

Diffuse glioma

- [Identifying proximity to white matter language tracts with gradient-based intraoperative electrical mapping](#)
- [Tumor-associated long non-coding RNAs show variable expression across diffuse gliomas and effect on cell growth upon silencing in glioblastoma](#)
- [Congress of neurological surgeons systematic review and evidence-based guidelines for the role of imaging in newly diagnosed WHO grade II diffuse glioma in adults: update](#)
- [Low-grade gliomas do not grow along white matter tracts: evidence from quantitative imaging](#)
- [Genomic landscape of diffuse glioma revealed by whole genome sequencing](#)
- [Risk Factors and Prognostic Implications of Tumor-Related Epilepsy in Diffuse Glioma Patients: A Real-World Multicenter Study](#)
- [Establishment and validation of a nomogram for predicting IDH-wildtype glioblastomas in nonenhancing adult-type diffuse gliomas](#)
- [Inferred developmental origins of brain tumors from single-cell RNA-sequencing data](#)

Diffuse [glioma](#) is a term used to encompass a variety of poorly marginated infiltrating [central nervous system tumor](#), which histologically appear similar to [Glial cells](#), specifically [astrocytes](#) and [oligodendrocytes](#). These range in biological behavior from very indolent to extremely aggressive and this is reflected in grading that ranges from grade 1 to grade 4.

The term diffuse glioma does not include circumscribed [astrocytic tumors](#) (e.g. [pilocytic astrocytoma](#), [subependymal giant cell astrocytoma](#), [pleomorphic xanthoastrocytoma](#) etc...) nor tumors with admixed neuronal elements (e.g. [ganglioglioma](#)) although there is overlap particularly with the latter.

Reports have demonstrated that [chromosomal instability](#), driven in part by [gene mutations](#) maintaining overall genomic stability, is found in subsets of adult-type diffusely infiltrating [diffuse gliomas](#) of all histologic and molecular grades, with resulting in elevated overall copy number burden, [chromothripsis](#), and poor clinical [Glioma prognosis](#). Still, relatively few studies have examined the effect of this process, due in part to the difficulty of routinely measuring CIN clinically.

Richardson et al. reviewed the underlying mechanisms of CIN, the relationship between [chromosomal instability](#) and malignancy, the prognostic significance and treatment potential in various cancers, systemic disease, and more specifically, infiltrating [diffuse glioma](#) subtypes. While still in the early stages of discovery compared to other solid tumor types in which CIN is a known driver of malignancy, the presence of CIN as an early factor in gliomas may in part explain the ability of these tumors to develop resistance to standard therapy, while also providing a potential molecular target for future therapies ¹⁾.

Epidemiology

[Diffuse Glioma Epidemiology](#).

Classification

see also

[WHO grade 1 glioma](#)

[WHO grade 2 glioma](#)

[WHO grade 3 glioma](#)

[WHO grade 4 glioma](#)

Under the [World Health Organization Classification of Tumors of the Central Nervous System 2021](#) they are broadly divided into adult and pediatric type tumors.

Increasingly the classification relies on molecular markers rather than histology.

Adult-type diffuse gliomas

[Astrocytoma IDH-mutant](#)

[Oligodendroglioma IDH-mutant and 1p/19q-codeleted](#)

[Glioblastoma IDH-wildtype](#)

Pediatric-type diffuse low-grade gliomas

[Diffuse astrocytoma MYB or MYBL1-altered](#)

[Angiocentric glioma](#)

[Polymorphous low-grade neuroepithelial tumor of the young](#)

[Diffuse low-grade glioma, MAPK pathway-altered](#)

Pediatric-type diffuse high-grade gliomas

[Diffuse midline glioma, H3 K27-altered](#)

[Diffuse hemispheric glioma, H3 G34-mutant](#)

[Diffuse pediatric-type high-grade glioma, H3-wildtype and IDH-wildtype](#)

[Infant-type hemispheric glioma](#)

Diagnosis

[Diffuse glioma diagnosis.](#)

Guidelines

[EANO guidelines on the diagnosis and treatment of diffuse gliomas of adulthood](#)

Treatment

[Diffuse Glioma Treatment.](#)

Outcome

[Glioma prognosis.](#)

Case series

[Diffuse glioma case series.](#)

1)

Richardson TE, Walker JM, Abdullah KG, McBrayer SK, Viapiano MS, Mussa ZM, Tsankova NM, Snuderl M, Hatanpaa KJ. Chromosomal instability in adult-type diffuse gliomas. *Acta Neuropathol Commun.* 2022 Aug 17;10(1):115. doi: 10.1186/s40478-022-01420-w. PMID: 35978439.

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