

ABSTRACT

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WHO 2021 and beyond: new types, molecular markers and tools for brain tumor classification.

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PURPOSE OF REVIEW: The fifth edition of the WHO classification of central nervous system tumors was published in 2021. It implemented major advances in the current diagnostic practice such as DNA methylation profiling. The review addresses how our understanding of the diversity of brain tumors has recently much improved through omics analysis and derived molecular biomarkers.

RECENT FINDINGS: Latest impactful studies identifying new diagnostic or prognostic biomarkers in frequent tumors and describing new rare tumor types are summarized about adult and pediatric gliomas, rare neuroepithelial tumors, ependymomas, medulloblastomas and meningiomas. Some controversies are debated. The role of methylation classes and surrogate immunohistochemical markers is highlighted.

SUMMARY: New diagnostic criteria and better definitions of tumor types aim at improving the management of brain tumor patients and at better evaluating new treatments in clinical trials. The rapidly evolving field of brain tumor classification opens exciting perspectives and many challenges to integrate clinical, radiological, histological and molecular information into a framework relevant for care and research.

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