1 Categorization of Select Biomarkers in Breast Cancer

Biomarker	Prognostic	Predictive	Susceptibility
ER/PR			
HER2			
Ki67			
BRCA1/2			
PD-L1			
PIK3CA			

2 Which of the following statements are true about PD-L1 expression in mBC? (Choose all that apply)

a Choice of PD-L1 antibody can affect the results

b PD-L1 can inform treatment decisions for all patients with mBC

c Results are observer dependent

d A CPS score of ≥15% is considered informative

3 PIK3CA mutation is found in what percentage of patients with breast cancer?

a 5%

b 70%

c 36%

d 25%

4 True or False: HER2 and PIK3CA mutations are generally stable during the course of the disease.

a True

b False

5 NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) recommend testing all patients with recurrent/stage IV breast cancer for which of the following biomarkers? (Select all that apply)

a ER/PR

b HER2

c BRCA1/2

d PD-L1

e ESR1

f PIK3CA

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| Biomarker	Prognostic	Predictive	Susceptibility
ER/PR[1]	---	X	---
HER2[2]	---	X	---
Ki67 [3,4]	X	---	---
BRCA1/2[5]	---	X	X
PD-L1[6,7]	X	X	---
PIK3CA [7-11]	X	X	---

(pages 5, 18)

2

A and C. Anti−PD-L1 antibodies are not interchangeable when testing tissue from a patient with breast cancer. PD-L1 expression level may be impacted by interobserver agreement.[12-14] PD-L1 positivity is associated with eligibility for a treatment with an immunotherapy in patients with TNBC. There are different ways to assess PD-L1 positivity. In TNBC, PD-L1 expression CPS ≥ 10 is clinically informative.[6,14-16] (page 15)

3

C. PIK3CA is a common mutation in breast cancer, found in 36% of all patients with breast cancer and 42% of patients HR-positive/HER2-negative disease.[17] (page 17)

4

False. PIK3CA mutations are generally stable but may change in some patients.[18] Receptor switching may occur in 2.9%-10.3% of cases for HER2.[19,20] HER2 mutations may arise during treatment and confer resistance to anti-HER2 therapies.[21] (page 11)

5

A, B, C, D, F. NCCN Guidelines® recommend testing all patients with mBC for ER, PR, HER2, BRCA1/2, PIK3CA, and PD-L1.[15] (page 6)

Biomarker Testing in Breast Cancer
An Essential Component of the Treatment Decision Making Process
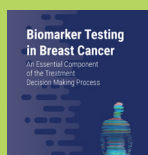
This knowledge check is connected to the chapter "Biomarker Testing in Breast Cancer: An Essential Component of the Treatment Decision Making Process." To get a copy of this and other chapters, please visit: **https://www.hcp.novartis.com/precision-medicine**

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BRCA1/2, breast cancer gene 1/2; CPS, combined positive score; ER, estrogen receptor; ESR1, estrogen receptor 1; HER2, human epidermal growth factor receptor 2; HR, hormone receptor; mBC, metastatic breast cancer; PD-L1, programmed death-ligand 1; PIK3CA, phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit alpha; PR, progesterone receptor; TNBC, triple-negative breast cancer.
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