Ten Best Readings Relating to Molecular Biomarkers


In this review, the authors discuss the biology of tumor cell dissemination, technical advances, challenges, and potential clinical implications of detecting and characterizing circulating tumor cells.


Aberrant p53 protein expression is associated with an increased risk for neoplastic progression in patients with Barrett esophagus and may be a more powerful predictor of neoplastic progression than a histological diagnosis of low-grade dysplasia.


In this review, the authors describe novel key mutations in myelodysplastic syndromes and their significance in pathophysiology and clinical practice.


The authors describe the genomic landscape of 496 papillary thyroid carcinomas (PTCs). In this study, they observed a low frequency of somatic alterations and extended the set of known PTC driver alterations to include *EIF1AX, PPM1D,* and *CHEK2,* along with diverse gene fusions. These discoveries reduced the fraction of PTC cases with unknown oncogenic drivers. The authors propose reclassifying thyroid cancers into molecular subtypes to reflect their underlying signaling and differentiation properties.


The Cancer Genome Atlas study may simplify the classification of thyroid cancer, with the authors suggesting refocused efforts on studying the complexity of the follicular variant of thyroid neoplasia.


An algorithm based on a stepwise analysis with initial immunohistochemistry is presented for ATRX and IDH1-R132H followed by 1p/19q analysis followed by IDH sequencing. IDH sequencing has reduced the number of molecular analyses, leading to a better association with patient outcomes than the World Health Organization classification of 2007.


This review enumerates molecular derangements and targeted agents in soft-tissue sarcoma. Select sarcomas are highlighted to illustrate how pathologists can influence patient care through diagnosis, grading, and molecular characterizations.


This review addresses known recurrent or tumor-specific genetic events in soft-tissue tumors and discusses the molecular approaches commonly used in clinical practice to identify them. Emphasis is placed on the role of molecular pathology in soft-tissue tumor management and the need for pathologists to be familiar with these genetic events.


The authors discuss molecular genetic advances in primary, nonhematological round cell tumors of bone.


The authors compare different methods for determining risk of recurrence in estrogen receptor-positive breast cancer.