

FULL TEXT LINKS



Review [Expert Rev Neurother](#). 2023 Nov 20:1-15. doi: 10.1080/14737175.2023.2285472.

Online ahead of print.

Advances in molecular and imaging biomarkers in lower-grade gliomas

[Alberto Picca](#)^{1 2}, [Francesco Bruno](#)³, [Lucia Nichelli](#)⁴, [Marc Sanson](#)^{1 2}, [Roberta Rudà](#)³

Affiliations

PMID: 37982735 DOI: [10.1080/14737175.2023.2285472](https://doi.org/10.1080/14737175.2023.2285472)

Abstract

Introduction: Lower-grade (grade 2-3) gliomas (LGGs) constitutes a group of primary brain tumors with variable clinical behaviors and treatment responses. Recent advancements in molecular biology have redefined their classification, and novel imaging modalities emerged for the noninvasive diagnosis and follow-up.

Areas covered: This review comprehensively analyses the current knowledge on molecular and imaging biomarkers in LGGs. Key molecular alterations, such as IDH mutations and 1p/19q codeletion, are discussed for their prognostic and predictive implications in guiding treatment decisions. Moreover, the authors explore theranostic biomarkers for the potential of tailored therapies. Additionally, they also describe the utility of advanced imaging modalities, including widely available techniques, as dynamic susceptibility contrast perfusion-weighted imaging and less validated, emerging approaches, for the noninvasive LGGs characterization and follow-up.

Expert opinion: The integration of molecular markers enhanced the stratification of LGGs, leading to the new concept of integrated histomolecular classification. While the IDH mutation is an established key prognostic and predictive marker, recent results from IDH inhibitors trials showed its potential value as a theranostic marker. In this setting, advanced MRI techniques such as 2-D-hydroxyglutarate spectroscopy are very promising for the noninvasive diagnosis and monitoring of LGGs. This progress offers exciting prospects for personalized medicine and improved treatment outcomes in LGGs.

Keywords: 2-HG spectroscopy; IDH inhibitors; IDH mutation; IDH wildtype; Lower-grade gliomas; integrated histomolecular classification.

[PubMed Disclaimer](#)

LinkOut – more resources

Full Text Sources

[Taylor & Francis](#)