

# Fluorescence In Situ Hybridization (FISH) Cut-off Value: Loss of Heterozygosity (LOH) on 1p and 19q in Oligodendroglial and Oligoastrocytic Tumors and Glioblastomas with an Oligodendroglial Component

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## Abstract

Loss of heterozygosity (LOH) on 1p and 19q by fluorescence in situ hybridization (FISH) is increasingly performed to confirm histological diagnosis and to direct treatment for oligodendroglial and oligoastrocytic tumors and for glioblastomas that have oligodendroglial components (GBM-O). However, each neuropathology laboratory sets own cut-off value for 1p and 19q LOH. The aim of this study was to determine the cut-off values for 1p and 19q LOH in our institution. We assessed overall survival (OS) in 35 cases, including oligodendrogliomas (OD: n=7), oligoastrocytomas (OA: n=13), anaplastic oligodendroglioma (AO: n=1), anaplastic oligoastrocytomas (AOA: n=5), and GBM-O (n=9). The mean values for 1p and 19q LOH by FISH was 77.5% and 69.9%, respectively, in OD, 69.0% and 66.9%, respectively, in OA, 90.4% and 84.3%, respectively, in AO, 45.0% and 40.0%, respectively, in AOA, 55.9% and 46.0%, respectively, in GBM-O. The five-year overall survival of 35 cases was 60.7%. The group with greater than 60.0% LOH for 1p and 19q showed significantly longer overall survival than the group with less than 60.0% LOH for 1p or 19q ( $p=0.008$ ). Thus, 60% was a reliable cut-off value for 1p and 19q LOH by FISH.

**Key words :** Oligodendroglial Tumor, Cut-off Value, Chromosome 1p and 19q, Loss of Heterozygosity, Fluorescence In Situ Hybridization