Mechanistically, tumor cell differentiation is driven by selective white matter upregulation of SOX10, a master regulator of normal oligodendrogenesis. SOX10 overexpression or treatment with myelination-promoting agents that upregulate endogenous SOX10, mimic this response, leading to niche-independent pre-oligodendrocyte differentiation and tumor suppression in vivo. Thus, glioblastoma recapitulates an injury response, and exploiting this latent program may offer treatment opportunities for a subset of patients [1)].

1)
Brooks LJ, Clements MP, Burden JJ, Kocher D, Richards L, Devesa SC, Zakka L, Woodberry M, Ellis M, Jaunmuktane Z, Brandner S, Morrison G, Pollard SM, Dirks PB, Marguerat S, Parrinello S. The white matter is a pro-differentiative niche for glioblastoma. Nat Commun. 2021 Apr 12;12(1):2184. doi: 10.1038/s41467-021-22225-w. PMID: 33846316.