Mass cytometry analysis of IDH-wildtype human tumors identified elevated T cell immune checkpoint receptor expression and greater abundance of a specific CD32+CD44+HLA-DRhigh macrophage population in ventricle-contacting GBM. Multiple computational analysis approaches, phospho-specific cytometry, and focal resection of GBMs confirmed and extended these findings. Phospho-flow quantified cytokine-induced immune cell signaling in ventricle-contacting GBM revealing differential signaling between GBM subtypes. Subregion analysis within a given tumor supported initial findings and revealed intratumoral compartmentalization of T cell memory and exhaustion phenotypes within GBM subtypes. Collectively, these results characterize immunotherapeutic targetable features of macrophages and suppressed lymphocytes in glioblastomas defined by MRI-detectable lateral ventricle contact [1)].

1)
Bartkowiak T, Lima SM, Hayes MJ, Mistry AM, Brockman AA, Sinnaeve J, Leelatian N, Roe CE, Mobley BC, Chotai S, Weaver KD, Thompson RC, Chambless LB, Ihrie RA, Irish JM. An immunosuppressed microenvironment distinguishes lateral ventricle-contacting glioblastomas. JCI Insight. 2023 May 16:e160652. doi: 10.1172/jci.insight.160652. Epub ahead of print. PMID: 37192001.