

Knowledge Check 1

1

Fill in the blanks: Biomarker testing in oncology is complex, as of June 2022, there were: _____ FDA-approved biomarker-linked interaction, _____ actionable genomic alterations, and _____ cancer types:

- a ≥ 70 , 43, and 28
- b ≥ 75 , 47, and 36
- c ≥ 85 , 50, and 40
- d ≥ 100 , 62, and 53

2

How does biopsy choice and site impact testing outcomes? Select all that apply:

- a The decalcification process can risk impairing the sample yield and integrity with bone biopsies
- b Receptor status can change over the course of the disease
- c Variability between the primary tumor and metastatic site can occur
- d Rebiopsy after disease progression does not provide clinically meaningful data

3

Which of the following statements is true for liquid biopsy test results?

- a Provide a snapshot of the cellular and molecular characteristics of 1 part of a single tumor
- b Can be linked with histology
- c All of the above
- d None of the above

4

Testing for biomarkers generally requires _____% of tumor nuclei in collected samples to be above the LOD:

- a 10%
- b 15%
- c 18%
- d 20%

5

True or false, ROSE can be performed without a cytopathologist present?

- a True
- b False

1 A. As of June 2022, there were more than 70 US Food and Drug Administration (FDA)-approved biomarker-linked indications and 43 actionable genomic alterations.^{1,2}

2 A, B, and C.

A: Bone biopsy requires decalcification, which may impair sample yield and integrity, potentially negatively impacting biomarker testing outcomes.³

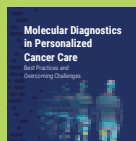
B: The receptor status may change over the course of the disease in certain cancers. Rebiopsy after disease progression may provide important and/or new information.⁴⁻⁷

C: Biomarker discordance between the primary tumor and a metastatic site may occur. Additional/different drivers/mutations may occur through clonal evolution over the course of the disease.⁸⁻¹²

3 C. Liquid biopsy test results may reflect the overall genomic landscape of the tumor and all metastatic sites^{13,14}. It cannot directly correlate ctDNA results with histology or cellular phenotype and it may miss an alteration if ctDNA concentration is below the LOD, leading to a false negative.¹⁴⁻¹⁷

4 D. Testing for biomarkers generally requires 20% of tumor nuclei in samples.^{18,19} Testing samples with a lower tumor proportion may result in false negatives, depending on the LOD.²⁰⁻²³ Training may help lower discrepancies in estimating tumor content.¹⁸

5 TRUE: Telet cytology allows ROSE to be done with an off-site cytopathologist; in telet cytology-performed ROSE, the cytopathologist reviews images of the slides sent via a secured network.²⁴⁻²⁶



This knowledge check is connected to the chapter
 “The Growing Role for Molecular Diagnostics in Cancer Care.”
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ctDNA, circulating tumor deoxyribonucleic acid; LOD, limit of detection; ROSE, rapid on-site evaluation.

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