ARUP LABORATORIES
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Client: Example Client ABC123
123 Test Drive
Salt Lake City, UT 84108
UNITED STATES

Physician: Doctor, Example

Patient: Patient, Example

DOB	7/6/1941
Gender:	Female
Patient Identifiers:	01234567890ABCD, 012345
Visit Number (FIN):	01234567890ABCD
Collection Date:	00/00/0000 00:00

ERBB2 (HER2/neu) Gene Amplification by FISH with Reflex, Tissue

ARUP test code 2008603

ERBB2 (HER2) by FISH

See Note

RESULT:
HER2 (ERBB2) Amplified

HER2/CEP17 Ratio: 12.5
Average HER2 Signal Number per Cell: 20.0
Average CEP17 Signal Number per Cell: 1.6
Number of Cells Scored: 40
Number of Observers: 2
Scoring Method: Manual

Comment: While the majority of the tumor shows no HER2 amplification, a focal area of distinctive HER2 amplification is noted that comprises 10-15% of the tumor. Since the ASCO/CAP guidelines define HER2-positive status when there is evidence of gene amplification observed within an area of tumor that amounts to 10% of contiguous and homogeneous tumor cells; this case is resulted as Amplified. This variant pattern is described herein for documentation purposes and comparison to any future case.

Controls were run and performed as expected.
This result has been reviewed and approved by [redacted]

(pathologist signature)

METHODOLOGY AND INTERPRETIVE DATA:
Fluorescence in situ hybridization (FISH) analysis for ERBB2 (HER2) gene amplification was performed on a section from a paraffin-embedded tissue block using the Dako HER2 IQFISH PharmDx DNA Probe kit. Cells were evaluated from regions of tumor identified on histopathologic review of a matching hematoxylin- and eosin-stained section. Controls performed appropriately.

The Dako HER2 IQFISH test result was interpreted according to the American Society of Clinical Oncology/College of American Pathologists (ASCO/CAP) 2018 Guideline Recommendations for breast cancer fixed in formalin for 6-72 hours. Accordingly, an amplified result indicates an ERBB2/CEP17 ratio of 2.0 or greater with an average copy number of 4.0 or greater (group 1). A nonamplified result indicates an ERBB2/CEP17 ratio less than 2.0 with an average ERBB2 copy number less than 4.0 (group 5). Groups 2-4 encompass findings previously designated as either positive or equivocal. Specifically, group 2 indicates an ERBB2/CEP17 ratio of 2.0 or greater with an average ERBB2 copy number of less than 4.0. Group 3 indicates an ERBB2/CEP17 ratio of less than 2.0 with an average ERBB2 copy number of 6.0 or greater. Group 4 indicates an ERBB2/CEP17 ratio of less than 2.0

	with an average ERBB2 copy number of at least 4.0 but less than 6.0. For groups 2-4, concomitant review of HER2 IHC is performed according to the 2018 Guidelines, when such slides are available. If the IHC score is 3+, then the final result is considered positive for amplification. If 0 or 1+, then the final result is negative for amplification. If the IHC score is 2+, then additional tumor nuclei are enumerated with FISH from the area of highest IHC intensity by an individual blinded to the original results. If the results remain consistent with groups 2 or 4, then the final interpretation is considered negative. An amplified result is reserved for cases in which the recounted population remain consistent with the original results of group 3 (ERBB2/CEP17 ratio of less than 2.0 with an average ERBB2 copy number of 6.0 or greater). Genetic heterogeneity is reported when there is an aggregate population of amplified cells comprising greater than 10 percent of the tumor cell population on a slide. Cases with amplification of 50 percent or more of the tumor population are considered nonheterogeneous. Based on the assay performance during test validation, the test is expected to detect HER2 amplification status correctly in 100 percent of patients. Assay range and limit of detection were generated using normal and known positive cases respectively. The Dako HER2 IQFISH PharmDx test kit is validated and FDA-approved for the evaluation of ERBB2 (HER2) gene amplification in formalin-fixed, paraffin-embedded breast and gastroesophageal adenocarcinomas. In the absence of guidelines for interpretation of ERBB2 (HER2) amplification in all other specimen types, the test results are interpreted according to 2017 ASCO/CAP guidelines for HER2 in gastroesophageal adenocarcinoma. The results should be interpreted within the appropriate clinical context.
Fixative Used	Formalin
Time from Bx to Fixative	< 1 hr.
Duration of Fixation	6-72 hrs.
Sample Adequacy	Adequate
ERBB2 Reference Number	FRSS24-10639 A1
ERBB2 Tissue Source	R Breast

H=High, L=Low, *=Abnormal, C=Critical

VERIFIED/REPORTED DATES

Procedure	Accession	Collected	Received	Verified/Reported
ERBB2 (HER2) by FISH	24-222-151387	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Fixative Used	24-222-151387	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Time from Bx to Fixative	24-222-151387	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Duration of Fixation	24-222-151387	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Sample Adequacy	24-222-151387	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
ERBB2 Reference Number	24-222-151387	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
ERBB2 Tissue Source	24-222-151387	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00

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