

Stem cell theory

According to the [stem cell](#) theory, two [neurogenic niches](#) in the adult human [brain](#) may harbor cells that initiate the formation of [gliomas](#): The larger [subventricular zone](#) (SVZ) and the [subgranular zone](#) (SGZ) in the [hippocampus](#). Skjulsvik et al. wanted to explore whether defining [molecular markers](#) in [low-grade gliomas](#) (LGG; WHO grade II) is related to distance to the neurogenic niches.

Patients treated at two Norwegian [university hospitals](#) with population-based referrals were included. Eligible patients had histopathological verified supratentorial low-grade glioma. IDH mutational status and 1p19q co-deletion status was retrospectively assessed. 159 patients were included, and semi-automatic tumor segmentation was done from pre-treatment T2-weighted (T2W) or [Fluid-Attenuated Inversion Recovery \(FLAIR\)](#) images. 3D maps showing the anatomical distribution of the tumors were then created for each of the three molecular subtypes (IDH mutated/1p19q co-deleted, IDH mutated and IDH wild-type). Both distance from tumor center and tumor border to the neurogenic niches were recorded.

In this population-based cohort of previously untreated low-grade gliomas, they found that low-grade gliomas are more often found closer to the SVZ than the SGZ, but IDH wild-type tumors are more often found near SGZ.

The study suggests that the stem cell origin of [IDH wild-type](#) and IDH mutated [low-grade gliomas](#) may be different ¹⁾.

¹⁾

Skjulsvik AJ, Bø HK, Jakola AS, Berntsen EM, Bø LE, Reinertsen I, Myrmed KS, Sjøvik K, Åberg K, Berg T, Dai HY, Kloster R, Torp SH, Solheim O. Is the anatomical distribution of low-grade gliomas linked to regions of gliogenesis? J Neurooncol. 2020 Jan 25. doi: 10.1007/s11060-020-03409-8. [Epub ahead of print] PubMed PMID: 31983026.

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