COLLEGE of AMERICAN PATHOLOGISTS
Laboratory Quality Solutions

Molecular Biomarker Testing for the Diagnosis of Diffuse Gliomas

Statements and Strengths of Recommendations

SUMMARY OF RECOMMENDATIONS

Guideline Statement	Strength of Recommendation
1. Isocitrate dehydrogenase (IDH) mutational testing must be performed on all diffuse gliomas (DG).	Strong Recommendation
2. ATRX chromatin remodeler (ATRX) status should be assessed in all IDH-mutant DG unless they show 1p/19q codeletion.	Strong Recommendation
3. Tumor protein p53 (TP53) status should be assessed in all IDH-mutant DG unless they show 1p/9q codeletion.	Conditional Recommendation
4. 1p/19q codeletion must be assessed in IDH-mutant DG unless they show ATRX loss or *TP53* mutations.	Strong Recommendation
5. C*yclin-dependent kinase inhibitor 2A* (*CDKN2A)/cyclindependent kinase inhibitor 2B (CDKN2B)* homozygous deletion testing should be performed on IDH-mutant astrocytomas.	Conditional Recommendation
6. *O-6-methylguanine-DNA methyltransferase* (*MGMT)* promoter methylation testing should be performed on all glioblastoma (GBM), IDH-wild type (WT).	Strong Recommendation
7. For IDH-mutant DG, *MGMT* promoter methylation testing may not be necessary.	Conditional Recommendation
8. *TERT* promoter mutation testing may be used to provide further support for the diagnosis of oligodendroglioma and IDH-WT GBM.	Conditional Recommendation
9. For histologic grade 2-3 DG that are IDH-WT, testing should be performed for whole chromosome 7 gain/whole chromosome 10 loss, *epidermal growth factor* (*EGFR)* amplification, and *telomerase reverse transcriptase* (*TERT)* promoter mutation to establish the molecular diagnosis of glioblastoma (GBM), IDH-WT, grade 4.	Strong Recommendation
10. Histone 3 (H3) K27M testing must be performed in DG that involve the midline in the appropriate clinical and pathologic setting.	Strong Recommendation
11. H3 G34 testing may be performed in pediatric and young adult patients with IDH-WT DG.	Conditional Recommendation
12. *B-Raf proto-oncogene* (*BRAF)* mutation testing (V600) may be performed in DG that are IDH-WT and H3-WT.	Conditional Recommendation
13. *MYB proto-oncogene (MYB)/ MYB-like (MYBL1)* and *fibroblast growth factor receptor 1 (FGFR1)* testing may be performed in children and young adults with DG that are histologic grade 2-3 and are IDH-WT and H3-WT.	Conditional Recommendation

Brat DJ, Aldape K, Bridge JA, et al. Molecular biomarker testing for the diagnosis of diffuse gliomas: Guideline from the College of American Pathologists in collaboration with the American Association of Neuropathologists, Association of Molecular Pathology, and Society for Neuro-Oncology. Arch Pathol Lab Med. Published online February 17, 2022. doi:10.5858/arpa.2021-0295-CP