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Diagnostic biomarkers in metastatic breast cancer

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In patients with a history of breast cancer, determining the tissue origin of a tumor in another organ site is important due to its implication for clinical treatment. Conversely, the breast is an infrequent site of metastasis for tumors from other organs. Tissue-specific immunohistochemical biomarkers are helpful ancillary tools for the diagnosis of tissue origin. Traditionally used keratins have relatively site-specific expression profiles. More recently applied biomarkers such as WT-1 and PAX8 in ovarian carcinomas, TTF-1 and napsin A in lung carcinoma and CDX-2 in colon carcinoma provide additional utility when these sites are included in the differential diagnosis. Estrogen receptor, progesterone receptor and human epidermal growth factor receptor 2, which are routinely performed on invasive breast cancers as prognostic/predictive markers, can also serve as breast-specific markers in some clinical settings. However, in approximately 15% of breast carcinomas, these three markers are negative (triple-negative breast cancer); therefore other breast-specific markers may be needed. Gross cystic disease fluid protein-15, mammaglobin, and most recently, GATA-binding protein 3 are the best biomarkers to date that are associated with breast when a clinical question of tissue origin arises. While GATA-3 appears the most sensitive marker in this regard, a panel of markers should be performed to increase the diagnostic accuracy.

Biography

Lei Huo received her Bachelor of Medicine degree at Beijing Medical University and her PhD in Molecular Biology and Genetics at Northwestern University, Chicago. A practicing breast pathologist in MD Anderson Cancer Center, she is actively involved in clinical and translational research in the field of breast cancer. Her research interests include molecular and immunohistochemical markers in the diagnosis and treatment of breast cancer, among others.

Notes:

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