

PubMed

U.S. National Library of Medicine
National Institutes of Health

Display Settings: Abstract

Arch Pathol Lab Med. 2011 May;135(5):558-68.

Molecular diagnostics of gliomas.

Nikiforova MN, Hamilton RL.

Abstract

Abstract Context.-Gliomas are the most common primary brain tumors of adults and include a variety of histologic types and morphologies. Histologic evaluation remains the gold standard for glioma diagnosis; however, diagnostic difficulty may arise from tumor heterogeneity, overlapping morphologic features, and tumor sampling. Recently, our knowledge about the genetics of these tumors has expanded, and new molecular markers have been developed. Some of these markers have shown diagnostic value, whereas others are useful prognosticators for patient survival and therapeutic response.

Objective.-To review the most clinically useful molecular markers and their detection techniques in gliomas. **Data**

Sources.-Review of the pertinent literature and personal experience with the molecular testing in gliomas.

Conclusions.-This article provides an overview of the most common molecular markers in neurooncology, including 1p/19q codeletion in oligodendroglial tumors, mutations in the isocitrate dehydrogenase 1 and 2 genes in diffuse gliomas, hypermethylation of the O(6)-methylguanine-DNA methyltransferase gene promoter in glioblastomas and anaplastic gliomas, alterations in the epidermal growth factor receptor and phosphatase and tensin homolog genes in high-grade gliomas, as well as BRAF alterations in pilocytic astrocytomas. Molecular testing of gliomas is increasingly used in routine clinical practice and requires that neuropathologists be familiar with these genetic markers and the molecular diagnostic techniques for their detection.

PMID: 21526954 [PubMed - in process]