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FISH-based detection of 1p 19q codeletion in oligodendroglial tumors: procedures and protocols for neuropathological practice - a publication under the auspices of the Research Committee of the European Confederation of Neuropathological Societies (Euro-CNS).

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Abstract

The codeletion of chromosomal arms 1p 19q is a characteristic and early genetic event in oligodendroglial tumors, that is associated with a better prognosis and enhanced response to therapy. Over the last years, the increasing clinical demand to determine the 1p 19q status has led to the implementation of its testing in many neuropathology laboratories. Several different methods for 1p 19q testing are available: PCR-based loss of heterozygosity analysis, multiplex ligation-dependent probe amplification, array comparative genomic hybridization, and fluorescence in situ hybridization (FISH). Herein, we focus and critically discuss the latter method because a detailed description of procedures and protocols for FISH-based 1p 19q testing in practice is lacking. We present a practical approach to the FISH-based assessment of the 1p 19q status in oligodendroglial tumors, from commonly used locus-specific probes and technical protocols to the neuropathological interpretation of results. Thereby, we aim to facilitate the implementation of FISH-based 1p 19q testing for clinical purposes in standard neuropathology laboratories without special focus on brain tumor research.

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