

# Her-2/neu Overexpression Due to Polysomy 17 in Breast Cancer. Molecular Testing to Guide Therapeutic Options

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## Online supplemental tables

**Table 1.** Tumor characteristics in the study population

	n (%)
Stage of disease	
I-III	50 (90.9)
IV	4 (9.1)
Node status	
Positive	33 (61.1)
Negative	21 (39.9)
ER/PR status	
ER+	23 (41.8)
PR+	19 (34.5)

ER = Estrogen receptor;  
 PR = progesterone receptor.

**Table 2.** The likelihood ratio of gene expression predicting FISH ratio positivity

	Fish ratio, n (%)	
	positive	negative
Gene expression		
Positive	6 (100) <sup>a</sup>	12 (33.3)
Negative	0 (0)	22 (66.7)

<sup>a</sup>p < 0.01 (Chi square).

FISH = Fluorescent in situ hybridization.

**Table 3.** Comparison of Her-2/neu mRNA gene expression levels with FISH ratio, and polysomy-positive/negative and IHC 2+/3+ samples

	No polysomy (n = 30)	Polysomy (n = 10)	FISH ratio- negative (n = 34)	FISH ratio- positive (n = 6)	IHC 2+ (n = 30)	IHC 3+ (n = 10)
Gene expression, mean ± SD	23.8 ± 55.6	20.1 ± 49.5	9.8 ± 21.5	78.1 ± 104.3 <sup>a</sup>	6.89 ± 8.3	38.74 ± 46.9 <sup>a</sup>
Her-2/neu copy number, mean ± SD	4.3 ± 3.8	6.7 ± 6.2 <sup>a</sup>	3.36 ± 1.1	13.4 ± 6.8 <sup>a</sup>	3.86 ± 2.8	7.84 ± 6.99

<sup>a</sup>p < 0.01 (Mann Whitney).

FISH = Fluorescent in situ hybridization; IHC = immunohistochemistry; SD = standard deviation.

**Table 4.** Likelihood ratio for immunohistochemistry (IHC), polysomy status, and Her-2/neu copy number determining FISH ratio categories

	FISH ratio-negative, n (%)	FISH ratio-equivocal, n (%)	FISH ratio-positive, n (%)	Likelihood ratio	p
IHC positivity					
IHC 2+	28 (93.3)	1 (3.3)	1 (3.3)	11.51	0.003
IHC3+	5 (50)	0 (0)	5 (50)		
Polysomy based on CEP17					
No Polysomy	25 (83.3)	1 (3.3)	4 (13.3)	0.57	0.75
Polysomy	8 (88.9)	0 (0)	1 (11.1)		
FISH Her-2/neu gene copy number					
Negative	23 (100)	0 (0)	0 (0)	36.14	< 0.001
Equivocal	10 (90.9)	1 (9.1)	0 (0)		
Positive	0 (0)	0 (0)	6 (100)		

**Table 5.** Likelihood ratio for FISH copy number and polysomy status determining immunohistochemistry (IHC) positivity

	IHC positivity 2+, n (%)	IHC positivity 3+, n (%)	Likelihood ratio	p
FISH Her-2/neu gene copy number				
Negative	19 (82.6)	4 (17.4)	36.14	0.003
Equivocal	10 (90.9)	1 (9.1)		
Positive	1 (16.7)	5 (83.3)		
Polysomy based on CEP17				
No Polysomy	6 (66.7)	3 (33.3)	0.66	0.34
Polysomy	24 (80)	6 (20)		

**Table 6.** Bivariate relationships between various Her-2/neu test results

	IHC positivity	Copy number (CEP17)	FISH ratio CAT	Gene expression individual	Fish ratio	Polysomy based on CEP17	FISH copy number Her-2/neu CAT
Copy number (CEP17)	-0.225						
FISH ratio category	0.512**	-0.258					
Gene expression individual	0.451**	-0.101	0.451**				
FISH ratio	0.360*	-0.038	0.660**	0.362*			
Polysomy based on CEP17	-0.133	0.714	-0.285	-0.119	-0.059		
FISH copy number: Her-2/neu CAT	0.336*	0.249	0.717**	0.326*	0.728**	-0.018	
Copy number Her-2/neu	0.260	0.510**	0.621**	0.338*	0.704**	0.238	0.887**

\*p &lt; 0.05;

\*\* p &lt; 0.01 on Spearman's rank correlation.