (2016) 27 (suppl 5): v50-v57.]

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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 ERBB2-positive; If contraindication or refusal of chemotherapy (Neoadjuvant therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-Primary Breast Cancer [Ann Oncol (2015) 26 (suppl 5): v8-v30.]

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ERBB2 amplification (continued)

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 Breast Cancer; Progression after one line of trastuzumab-based therapy (Second-line therapy) (Preferred)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

pertuzumab + trastuzumab + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 positive

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

Population segment (Line of therapy):
- Advanced Breast Cancer; Previously untreated with anti-HER2 therapy (First-line therapy)
- Advanced Breast Cancer; Previously treated (in the (neo)adjuvant setting) with anti-HER2 therapy (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

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 Breast Cancer (Not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

trastuzumab + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 positive

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

Population segment (Line of therapy):
- Advanced Breast Cancer; Previously treated in the adjuvant setting (First-line therapy)
- Advanced Breast Cancer; Untreated with trastuzumab (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

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ERBB2 amplification (continued)

trastuzumab + taxane

Cancer type: Breast Cancer **Variant class:** ERBB2 positive

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

Population segment (Line of therapy):
- Advanced Breast Cancer; Pertuzumab is not given (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

trastuzumab + vinorelbine

Cancer type: Breast Cancer **Variant class:** ERBB2 positive

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

Population segment (Line of therapy):
- Advanced Breast Cancer; Pertuzumab is not given (First-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

lapatinib + trastuzumab

Cancer type: Breast Cancer **Variant class:** ERBB2 positive

Other criteria: ER positive

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

Population segment (Line of therapy):
- Advanced Breast Cancer; First-line therapy was endocrine therapy and anti-HER2 therapy (Not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

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 Breast Cancer; Progression on trastuzumab-based therapy (Not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

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ERBB2 amplification (continued)

pertuzumab + trastuzumab

Cancer type: Breast Cancer **Variant class:** ERBB2 positive

Other criteria: ER positive

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

Population segment (Line of therapy):
- Advanced Breast Cancer; First-line therapy was endocrine therapy and anti-HER2 therapy (Not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

pertuzumab + trastuzumab + paclitaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 positive

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

Population segment (Line of therapy):
- Advanced Breast Cancer (Not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

pertuzumab + 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 Breast Cancer (Not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

pertuzumab + trastuzumab + vinorelbine

Cancer type: Breast Cancer **Variant class:** ERBB2 positive

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

Population segment (Line of therapy):
- Advanced Breast Cancer (Not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

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ERBB2 amplification (continued)

pertuzumab + trastuzumab + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 positive

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

Population segment (Line of therapy):
- Advanced Breast Cancer; Previously untreated with the combination of chemotherapy + trastuzumab + pertuzumab (After first-line therapy)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

pertuzumab + trastuzumab + nab-paclitaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 positive

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

Population segment (Line of therapy):
- Advanced Breast Cancer (Not specified)

Reference: ESMO Clinical Practice Guidelines - ESMO-ESO-ESMO Advanced Breast Cancer [Ann Oncol (2018); 29: 1634–1657.]

pertuzumab + trastuzumab

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Summary:

ESMO Clinical Practice Guidelines include the following supporting statement:

- "The role of dual HER2 blockade (including a combination of trastuzumab and pertuzumab) is not well proven and such treatment is not recommended for routine use, although it may be discussed on a case-by-case basis."

Reference: ESMO Clinical Practice Guidelines - ESMO-Primary Breast Cancer [Ann Oncol (2015) 26 (suppl 5): v8-v30.]

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KRAS p.(G12D) c.35G>A

cetuximab

Cancer type: Colorectal Cancer **Variant class:** KRAS exon 2 mutation

Summary:
ESMO Clinical Practice Guidelines include the following supporting statement:

- "It has been demonstrated that the (potential) benefit of anti-EGFR antibodies in all treatment lines and either as a single agent or in combination with any chemotherapy regimen is limited to patients in whom a RAS mutation is excluded. It was shown that the 'expanded RAS' analysis (also including the detection of mutations in exons 3 and 4 of the KRAS gene as well as mutations in the NRAS [exons 2-4] gene) is superior to the KRAS (exon 2) analysis in predicting both more efficacy in the expanded RAS wild-type (WT) patients and a potential detrimental effect in patients harbouring any RAS mutation in their tumour genome [II/A]."

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Colorectal Cancer [Ann Oncol (2014) 25 (suppl 3): iii1-iii9. (eUpdate: 20 September 2016)]

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cetuximab + chemotherapy

Cancer type: Colorectal Cancer **Variant class:** KRAS exon 2 mutation

Summary:
ESMO Clinical Practice Guidelines include the following supporting statement:

- "It has been demonstrated that the (potential) benefit of anti-EGFR antibodies in all treatment lines and either as a single agent or in combination with any chemotherapy regimen is limited to patients in whom a RAS mutation is excluded. It was shown that the 'expanded RAS' analysis (also including the detection of mutations in exons 3 and 4 of the KRAS gene as well as mutations in the NRAS [exons 2-4] gene) is superior to the KRAS (exon 2) analysis in predicting both more efficacy in the expanded RAS wild-type (WT) patients and a potential detrimental effect in patients harbouring any RAS mutation in their tumour genome [II/A]."
- "Thus, the activity of the anti-EGFR antibodies is confined to RAS WT tumours (and not only KRAS WT tumours). This is true for the combinations of cetuximab or panitumumab alone or with irinotecan- and oxaliplatin-based regimens. Treatment with anti-EGFR antibodies may even harm patients with a RAS mutation, especially when combined with oxaliplatin [I/A]."

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Colorectal Cancer [Ann Oncol (2014) 25 (suppl 3): iii1-iii9. (eUpdate: 20 September 2016)]

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panitumumab

Cancer type: Colorectal Cancer **Variant class:** KRAS exon 2 mutation

Summary:
ESMO Clinical Practice Guidelines include the following supporting statement:

- "It has been demonstrated that the (potential) benefit of anti-EGFR antibodies in all treatment lines and either as a single agent or in combination with any chemotherapy regimen is limited to patients in whom a RAS mutation is excluded. It was shown that the 'expanded RAS' analysis (also including the detection of mutations in exons 3 and 4 of the KRAS gene as well as mutations in the NRAS [exons 2-4] gene) is superior to the KRAS (exon 2) analysis in predicting both more efficacy in the expanded RAS wild-type (WT) patients and a potential detrimental effect in patients harbouring any RAS mutation in their tumour genome [II/A]."

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Colorectal Cancer [Ann Oncol (2014) 25 (suppl 3): iii1-iii9. (eUpdate: 20 September 2016)]

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KRAS p.(G12D) c.35G>A (continued)

panitumumab + chemotherapy

Cancer type: Colorectal Cancer **Variant class:** KRAS exon 2 mutation

Summary:
ESMO Clinical Practice Guidelines include the following supporting statement:

- "It has been demonstrated that the (potential) benefit of anti-EGFR antibodies in all treatment lines and either as a single agent or in combination with any chemotherapy regimen is limited to patients in whom a RAS mutation is excluded. It was shown that the 'expanded RAS' analysis (also including the detection of mutations in exons 3 and 4 of the KRAS gene as well as mutations in the NRAS [exons 2-4] gene) is superior to the KRAS (exon 2) analysis in predicting both more efficacy in the expanded RAS wild-type (WT) patients and a potential detrimental effect in patients harbouring any RAS mutation in their tumour genome [II/A]."
- "Thus, the activity of the anti-EGFR antibodies is confined to RAS WT tumours (and not only KRAS WT tumours). This is true for the combinations of cetuximab or panitumumab alone or with irinotecan- and oxaliplatin-based regimens. Treatment with anti-EGFR antibodies may even harm patients with a RAS mutation, especially when combined with oxaliplatin [I/A]."

Reference: ESMO Clinical Practice Guidelines - ESMO-Metastatic Colorectal Cancer [Ann Oncol (2014) 25 (suppl 3): iii1-iii9. (eUpdate: 20 September 2016)]

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Current NCCN Information

● In this cancer type ○ In other cancer type ◑ In this cancer type and other cancer types ⊘ Contraindicated 👎 Not recommended 🛡 Resistance

NCCN information is current as of 2019-02-14. For the most up-to-date information, search www.nccn.org.
For NCCN International Adaptations & Translations, search www.nccn.org/global/international_adaptations.aspx.

ERBB2 amplification

○ pertuzumab + trastuzumab + docetaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 1

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Preferred)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

○ trastuzumab + capecitabine + cisplatin

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 1

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy) (Preferred)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

○ trastuzumab + capecitabine + cisplatin

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 1

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy) (Preferred)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

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ERBB2 amplification (continued)

trastuzumab + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER negative, PR negative

NCCN Recommendation category: 1

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; pT1, pT2, or pT3 and pN0 or pN1m; Tumor >1 cm (Not specified)
- Ductal, Lobular, Mixed, Metaplastic Histology; Node positive (one or more metastases >2 mm to one or more ipsilateral axillary lymph nodes) (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

trastuzumab + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER positive, PR positive

NCCN Recommendation category: 1

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; pN0 or pN1mi (≤2 mm axillary node metastasis), pT1, pT2, or pT3; Tumor >1 cm (Not specified)
- Ductal, Lobular, Mixed, Metaplastic Histology; Node positive (one or more metastases >2 mm to one or more ipsilateral axillary lymph nodes) (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

trastuzumab + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER negative, PR negative

NCCN Recommendation category: 1

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; pT1, pT2, or pT3 and pN0 or pN1m; Tumor >1 cm (Not specified)
- Ductal, Lobular, Mixed, Metaplastic Histology; Node positive (one or more metastases >2 mm to one or more ipsilateral axillary lymph nodes) (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

trastuzumab + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER positive, PR positive

NCCN Recommendation category: 1

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; pN0 or pN1mi (≤2 mm axillary node metastasis), pT1, pT2, or pT3; Tumor >1 cm (Not Specified)
- Ductal, Lobular, Mixed, Metaplastic Histology; Node positive (one or more metastases >2 mm to one or more ipsilateral axillary lymph nodes) (Not Specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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trastuzumab + cisplatin + fluorouracil

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 1

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy) (Preferred)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

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trastuzumab + cisplatin + fluorouracil

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 1

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy) (Preferred)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

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ERBB2 amplification (continued)

trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER positive, PR positive

NCCN Recommendation category: 1

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; Tumor >1 cm (Not specified)
- Ductal, Lobular, Mixed, Metaplastic Histology; Node positive (one or more metastases >2 mm to one or more ipsilateral axillary lymph nodes)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER positive, PR positive

NCCN Recommendation category: 1

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; Tumor >1 cm (Not specified)
- Ductal, Lobular, Mixed, Metaplastic Histology; Node positive (one or more metastases >2 mm to one or more ipsilateral axillary lymph nodes)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

ado-trastuzumab emtansine

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

ado-trastuzumab emtansine

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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hormone therapy

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER positive, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; pT1, pT2, or pT3; Tumor ≤0.5 cm and pN1mi or Tumor 0.6-1.0 cm (Not specified)
- Recurrent or stage IV Invasive Breast Cancer; No prior endocrine therapy within 1 year; Postmenopausal (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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hormone therapy

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER positive, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; pT1, pT2, or pT3; Tumor ≤0.5 cm and pN1mi or Tumor 0.6-1.0 cm (Not specified)
- Recurrent or stage IV Invasive Breast Cancer; No prior endocrine therapy within 1 year; Postmenopausal (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

Disclaimer: The data presented here is a result of the curation of published data sources, but may not be exhaustive. The data version is 2019.06(005).

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ERBB2 amplification (continued)

lapatinib + aromatase inhibitor

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer; Postmenopausal (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

lapatinib + capecitabine

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

lapatinib + capecitabine

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

lapatinib + trastuzumab

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer(Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

lapatinib + trastuzumab + aromatase inhibitor

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer; Postmenopausal (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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pertuzumab + trastuzumab + carboplatin + docetaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Preferred)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

pertuzumab + trastuzumab + carboplatin + docetaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Preferred)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

pertuzumab + trastuzumab + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER negative, PR negative

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node positive (one or more metastases >2 mm to one or more ipsilateral axillary lymph nodes) (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

pertuzumab + trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node positive (one or more metastases >2 mm to one or more ipsilateral axillary lymph nodes) (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

pertuzumab + trastuzumab + paclitaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer(Not specified) (Preferred)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

pertuzumab + trastuzumab + paclitaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified)(Preferred)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

trastuzumab + aromatase inhibitor

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer; Postmenopausal (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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trastuzumab + capecitabine

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer(Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

trastuzumab + capecitabine

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer(Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

trastuzumab + carboplatin + docetaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Preferred)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

trastuzumab + carboplatin + paclitaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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trastuzumab + carboplatin + paclitaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer(Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

trastuzumab + carboplatin + paclitaxel

Cancer type: Endometrial Cancer **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Stage III/IV and Recurrent Uterine Serous Carcinoma (Systemic therapy) (Preferred)

Reference: NCCN Guidelines® - NCCN-Uterine Neoplasms [Version 3.2019]

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trastuzumab + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER negative, PR negative

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; pT1, pT2, or pT3, and pN0 or pN1mi (node metastasis ≤2 mm axillary); Tumor ≤0.5 cm and pN1mi or Tumor 0.6-1.0 cm (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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trastuzumab + chemotherapy (other)

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer(Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

trastuzumab + cyclophosphamide + docetaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Useful in certain circumstances)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

trastuzumab + docetaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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trastuzumab + docetaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer(Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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trastuzumab + fulvestrant

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer; Postmenopausal (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER positive, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; pT1, pT2, or pT3; Tumor ≤0.5 cm and pN1mi or Tumor 0.6-1.0 cm (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER positive, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; pT1, pT2, or pT3; Tumor ≤0.5 cm and pN1mi or Tumor 0.6-1.0 cm (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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trastuzumab + paclitaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer(Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

trastuzumab + tamoxifen

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer; Postmenopausal (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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trastuzumab + vinorelbine

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer(Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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trastuzumab + vinorelbine

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER negative, ER positive, PR negative, PR positive

NCCN Recommendation category: 2A

Population segment (Line of therapy):
- Recurrent or Stage IV Invasive Breast Cancer (Not specified) (Other recommended regimens)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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trastuzumab + capecitabine

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

Disclaimer: The data presented here is a result of the curation of published data sources, but may not be exhaustive. The data version is 2019.06(005).

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ERBB2 amplification (continued)

trastuzumab + capecitabine

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

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trastuzumab + capecitabine + oxaliplatin

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy) (Preferred)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

---

trastuzumab + capecitabine + oxaliplatin

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy) (Preferred)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

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trastuzumab + carboplatin + docetaxel + fluorouracil

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

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ERBB2 amplification (continued)

trastuzumab + carboplatin + docetaxel + fluorouracil

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

---

trastuzumab + carboplatin + paclitaxel

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

---

trastuzumab + carboplatin + paclitaxel

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

---

trastuzumab + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER negative, PR negative

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; pT1, pT2, or pT3 and pN0 or pN1m; Tumor ≤0.5 cm and pN0 (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

trastuzumab + cisplatin + docetaxel

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

trastuzumab + cisplatin + docetaxel

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

trastuzumab + cisplatin + docetaxel + fluorouracil

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

trastuzumab + cisplatin + docetaxel + fluorouracil

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

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ERBB2 amplification (continued)

trastuzumab + cisplatin + paclitaxel

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

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trastuzumab + cisplatin + paclitaxel

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

---

trastuzumab + docetaxel

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

---

trastuzumab + docetaxel

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

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ERBB2 amplification (continued)

trastuzumab + docetaxel + fluorouracil + oxaliplatin

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

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trastuzumab + docetaxel + fluorouracil + oxaliplatin

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

---

trastuzumab + fluorouracil

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

---

trastuzumab + fluorouracil

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

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ERBB2 amplification (continued)

trastuzumab + fluorouracil + irinotecan

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

trastuzumab + fluorouracil + irinotecan

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):

- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

trastuzumab + fluorouracil + oxaliplatin

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy) (Preferred)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

trastuzumab + fluorouracil + oxaliplatin

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy) (Preferred)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

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ERBB2 amplification (continued)

trastuzumab + hormone therapy + chemotherapy

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Other criteria: ER positive, PR positive

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; pT1, pT2, or pT3; Tumor ≤0.5 cm and pN0 (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

trastuzumab + paclitaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification

Other criteria: ER negative, PR negative

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; pT1, pT2, or pT3 and pN0 or pN1m; Tumor ≤0.5 cm and pN0 (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

trastuzumab + paclitaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 overexpression

Other criteria: ER negative, PR negative

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Ductal, Lobular, Mixed, Metaplastic Histology; Node metastasis ≤2 mm axillary; pT1, pT2, or pT3 and pN0 or pN1m; Tumor ≤0.5 cm and pN0 (Not specified)

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

Disclaimer: The data presented here is a result of the curation of published data sources, but may not be exhaustive. The data version is 2019.06(005).

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ERBB2 amplification (continued)

trastuzumab + paclitaxel

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

---

trastuzumab + paclitaxel

Cancer type: Gastric Cancer

Variant class: ERBB2 overexpression

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Unresectable Locally Advanced, Recurrent or Metastatic Adenocarcinoma; Local therapy is not indicated (First-line therapy)

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

---

trastuzumab

Cancer type: Head and Neck Cancer

Variant class: ERBB2 positive

NCCN Recommendation category: 2B

Population segment (Line of therapy):
- Recurrent Metastatic Salivary Gland Tumors; Distant metastases (Therapy for recurrence)

Reference: NCCN Guidelines® - NCCN-Head and Neck Cancers [Version 2.2018]

---

pertuzumab + trastuzumab + cyclophosphamide + docetaxel + doxorubicin

Cancer type: Breast Cancer

Variant class: ERBB2 amplification or ERBB2 overexpression

Summary:

NCCN Guidelines® include the following supporting statement(s):
- "Trastuzumab given in combination with an anthracycline is associated with significant cardiac toxicity. Concurrent use of trastuzumab and pertuzumab with an anthracycline should be avoided."

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

pertuzumab + trastuzumab + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Summary:

NCCN Guidelines® include the following supporting statement(s):

- "Trastuzumab given in combination with an anthracycline is associated with significant cardiac toxicity. Concurrent use of trastuzumab and pertuzumab with an anthracycline should be avoided."

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

---

trastuzumab + capecitabine + cisplatin + epirubicin

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma **Variant class:** ERBB2 overexpression

Summary:
NCCN Guidelines® include the following supporting statement(s):

- "Trastuzumab is not recommended for use with anthracyclines"

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

---

trastuzumab + capecitabine + cisplatin + epirubicin

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

Summary:
NCCN Guidelines® include the following supporting statement(s):

- "Trastuzumab is not recommended for use with anthracyclines"

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

---

trastuzumab + capecitabine + epirubicin + oxaliplatin

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma **Variant class:** ERBB2 overexpression

Summary:
NCCN Guidelines® include the following supporting statement(s):

- "Trastuzumab is not recommended for use with anthracyclines"

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

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ERBB2 amplification (continued)

trastuzumab + capecitabine + epirubicin + oxaliplatin

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

Summary:
NCCN Guidelines® include the following supporting statement(s):
- "Trastuzumab is not recommended for use with anthracyclines"

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

---

trastuzumab + cisplatin + epirubicin + fluorouracil

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma **Variant class:** ERBB2 overexpression

Summary:
NCCN Guidelines® include the following supporting statement(s):
- "Trastuzumab is not recommended for use with anthracyclines"

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

---

trastuzumab + cisplatin + epirubicin + fluorouracil

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

Summary:
NCCN Guidelines® include the following supporting statement(s):
- "Trastuzumab is not recommended for use with anthracyclines"

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

---

trastuzumab + cyclophosphamide + docetaxel + doxorubicin

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Summary:

NCCN Guidelines® include the following supporting statement(s):

- "Trastuzumab given in combination with an anthracycline is associated with significant cardiac toxicity. Concurrent use of trastuzumab and pertuzumab with an anthracycline should be avoided."

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

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ERBB2 amplification (continued)

trastuzumab + cyclophosphamide + doxorubicin + paclitaxel

Cancer type: Breast Cancer **Variant class:** ERBB2 amplification or ERBB2 overexpression

Summary:

NCCN Guidelines® include the following supporting statement(s):

- "Trastuzumab given in combination with an anthracycline is associated with significant cardiac toxicity. Concurrent use of trastuzumab and pertuzumab with an anthracycline should be avoided."

Reference: NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]

trastuzumab + epirubicin + fluorouracil + oxaliplatin

Cancer type: Esophageal Cancer, Gastroesophageal Junction Adenocarcinoma **Variant class:** ERBB2 overexpression

Summary:
NCCN Guidelines® include the following supporting statement(s):

- "Trastuzumab is not recommended for use with anthracyclines"

Reference: NCCN Guidelines® - NCCN-Esophageal and Esophagogastric Junction Cancers [Version 2.2018]

trastuzumab + epirubicin + fluorouracil + oxaliplatin

Cancer type: Gastric Cancer **Variant class:** ERBB2 overexpression

Summary:
NCCN Guidelines® include the following supporting statement(s):

- "Trastuzumab is not recommended for use with anthracyclines"

Reference: NCCN Guidelines® - NCCN-Gastric Cancer [Version 2.2018]

KRAS p.(G12D) c.35G>A

cetuximab

Cancer type: Colon Cancer **Variant class:** KRAS exon 2 mutation

Summary:
NCCN Guidelines® include the following supporting statement(s):

- "Patients with any known KRAS mutation (exon 2, 3, 4) or NRAS mutation (exon 2, 3, 4) should not be treated with either cetuximab or panitumumab."

Reference: NCCN Guidelines® - NCCN-Colon Cancer [Version 4.2018]

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KRAS p.(G12D) c.35G>A (continued)

cetuximab

Cancer type: Rectal Cancer **Variant class:** KRAS exon 2 mutation

Summary:
NCCN Guidelines® include the following supporting statement(s):
- "Patients with any known KRAS mutation (exon 2, 3, 4) or NRAS mutation (exon 2, 3, 4) should not be treated with either cetuximab or panitumumab."

Reference: NCCN Guidelines® - NCCN-Rectal Cancer [Version 3.2018]

panitumumab

Cancer type: Colon Cancer **Variant class:** KRAS exon 2 mutation

Summary:
NCCN Guidelines® include the following supporting statement(s):
- "Patients with any known KRAS mutation (exon 2, 3, 4) or NRAS mutation (exon 2, 3, 4) should not be treated with either cetuximab or panitumumab."

Reference: NCCN Guidelines® - NCCN-Colon Cancer [Version 4.2018]

panitumumab

Cancer type: Rectal Cancer **Variant class:** KRAS exon 2 mutation

Summary:
NCCN Guidelines® include the following supporting statement(s):
- "Patients with any known KRAS mutation (exon 2, 3, 4) or NRAS mutation (exon 2, 3, 4) should not be treated with either cetuximab or panitumumab."

Reference: NCCN Guidelines® - NCCN-Rectal Cancer [Version 3.2018]

EGFR tyrosine kinase inhibitor

Cancer type: Non-Small Cell Lung Cancer **Variant class:** KRAS mutation

Summary:
NCCN Guidelines® include the following supporting statement(s):
- "EGFR TKI therapy is not effective in patients with KRAS mutations, BRAF V600E mutations, ALK gene rearrangements, or ROS1 rearrangements."

Reference: NCCN Guidelines® - NCCN-Non-Small Cell Lung Cancer [Version 3.2019]

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Current Clinical Trials Information

Clinical Trials information is current as of 2019-03-01. For the most up-to-date information regarding a particular trial, search www.clinicaltrials.gov by NCT ID or search local clinical trials authority website by local identifier listed in 'Other identifiers'.

KRAS p.(G12D) c.35G>A + TP53 p.(C229fs) c.686_687delGT

NCT02797977

A Phase I/II Trial of Oral SRA737 (a Chk1 Inhibitor) Given in Combination With Gemcitabine Plus Cisplatin or Gemcitabine Alone in Subjects With Advanced Cancer

Cancer type: Pancreatic Cancer

Variant classes: RAS mutation & TP53 deleterious mutation

Other identifiers: 198606, 30498, CRUKD/16/005, EudraCT Number: 2015-004467-36, PNT737-02, SRA737-02

Population segments: BRCA, Fourth line or greater, KRAS, Pulmonary, Second line, Stage III, Stage IV, Third line

Phase: I/II

Therapy: PNT-737 + chemotherapy

Locations: Spain, United Kingdom

NCT02576444

A Phase II Study of the PARP Inhibitor Olaparib (AZD2281) Alone and in Combination With AZD1775, AZD5363, or AZD6738 in Advanced Solid Tumors

Cancer type: Unspecified Solid Tumor

Variant classes: KRAS & TP53 mutation

Other identifiers: 1508016363, 16-314, NCI-2016-00922, OLAPCO, VICCMD1672

Population segments: First line, Second line, Stage IV

Phase: II

Therapy: adavosertib + olaparib

Location: United States

US States: CT, MA, OH, TN

Contact: Manuel Avedissian [203-737-3669; manuel.avedissian@yale.edu]

ERBB2 amplification

NCT03602079

A Phase I-II, FIH Study of A166 in Locally Advanced/Metastatic Solid Tumors Expressing Human Epidermal Growth Factor Receptor 2 (HER2) or Are HER2 Amplified That Did Not Respond or Stopped Responding to Approved Therapies

Cancer type: Pancreatic Cancer

Variant class: ERBB2 overexpression

Population segments: HER2 positive, Second line, Stage III, Stage IV, Third line

Phase: I/II

Therapy: A-166

Location: United States

US State: TX

Contact: Clinical Trials Info at Kluspharma [609-662-1913; Clinicaltrialinfo@kluspharma.com]

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ERBB2 amplification (continued)

NCT03267173

Evaluate the Safety and Efficacy of Chimeric Antigen Receptor Engineered T Cell Immunotherapy (CAR-T) in the Treatment of Pancreatic Cancer in a Single Center, Non Controlled Clinical Study.

Cancer type: Pancreatic Cancer

Variant class: ERBB2 overexpression

Other identifier: ChiCTR-ONC-17012862

Population segments: First line, Stage IV, Third line

Phase: I

Therapy: CART cell therapy

Location: China

NCT02029001

A Two-period, Multicenter, Randomized, Open-label, Phase II Study Evaluating the Clinical Benefit of a Maintenance Treatment Targeting Tumor Molecular Alterations in Patients With Progressive Locally-advanced or Metastatic Solid Tumors MOST: My own specific treatment

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 amplification

Other identifiers: ET12-081, EudraCT number: 2012-004510-34, MOST, ProfiLER

Population segments: Maintenance/Consolidation, Second line, Stage III, Stage IV, Third line

Phase: II

Therapy: lapatinib

Location: France

NCT02465060

Molecular Analysis for Therapy Choice (MATCH)

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 amplification

Other identifiers: 15-7002, 16-750, CTSU/EAY131, EAY131, EAY131- K1, EAY131- K2, EAY131- Z1K, EAY131-A, EAY131-B, EAY131-C1, EAY131-C2, EAY131-E, EAY131-F, EAY131-G, EAY131-H, EAY131-I, EAY131-J, EAY131-L, EAY131-M, EAY131-MATCH, EAY131-N, EAY131-P, EAY131-Q, EAY131-R, EAY131-S1, EAY131-S2, EAY131-T, EAY131-U, EAY131-V, EAY131-W, EAY131-X, EAY131-Y, EAY131-Z1A, EAY131-Z1B, EAY131-Z1C, EAY131-Z1D, EAY131-Z1E, EAY131-Z1F, EAY131-Z1G, EAY131-Z1H, EAY131-Z1I, EAY131-Z1J, EAY131-Z1L, EAY131-Z1M, ECOGEAY131-M, MATCH, MATCH, NCI-2015-00054, NCI-MATCH

Population segments: Aggressive, Classical, Fourth line or greater, HER2 positive, Indolent, Nodular lymphocyte-predominant, Pulmonary, Second line, Stage III, Stage IV, Third line, Unspecified

Phase: II

Therapy: pertuzumab + trastuzumab

Locations: Puerto Rico, United States

US States: AK, AL, AR, AZ, CA, CO, CT, DC, DE, FL, GA, HI, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY

Contact: Multiple contacts: See www.clinicaltrials.gov for complete list of contacts.

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ERBB2 amplification (continued)

NCT02693535
Targeted Agent and Profiling Utilization Registry (TAPUR) Study

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 amplification or ERBB2 overexpression

Other identifiers: 20170529, NCI-2017-00510, Pro00014171, TAPUR

Population segments: (N/A), Aggressive, Diffuse large B-cell lymphoma (DLBCL), Extranodal marginal zone B-cell lymphoma (MALT), Follicular lymphoma (FL), Indolent, Lymphoblastic lymphoma (LBL), Mantle cell lymphoma (MCL), Other subtype, Second line, Small lymphocytic lymphoma (SLL), Stage III, Stage IV, Waldenstrom's macroglobulinemia (WM)

Phase: II

Therapy: pertuzumab + trastuzumab

Location: United States

US States: AL, AZ, CA, FL, GA, IL, MI, NC, ND, NE, OK, OR, PA, SD, TX, UT, VA, WA

Contact: Pam Mangat [pam.mangat@asco.org]

NCT02925234
A Dutch National Study on behalf of the Center for Personalized Cancer Treatment (CPCT) to Facilitate Patient Access to Commercially Available, Targeted Anti-cancer Drugs to determine the Potential Efficacy in Treatment of Advanced Cancers with a Known Molecular Profile

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 overexpression or ERBB2 amplification

Other identifiers: DRUP, EudraCT Number: 2015-004398-33, M15DRU, NL54757.031.16

Population segments: Aggressive, Diffuse large B-cell lymphoma (DLBCL), First line, Follicular lymphoma (FL), Indolent, Mantle cell lymphoma (MCL), Other subtype, Second line, Small lymphocytic lymphoma (SLL), Stage III, Stage IV, Waldenstrom's macroglobulinemia (WM)

Phase: II

Therapy: pertuzumab + trastuzumab

Location: Netherlands

NCT03297606
Canadian Profiling and Targeted Agent Utilization Trial (CAPTUR): A Phase II Basket Trial

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 aberration

Other identifiers: CA209-9DL, CAPTUR, ESR-17-12831, ML39800, PM1, WI233446

Population segments: Aggressive, Diffuse large B-cell lymphoma (DLBCL), Extranodal marginal zone B-cell lymphoma (MALT), First line, Follicular lymphoma (FL), Indolent, Lymphoblastic lymphoma (LBL), Mantle cell lymphoma (MCL), Other subtype, Second line, Stage III, Stage IV, Waldenstrom's macroglobulinemia (WM)

Phase: II

Therapy: pertuzumab + trastuzumab

Location: Canada

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ERBB2 amplification (continued)

NCT03680560

A Phase I Study of an Autologous ACTR T Cell Product in Combination With Trastuzumab, a Monoclonal Antibody, in Subjects With HER2-Positive Advanced Malignancies

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 overexpression

Other identifier: ATTCK-34-01

Population segments: HER2 positive, Second line, Stage III, Stage IV

Phase: I

Therapies: ACTR087 + trastuzumab, ACTR707 + trastuzumab

Location: United States

US State: TN

Contact: Iga Sienczylo [617-917-4430; iga.sienczylo@unumrx.com]

NCT02512237

A Phase I, Multicenter, Open-label, Multiple Dose-escalation Study of ARX788, Intravenously Administered as a Single Agent in Subjects With Advanced Cancers With HER2 Expression

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 overexpression or ERBB2 amplification

Other identifiers: 201711014, CT782, U1111-1173-5221, ZMC-ARX788-101

Population segments: HER2 positive, Second line, Stage III, Stage IV

Phase: I

Therapy: ARX-788

Locations: Australia, New Zealand

NCT03255070

A Phase I, Multicenter, Open-label, Multiple Dose-escalation Study of ARX788, Intravenously Administered as a Single Agent in Subjects With Advanced Cancers With HER2 Expression

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 overexpression or ERBB2 amplification

Other identifiers: ARX788-1711, NCI-2018-00274

Population segments: HER2 positive, Second line, Stage IV

Phase: I

Therapy: ARX-788

Locations: Australia, United States

US State: MO

Contact: Dr. Yong Jiang Hei [858-875-2400; yong.hei@ambrx.com]

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ERBB2 amplification (continued)

NCT03696030

A Phase I Cellular Immunotherapy Study of Intraventricularly Administered Autologous HER2-Targeted Chimeric Antigen Receptor (HER2-CAR) T Cells in Patients With Brain and/or Leptomeningeal Metastases From HER2 Positive Cancers

Cancer type: Unspecified Cancer

Variant class: ERBB2 overexpression or ERBB2 amplification

Other identifiers: 17237, NCI-2018-01270

Population segments: CNS mets, HER2 positive, Line of therapy N/A, Stage IV

Phase: I

Therapy: CART-HER-2

Location: United States

US State: CA

Contact: Fatemeh Bidmeshki [626-218-9393; fbidmeshki@coh.org]

NCT03065387

Phase I Study of the Pan-ERBB Inhibitor Neratinib Given in Combination With Everolimus, Palbociclib or Trametinib in Advanced Cancer Subjects With EGFR Mutation/Amplification, HER2 Mutation/ Amplification, HER3/4 Mutation or KRAS Mutation

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 amplification

Other identifiers: 2016-0430, NCI-2018-01218

Population segments: HER2 negative, HER2 positive, Second line, Stage III, Stage IV

Phase: I

Therapies: everolimus + neratinib, neratinib + palbociclib, neratinib + trametinib

Location: United States

US State: TX

Contact: Dr. Sarina Piha-Paul [713-563-1930; spihapau@mdanderson.org]

No NCT ID - see other identifier(s)

Phase I Clinical Study With Advanced Solid Tumors KBP-5209 Treatment

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 overexpression or ERBB2 amplification

Other identifiers: 5209-CPK-1002, CTR20150792

Population segments: EGFR, HER2 positive, Second line, Stage III, Stage IV

Phase: I

Therapy: pirotinib

Location: China

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ERBB2 amplification (continued)

NCT02500199

A Two-part Phase I, Open Label, Dose Escalation Study to Evaluate the Safety, Tolerability and Pharmacokinetics of Pyrotinib in Patients With HER2-positive Solid Tumors Whose Disease Progressed on Prior HER2 Targeted Therapy

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 overexpression or ERBB2 amplification

Other identifiers: NCI-2017-00491, SHRUS 1001

Population segments: HER2 positive, Second line or greater/Refractory/Relapsed, Stage III, Stage IV

Phase: I

Therapy: pyrotinib

Location: United States

US States: FL, MA, MI, MO, NY, TN

Contact: Dr. Ewa Matczak [609-423-2155 ext 215; ewa.matczak@hengruitherapeutics.com]

NCT02881138

Safety, Tolerability, Open Label, Pharmacokinetics Ascending Dose Clinical Study Of RC48 In Patients With HER2-Positive Malignant in Advanced Malignant Solid Tumors.

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 overexpression

Other identifiers: C001 CANCER, CTR20150876

Population segments: Estrogen receptor positive, First line, Fourth line or greater, HER2 positive, Progesterone receptor positive, Second line, Stage III, Stage IV, Third line

Phase: I

Therapy: RC-48

Location: China

NCT02892123

Phase I Trial of ZW25 in Patients With Locally Advanced (Unresectable) and/or Metastatic HER2-expressing Cancers

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 overexpression or ERBB2 amplification

Other identifiers: 2016-0532, NCI-2017-01210, ZWI-ZW25-101

Population segments: First line, Fourth line or greater, HER2 positive, Second line, Stage III, Stage IV, Third line

Phase: I

Therapy: ZW-25

Locations: Canada, United States

US States: AL, CA, CO, IL, TN, TX, WA

Contact: Linda Lai [206-260-2078; linda.lai@zymeworks.com]

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ERBB2 amplification (continued)

NCT03650348

A Phase Ib, Open-Label, Dose Escalation Study of PRS-343 in Combination With Atezolizumab in Patients With HER2-Positive Advanced or Metastatic Solid Tumors

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 positive

Other identifier: PRS-343-PCS_08_18

Population segments: HER2 positive, Second line, Stage III, Stage IV

Phase: I

Therapy: atezolizumab + PRS-343

Location: United States

US State: TX

Contact: Dr. Ingmar Bruns [857-246-8998; bruns@pieris.com]

NCT03448042

A Phase I, Open-Label, Dose-Escalation Study of the Safety and Pharmacokinetics of BTRC4017A Administered Intravenously in Patients With Locally Advanced or Metastatic HER2-Expressing Cancers

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 positive

Other identifier: GO40311

Population segments: HER2 negative, HER2 positive, Second line or greater/Refractory/Relapsed, Stage III, Stage IV

Phase: I

Therapy: BTRC-4017A

Location: United States

US State: TN

Contact: Reference Study ID Number: GO40311 [888-662-6728; global-roche-genentech-trials@gene.com]

NCT02442297

Phase I Study of Intracranial Injection of T Cells Expressing HER2-specific Chimeric Antigen Receptors (CAR) in Subjects With HER2-Positive Tumors of the Central Nervous System (iCAR)

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 positive

Other identifiers: H-31973, H-31973-iCAR, iCAR, NCI-2018-00715

Population segments: (N/A), Second line

Phase: I

Therapy: CART-HER-2

Location: United States

US State: TX

Contact: Dr. Nabil M. Ahmed [832-824-4611; nmahmed@txch.org]

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ERBB2 amplification (continued)

NCT03319459
FATE-NK100 as Monotherapy and in Combination With Monoclonal Antibody in Subjects With Advanced Solid Tumors

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 positive

Other identifiers: DIMENSION, NCI-2017-02242, NK-101

Population segments: HER2 positive, Pulmonary, Second line, Stage III, Stage IV

Phase: I

Therapy: FATE-NK100 + trastuzumab

Location: United States

US States: MN, TX

Contact: Sara Weymer [858-875-1800; clinical@fatetherapeutics.com]

NCT03084926
A Phase I, First-in-human, Single-arm, Multi-center, Open-label, Repeated-Dose, Dose Escalation Study to Assess Safety, Tolerability and Pharmacokinetics of MP0274 in Patients With Advanced HER2-positive Solid Tumors

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 positive

Other identifiers: 2017-00921, EudraCT Number: 2016-004712-36, IRAS ID: 222863, MP0274-CP101, SNCTP000002338

Population segments: HER2 positive, Second line, Stage III, Stage IV

Phase: I

Therapy: MP-0274

Locations: Germany, Switzerland, United Kingdom

NCT03696771
A Phase I, Multicenter, Open-label Dose Finding Study of NJH395, Administered Intravenously in Patients With Non-breast HER2+ Advanced Malignancies

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 positive

Other identifiers: CNJH395X2101, JapicCTI-184239

Population segments: Second line, Stage III, Stage IV

Phase: I

Therapy: NJH-395

Locations: Japan, Republic of Korea, United States

US State: TX

Contact: Novartis Pharmaceuticals [888-669-6682; novartis.email@novartis.com]

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ERBB2 amplification (continued)

NCT03330561
A Phase I, Open-Label, Dose Escalation Study of PRS-343 in Patients With HER2-Positive Advanced or Metastatic Solid Tumors

Cancer type: Unspecified Solid Tumor

Variant class: ERBB2 positive

Other identifier: PRS-343-PCS_04_16

Population segments: HER2 positive, Second line or greater/Refractory/Relapsed, Stage II, Stage III, Stage IV

Phase: I

Therapy: PRS-343

Location: United States

US States: NY, TN, TX

Contact: Dr. Ingmar Bruns [857-246-8998; bruns@pieris.com]

KRAS p.(G12D) c.35G>A

NCT03745326
Phase I/II Study Administering Peripheral Blood Lymphocytes Transduced with a Murine T-Cell Receptor Recognizing the G12D Variant of Mutated RAS in HLA-A*11:01 Patients

Cancer type: Pancreatic Cancer

Variant class: KRAS G12D mutation

Other identifiers: 190017, 19-C-0017, NCI-19-C-0017, NCI-2018-03299

Population segments: ALK, EGFR, Second line, Stage III, Stage IV, Third line

Phase: I/II

Therapy: aldesleukin + anti-KRAS G12D mTCR + chemotherapy

Location: United States

US State: MD

Contact: Ellen Bodurian [866-820-4505; ellen.bodurian@nih.gov]

NCT02942095
A Phase I Study of Ixazomib and Erlotinib in Advanced Solid Tumor Patients

Cancer type: Pancreatic Cancer

Variant class: KRAS G12 mutation

Other identifiers: 2015-0688, NCI-2016-01931

Population segments: EGFR, Second line, Stage III, Stage IV

Phase: I

Therapy: erlotinib + ixazomib

Location: United States

US State: TX

Contact: Dr. David S. Hong [713-565-9246; dshong@mdanderson.org]

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KRAS p.(G12D) c.35G>A (continued)

NCT02029001

A Two-period, Multicenter, Randomized, Open-label, Phase II Study Evaluating the Clinical Benefit of a Maintenance Treatment Targeting Tumor Molecular Alterations in Patients With Progressive Locally-advanced or Metastatic Solid Tumors MOST: My own specific treatment

Cancer type: Unspecified Solid Tumor

Variant class: KRAS mutation

Other identifiers: ET12-081, EudraCT number: 2012-004510-34, MOST, ProfiLER

Population segments: Maintenance/Consolidation, Second line, Stage III, Stage IV, Third line

Exclusion criteria variant class: BRAF V600 mutation

Phase: II

Therapy: sorafenib

Location: France

NCT02079740

An Open Label, Two-Part, Phase Ib/ II Study to Investigate the Safety, Pharmacokinetics, Pharmacodynamics, and Clinical Activity of the MEK Inhibitor Trametinib and the BCL2-Family Inhibitor Navitoclax (ABT-263) in Combination in Subjects With KRAS or NRAS Mutation-Positive Advanced Solid Tumors

Cancer type: Unspecified Solid Tumor

Variant class: KRAS G12 mutation

Other identifiers: 13-505, 9525, NCI-2014-00461

Population segments: KRAS, Second line, Stage III, Stage IV

Phase: I/II

Therapy: navitoclax + trametinib

Location: United States

US State: MA

Contact: Ryan B. Corcoran [877-726-5130]

NCT03637491

A Phase 1b/2 Study To Evaluate Safety And Clinical Activity Of Avelumab In Combination With Binimetinib With Or Without Talazoparib In Patients With Locally Advanced Or Metastatic Ras-mutant Solid Tumors

Cancer type: Unspecified Solid Tumor

Variant class: KRAS mutation

Other identifiers: 112811, 2018-0401, B9991033, EudraCT Number: 2018-000124-34, NCI-2018-02044

Population segments: KRAS, Second line, Stage III, Stage IV, Third line

Phase: I/II

Therapies: avelumab + binimetinib, avelumab + binimetinib + talazoparib

Locations: Singapore, United States

US States: AR, CO, IN, TX, UT

Contact: Pfizer CT.gov Call Center [800-718-1021; ClinicalTrials.gov_Inquiries@pfizer.com]

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KRAS p.(G12D) c.35G>A (continued)

NCT03520075
A Phase I/II Study of the Safety, Pharmacokinetics, and Activity of ASTX029 in Subjects With Advanced Solid Tumors

Cancer type: Unspecified Solid Tumor

Variant class: RAS/RAF/MEK/ERK pathway

Other identifier: ASTX029-01

Population segments: Second line, Stage III, Stage IV

Phase: I/II

Therapy: ASTX029

Location: United States

US States: CT, TX, VA

Contact: Richard J. Morishige [925-560-2882; Richard.Morishige@astx.com]

NCT02639546
A Phase I/II, Multicenter, Open-Label, Dose-Escalation Study of The Safety And Pharmacokinetics of Cobimetinib In Pediatric And Young Adult Patients With Previously Treated Solid Tumors

Cancer type: Unspecified Solid Tumor

Variant class: RAS/RAF/MEK/ERK pathway

Other identifiers: 15-524, 16-041, 2015-0929, CTRC#15-0005, DRKS00010690, EudraCT Number: 2014-004685-25, GO29665, iMATRIX Cobi, iMATRIXcobi, IRAS ID: 174562, NCI-2016-00541, NL52503.078.16

Population segments: (N/A), Pediatric or Adolescent, Second line

Phase: I/II

Therapy: cobimetinib

Locations: Canada, France, Germany, Israel, Italy, Spain, United Kingdom, United States

US States: AZ, CA, FL, PA, TX

Contact: Reference Study ID Number: GO29665 [888-662-6728; global-roche-genentech-trials@gene.com]

NCT03634982
A Phase I, Open-Label, Multicenter, Dose-Escalation Study of RMC-4630 Monotherapy in Adult Participants with Relapsed/Refractory Solid Tumors

Cancer type: Unspecified Solid Tumor

Variant class: KRAS G12 mutation

Other identifiers: 19683, NCI-2018-02064, RMC-4630-01, UCI-18-14

Population segments: Second line, Stage III, Stage IV

Phase: I

Therapy: RMC-4630

Location: United States

US States: AZ, CA, CO, FL, OK, TN

Contact: Revolution Medicines [650-779-2300; CT-Inquiries@RevolutionMedicines.com]

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KRAS p.(G12D) c.35G>A (continued)

NCT03118817

A Single-arm, Open-label, Multi-center, Phase I Expansion Study Evaluating the Efficacy and Safety of HM95573 Monotherapy in Patients With BRAF, KRAS or NRAS Mutation-positive Solid Cancers

Cancer type: Unspecified Solid Tumor

Variant class: KRAS mutation

Other identifier: HM-RAFI-102

Population segments: (N/A), Line of therapy N/A

Phase: I

Therapy: belvarafenib

Location: Republic of Korea

NCT02407509

A Phase I Trial of RO5126766 (a Dual RAF/MEK Inhibitor) Exploring Intermittent, Oral Dosing Regimens in Patients With Solid Tumours or Multiple Myeloma, With an Expansion to Explore Intermittent Dosing in Combination With Everolimus

Cancer type: Unspecified Solid Tumor

Variant class: KRAS mutation

Other identifiers: CCR3808, DDU RAF/MEK, EudraCT Number: 2012-001040-22, IRAS ID:102403

Population segments: Adenocarcinoma, Fourth line or greater, KRAS, Second line, Stage III, Stage IV, Third line

Phase: I

Therapies: everolimus + RO-5126766, RO-5126766

Location: United Kingdom

NCT03051035

A Phase I First-in-Human Study of KO-947 in Locally Advanced Unresectable or Metastatic, Relapsed and/or Refractory Non-Hematological Malignancies

Cancer type: Unspecified Solid Tumor

Variant class: KRAS mutation

Other identifiers: 16-1101, 17-150, KO-ERK-001

Population segments: KRAS, Second line, Stage III, Stage IV

Phase: I

Therapy: KO-947

Location: United States

US State: PA

Contact: Kamn Lacroix [617-251-6535; medicalaffairs@kuraoncology.com]

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KRAS p.(G12D) c.35G>A (continued)

NCT03065387

Phase I Study of the Pan-ERBB Inhibitor Neratinib Given in Combination With Everolimus, Palbociclib or Trametinib in Advanced Cancer Subjects With EGFR Mutation/Amplification, HER2 Mutation/ Amplification, HER3/4 Mutation or KRAS Mutation

Cancer type: Unspecified Solid Tumor

Variant class: KRAS mutation

Other identifiers: 2016-0430, NCI-2018-01218

Population segments: HER2 negative, HER2 positive, Second line, Stage III, Stage IV

Phase: I

Therapy: neratinib + trametinib

Location: United States

US State: TX

Contact: Dr. Sarina Piha-Paul [713-563-1930; spihapau@mdanderson.org]

NCT03284502

A Phase Ib, Open-label, Multicenter, Dose Escalation Study of the Safety, Tolerability, and Pharmacokinetics of Cobimetinib and HM95573 in Patients With Locally Advanced or Metastatic Solid Tumors

Cancer type: Unspecified Solid Tumor

Variant class: RAS mutation

Other identifier: HM-RAFI-103

Population segments: First line, Second line, Stage III, Stage IV

Phase: I

Therapy: belvarafenib + cobimetinib

Location: Republic of Korea

NCT02857270

A Phase I Study of an ERK1/2 Inhibitor (LY3214996) Administered Alone or in Combination With Other Agents in Advanced Cancer

Cancer type: Unspecified Solid Tumor

Variant class: RAS/RAF/MEK/ERK pathway

Other identifiers: 16419, EudraCT Number: 2016-001907-21, I8S-MC-JUAB, JUAB, NCI-2017-00039

Population segments: Second line, Stage III, Stage IV

Phase: I

Therapies: abemaciclib + LY3214996 , LY3214996 , LY3214996 + chemotherapy, LY3214996 + midazolam

Locations: Australia, France, United States

US States: FL, MA, TN, TX

Contact: Eli Lilly and Company [877-285-4559]

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KRAS p.(G12D) c.35G>A (continued)

NCT02607813
A Phase I Dose Finding Study of Oral LXH254 in Adult Patients With Advanced Solid Tumors Harboring MAPK Pathway Alterations

Cancer type: Unspecified Solid Tumor

Variant class: RAS/RAF/MEK/ERK pathway

Other identifiers: 16-225, 2015-0913, CLXH254X2101, EudraCT Number: 2015-003421-33, NCI-2015-02280, NL55506.078.15, Nov RAFi (CLXH254X2101), REec-2016-2132, SNCTP000002708

Population segments: Second line, Stage III, Stage IV

Phase: I

Therapies: LXH254 , LXH254 + spartalizumab

Locations: Canada, France, Germany, Japan, Netherlands, Republic of Korea, Spain, Switzerland, United States

US States: NY, TX

Contact: Novartis Pharmaceuticals [888-669-6682; Novartis.email@novartis.com]

CDKN2A p.(Y44*) c.132C>A

NCT02693535
Targeted Agent and Profiling Utilization Registry (TAPUR) Study

Cancer type: Unspecified Solid Tumor

Variant class: CDKN2A mutation

Other identifiers: 20170529, NCI-2017-00510, Pro00014171, TAPUR

Population segments: (N/A), Aggressive, Diffuse large B-cell lymphoma (DLBCL), Extranodal marginal zone B-cell lymphoma (MALT), Follicular lymphoma (FL), Indolent, Lymphoblastic lymphoma (LBL), Mantle cell lymphoma (MCL), Other subtype, Second line, Small lymphocytic lymphoma (SLL), Stage III, Stage IV, Waldenstrom's macroglobulinemia (WM)

Phase: II

Therapy: palbociclib

Location: United States

US States: AL, AZ, CA, FL, GA, IL, MI, NC, ND, NE, OK, OR, PA, SD, TX, UT, VA, WA

Contact: Pam Mangat [pam.mangat@asco.org]

NCT03297606
Canadian Profiling and Targeted Agent Utilization Trial (CAPTUR): A Phase II Basket Trial

Cancer type: Unspecified Solid Tumor

Variant class: CDKN2A aberration

Other identifiers: CA209-9DL, CAPTUR, ESR-17-12831, ML39800, PM1, WI233446

Population segments: Aggressive, Diffuse large B-cell lymphoma (DLBCL), Extranodal marginal zone B-cell lymphoma (MALT), First line, Follicular lymphoma (FL), Indolent, Lymphoblastic lymphoma (LBL), Mantle cell lymphoma (MCL), Other subtype, Second line, Stage III, Stage IV, Waldenstrom's macroglobulinemia (WM)

Phase: II

Therapy: palbociclib

Location: Canada

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CDKN2A p.(Y44*) c.132C>A (continued)

NCT01037790

Phase II Trial of the Cyclin-Dependent Kinase Inhibitor PD 0332991 in Patients With Cancer

Cancer type: Unspecified Solid Tumor

Variant class: G1/S cell cycle pathway

Other identifiers: NCI-2009-01467, Study 1006, UPCC 03909, UPCC03909

Population segments: Estrogen receptor positive, Fourth line or greater, HER2 negative, HER2 positive, Metastatic, Progesterone receptor positive, Second line, Stage III, Stage IV, Third line, Triple receptor negative

Phase: II

Therapy: palbociclib

Location: United States

US State: PA

Contact: Dr. Peter O. Dwyer [855-216-0098; PennCancerTrials@emergingmed.com]

TP53 p.(C229fs) c.686_687delGT

NCT03096054

A Cancer Research UK (CR-UK) Phase I Trial of LY3143921 a Cdc7 Inhibitor in Adult Patients With Advanced Solid Tumours

Cancer type: Pancreatic Cancer

Variant class: TP53 mutation

Other identifiers: CPMS ID 35213, CRUKD/17/004, EudraCT Number: 2016-001245-80, IRAS ID 216105, MREC No. 17/NI/0005

Population segments: HER2 negative, Line of therapy N/A, Squamous Cell, Stage III, Stage IV, Triple receptor negative

Phase: I

Therapy: LY3143921

Location: United Kingdom

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Evidence Summary by Variant Class

A variant class hierarchy was created to summarize gene variants with associated clinical evidence. Evidence items refers to citations across the different global data sources.

ERBB2 amplification

Variant Class	Evidence Items
ERBB aberration	0
↳ ERBB2 status	0
↳ ERBB2 aberration	1
↳ ERBB2 positive	22
↳ ERBB2 amplification	70
ERBB aberration	0
↳ ERBB2 status	0
↳ ERBB2 aberration	1
↳ ERBB2 positive	22
↳ ERBB2 overexpression	113

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Evidence Summary by Variant Class (continued)

A variant class hierarchy was created to summarize gene variants with associated clinical evidence. Evidence items refers to citations across the different global data sources.

KRAS p.(G12D) c.35G>A

Variant Class	Evidence Items
RAS/RAF/MEK/ERK pathway	4
↳ RAS/RAF/MEK/ERK mutation	0
↳ RAS mutation status	0
↳ RAS mutation	3
↳ KRAS mutation status	0
↳ KRAS mutation	9
↳ KRAS activating mutation	0
↳ KRAS G12 mutation	5
↳ KRAS G12D mutation	1
↳ KRAS exon 2 mutation	10
↳ KRAS G12 mutation	5
↳ KRAS G12D mutation	1
↳ RAS activating mutation	0
↳ KRAS activating mutation	0
↳ KRAS G12 mutation	5
↳ KRAS G12D mutation	1
↳ KRAS aberration	0
↳ KRAS positive	0
↳ KRAS mutation status	0
↳ KRAS mutation	9
↳ KRAS activating mutation	0
↳ KRAS G12 mutation	5
↳ KRAS G12D mutation	1
↳ KRAS exon 2 mutation	10

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Evidence Summary by Variant Class (continued)

A variant class hierarchy was created to summarize gene variants with associated clinical evidence. Evidence items refers to citations across the different global data sources.

KRAS p.(G12D) c.35G>A (continued)

Variant Class	Evidence Items
↳ KRAS G12 mutation	5
↳ KRAS G12D mutation	1

CDKN2A p.(Y44*) c.132C>A

Variant Class	Evidence Items
G1/S cell cycle pathway	1
↳ CDKN2A aberration	1
↳ CDKN2A negative	0
↳ CDKN2A mutation	1

TP53 p.(C229fs) c.686_687delGT

Variant Class	Evidence Items
TP53 aberration	0
↳ TP53 mutation	3
↳ TP53 deleterious mutation	2

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Variant Details

DNA Sequence Variants

Gene	Amino Acid Change	Coding	Variant ID	Allele Frequency	Transcript	Variant Effect	Gene Class	Variant Class
CDKN2A	p.(Y44*)	c.132C>A	.	24.25%	NM_001195132.1	nonsense	Loss of Function	Deleterious
KRAS	p.(G12D)	c.35G>A	COSM521	25.44%	NM_033360.3	missense	Gain of Function	Hotspot
TP53	p.(C229fs)	c.686_687delGT	.	21.93%	NM_000546.5	frameshift Deletion	Loss of Function	Deleterious

Copy Number Variations

Gene	Locus	Copy Number
ERBB2	chr17:37868168	20.86

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References

1. King et al. Amplification of a novel v-erbB-related gene in a human mammary carcinoma. Science. 1985 Sep 6;229(4717):974-6. PMID: 2992089
2. Gutierrez et al. HER2: biology, detection, and clinical implications. Arch. Pathol. Lab. Med. 2011 Jan;135(1):55-62. PMID: 21204711
3. Di et al. erbB-2 is a potent oncogene when overexpressed in NIH/3T3 cells. Science. 1987 Jul 10;237(4811):178-82. PMID: 2885917
4. Hudziak et al. Increased expression of the putative growth factor receptor p185HER2 causes transformation and tumorigenesis of NIH 3T3 cells. Proc. Natl. Acad. Sci. U.S.A. 1987 Oct;84(20):7159-63. PMID: 2890160
5. Lonardo et al. The normal erbB-2 product is an atypical receptor-like tyrosine kinase with constitutive activity in the absence of ligand. New Biol. 1990 Nov;2(11):992-1003. PMID: 1983208
6. Ciriello et al. Comprehensive Molecular Portraits of Invasive Lobular Breast Cancer. Cell. 2015 Oct 8;163(2):506-19. PMID: 26451490
7. Cancer Genome Atlas Research Network. Comprehensive molecular characterization of gastric adenocarcinoma. Nature. 2014 Sep 11;513(7517):202-9. doi: 10.1038/nature13480. Epub 2014 Jul 23. PMID: 25079317
8. Cancer Genome Atlas Research Network. Comprehensive molecular characterization of urothelial bladder carcinoma. Nature. 2014 Mar 20;507(7492):315-22. doi: 10.1038/nature12965. Epub 2014 Jan 29. PMID: 24476821
9. Cancer Genome Atlas Network. Comprehensive molecular characterization of human colon and rectal cancer. Nature. 2012 Jul 18;487(7407):330-7. PMID: 22810696
10. Cancer Genome Atlas Research Network. Comprehensive molecular profiling of lung adenocarcinoma. Nature. 2014 Jul 31;511(7511):543-50. doi: 10.1038/nature13385. Epub 2014 Jul 9. PMID: 25079552
11. Cancer Genome Atlas Research Network. Integrated genomic analyses of ovarian carcinoma. Nature. 2011 Jun 29;474(7353):609-15. PMID: 21720365
12. Weinstein et al. The Cancer Genome Atlas Pan-Cancer analysis project. Nat. Genet. 2013 Oct;45(10):1113-20. PMID: 24071849
13. Cerami et al. The cBio cancer genomics portal: an open platform for exploring multidimensional cancer genomics data. Cancer Discov. 2012 May;2(5):401-4. PMID: 22588877
14. Petrelli et al. Clinical and pathological characterization of HER2 mutations in human breast cancer: a systematic review of the literature. Breast Cancer Res. Treat. 2017 Nov;166(2):339-349. PMID: 28762010
15. Bose et al. Activating HER2 mutations in HER2 gene amplification negative breast cancer. Cancer Discov. 2013 Feb;3(2):224-37. doi: 10.1158/2159-8290.CD-12-0349. Epub 2012 Dec 7. PMID: 23220880
16. Slamon et al. Human breast cancer: correlation of relapse and survival with amplification of the HER-2/neu oncogene. Science. 1987 Jan 9;235(4785):177-82. PMID: 3798106
17. Hudis. Trastuzumab--mechanism of action and use in clinical practice. N. Engl. J. Med. 2007 Jul 5;357(1):39-51. PMID: 17611206
18. https://www.accessdata.fda.gov/drugsatfda_docs/label/2018/103792s5345lbl.pdf
19. https://www.accessdata.fda.gov/drugsatfda_docs/label/2018/125409s123lbl.pdf
20. https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/125427s105lbl.pdf
21. NCCN Guidelines® - NCCN-Breast Cancer [Version 1.2019]
22. https://www.accessdata.fda.gov/drugsatfda_docs/label/2018/022059s024lbl.pdf
23. https://www.accessdata.fda.gov/drugsatfda_docs/label/2018/208051s002lbl.pdf
24. Ma et al. Neratinib Efficacy and Circulating Tumor DNA Detection of HER2 Mutations in HER2 Nonamplified Metastatic Breast Cancer. Clin. Cancer Res. 2017 Oct 1;23(19):5687-5695. PMID: 28679771
25. De et al. Clinical activity of afatinib (BIBW 2992) in patients with lung adenocarcinoma with mutations in the kinase domain of HER2/neu. Lung Cancer. 2012 Apr;76(1):123-7. PMID: 22325357
26. Kris et al. Targeting HER2 aberrations as actionable drivers in lung cancers: phase II trial of the pan-HER tyrosine kinase inhibitor dacomitinib in patients with HER2-mutant or amplified tumors. Ann. Oncol. 2015 Jul;26(7):1421-7. PMID: 25899785

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References (continued)

27. Falchook et al. Non-small-cell lung cancer with HER2 exon 20 mutation: regression with dual HER2 inhibition and anti-VEGF combination treatment. J Thorac Oncol. 2013 Feb;8(2):e19-20. PMID: 23328556
28. David et al. Neratinib in HER2- or HER3-mutant solid tumors: SUMMIT, a global, multi-histology, open-label, phase 2 'basket' study. AACR 2017. Abstract CT001
29. Nayar et al. Acquired HER2 mutations in ER+ metastatic breast cancer confer resistance to estrogen receptor-directed therapies. Nat. Genet. 2019 Feb;51(2):207-216. PMID: 30531871
30. Pylayeva-Gupta et al. RAS oncogenes: weaving a tumorigenic web. Nat. Rev. Cancer. 2011 Oct 13;11(11):761-74. PMID: 21993244
31. Karnoub et al. Ras oncogenes: split personalities. Nat. Rev. Mol. Cell Biol. 2008 Jul;9(7):517-31. PMID: 18568040
32. Scott et al. Therapeutic Approaches to RAS Mutation. Cancer J. 2016 May-Jun;22(3):165-74. doi: 10.1097/PPO.0000000000000187. PMID: 27341593
33. Román et al. KRAS oncogene in non-small cell lung cancer: clinical perspectives on the treatment of an old target. Mol Cancer. 2018 Feb 19;17(1):33. doi: 10.1186/s12943-018-0789-x. PMID: 29455666
34. Dinu et al. Prognostic significance of KRAS gene mutations in colorectal cancer--preliminary study. J Med Life. 2014 Oct-Dec;7(4):581-7. PMID: 25713627
35. Allegra et al. Extended RAS Gene Mutation Testing in Metastatic Colorectal Carcinoma to Predict Response to Anti-Epidermal Growth Factor Receptor Monoclonal Antibody Therapy: American Society of Clinical Oncology Provisional Clinical Opinion Update 2015. J. Clin. Oncol. 2016 Jan 10;34(2):179-85. PMID: 26438111
36. https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/125084s273lbl.pdf
37. https://www.accessdata.fda.gov/drugsatfda_docs/label/2017/125147s207lbl.pdf
38. Slebos et al. K-ras oncogene activation as a prognostic marker in adenocarcinoma of the lung. N. Engl. J. Med. 1990 Aug 30;323(9):561-5. PMID: 2199829
39. Muller et al. Mutant p53 in cancer: new functions and therapeutic opportunities. Cancer Cell. 2014 Mar 17;25(3):304-17. PMID: 24651012
40. Olivier et al. TP53 mutations in human cancers: origins, consequences, and clinical use. Cold Spring Harb Perspect Biol. 2010 Jan;2(1):a001008. PMID: 20182602
41. Guha et al. Inherited TP53 Mutations and the Li-Fraumeni Syndrome. Cold Spring Harb Perspect Med. 2017 Apr 3;7(4). PMID: 28270529
42. Cancer Genome Atlas Research Network. Comprehensive genomic characterization of squamous cell lung cancers. Nature. 2012 Sep 27;489(7417):519-25. PMID: 22960745
43. Cancer Genome Atlas Network. Comprehensive genomic characterization of head and neck squamous cell carcinomas. Nature. 2015 Jan 29;517(7536):576-82. PMID: 25631445
44. Campbell et al. Distinct patterns of somatic genome alterations in lung adenocarcinomas and squamous cell carcinomas. Nat. Genet. 2016 Jun;48(6):607-16. PMID: 27158780
45. Cancer Genome Atlas Research Network. Integrated genomic characterization of oesophageal carcinoma. Nature. 2017 Jan 12;541(7636):169-175. doi: 10.1038/nature20805. Epub 2017 Jan 4. PMID: 28052061
46. Olivier et al. The IARC TP53 database: new online mutation analysis and recommendations to users. Hum. Mutat. 2002 Jun;19(6):607-14. PMID: 12007217
47. Rivlin et al. Mutations in the p53 Tumor Suppressor Gene: Important Milestones at the Various Steps of Tumorigenesis. Genes Cancer. 2011 Apr;2(4):466-74. PMID: 21779514
48. Petitjean et al. TP53 mutations in human cancers: functional selection and impact on cancer prognosis and outcomes. Oncogene. 2007 Apr 2;26(15):2157-65. PMID: 17401424
49. Soussi et al. Recommendations for analyzing and reporting TP53 gene variants in the high-throughput sequencing era. Hum. Mutat. 2014 Jun;35(6):766-78. PMID: 24729566
50. NCCN Guidelines® - NCCN-Acute Myeloid Leukemia [Version 2.2019]
51. NCCN Guidelines® - NCCN-Myelodysplastic Syndromes [Version 2.2019]

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References (continued)

52. NCCN Guidelines® - NCCN-Myeloproliferative Neoplasms [Version 2.2019]
53. Parrales et al. Targeting Oncogenic Mutant p53 for Cancer Therapy. Front Oncol. 2015 Dec 21;5:288. doi: 10.3389/fonc.2015.00288. eCollection 2015. PMID: 26732534
54. Zhao et al. Molecularly targeted therapies for p53-mutant cancers. Cell. Mol. Life Sci. 2017 Nov;74(22):4171-4187. PMID: 28643165

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