

5-aminolevulinic-acid fluorescence-guided resection of glioma

- [Comparative Analysis of Clinical Outcomes in High-Grade Glioma Patients: 5-ALA Fluorescence-Guided Surgery vs. Conventional White-Light Resection](#)
- [5-Aminolevulinic acid as an emerging radiosensitizer for radiodynamic therapy in solid tumors: a systematic review of available data and clinical potential](#)
- [Fluorescence-Guided Surgery for Gliomas: Past, Present, and Future](#)
- [Double fluorescence-guided surgery with 5-ALA and fluorescein sodium in grade 2 and grade 3 adult-type diffuse gliomas: retrospective analysis of 112 cases](#)
- [Comparative Analysis of 5-ALA and Fluorescent Techniques in High-Grade Glioma Treatment](#)
- [Integration of 5-ALA fluorescence and intraoperative MRI in awake craniotomy for glioma resection: a six-year retrospective analysis](#)
- [Current and Future Applications of 5-Aminolevulinic Acid in Neurosurgical Oncology](#)
- [Real-time fluorescence-guided glioblastoma resection with 5-aminolevulinic acid using ORBEYE](#)

see [5-aminolevulinic acid fluorescence guided resection of high-grade glioma](#).

see [5-aminolevulinic acid fluorescence guided resection of low-grade glioma](#).

The major challenge neurosurgeons encounter when resecting infiltrative gliomas is the identification of the glioma tumor margin to perform a radical [resection](#) while avoiding and preserving [eloquent regions](#) of the brain. [5-aminolevulinic acid](#) (5-ALA) remains the only optical-imaging agent approved by the [FDA](#) for use in [glioma surgery](#) and the identification of [tumor tissue](#) ¹⁾.

[5-ALA-based fluorescence guided surgery](#) has been shown to be a safe and effective method to improve intraoperative visualization and resection of [malignant gliomas](#). However, it remains ineffective in guiding the resection of lower-grade, non-enhancing, and deep-seated tumors, mainly because these tumors do not produce detectable fluorescence with conventional visualization technologies, namely, wide-field (WF) [surgical microscope](#). The introduction of [fluorescence guided resection](#) (FGS) represents one of the most important advances in the neurosurgical treatment of brain tumors.

[5-aminolevulinic acid fluorescence guided resection](#) permits the intraoperative visualization of [malignant glioma](#) tissue and supports the neurosurgeon with real-time guidance for differentiating tumor from normal brain that is independent of [neuronavigation](#) and [brain shift](#).

¹⁾

McCracken DJ, Schupper AJ, Lakomkin N, Malcolm J, Painton Bray D, Hadjipanayis CG. Turning on the light for brain tumor surgery: A 5-aminolevulinic acid story. *Neuro Oncol.* 2022 Nov 2;24(Suppl 6):S52-S61. doi: 10.1093/neuonc/noac191. PMID: 36322101; PMCID: PMC9629477.

From:
<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:
https://neurosurgerywiki.com/wiki/doku.php?id=5-aminolevulinic-acid_fluorescence-guided_resection_of_glioma

Last update: **2025/06/05 12:45**

