# Chromosome 1

- 1p and/or 19q polysomy is an adverse prognostic factor in oligodendrogliomas, and easy to detect by automated FISH
- Chromosome 1p Loss and 1q Gain for Grading of Meningioma
- Characteristics, outcome, and prognostic factors of young patients with central nervous system World Health Organization grade 3 oligodendrogliomas IDH-mutant and 1p/19q codeleted: A French POLA network study
- The cortical high-flow sign in oligodendroglioma, IDH-mutant and 1p/19q-codeleted is correlated with histological cortical vascular density
- AlkaPhos: a novel fluorescent probe as a potential point-of-care diagnostic tool to estimate recurrence risk of meningiomas
- Oligoastrocytoma: The Vanishing Entity With True Dual Genotype, a Report, its Molecular Profiles and Review of Literature
- Patient-derived glioma organoids real time identification of IDH mutation, 1p/19q-codeletion and CDKN2A/B homozygous deletion with differential ion mobility spectrometry
- Survival Outcomes Associated With First-Line Procarbazine, CCNU, and Vincristine or Temozolomide in Combination With Radiotherapy in IDH-Mutant 1p/19q-Codeleted Grade 3 Oligodendroglioma

The molecular hallmark feature of oligodendroglioma is codeletion of the short arm of chromosome 1 (1p) and the long arm of chromosome 19 (19q) [1], which is present in about 60–90% of histopathologically diagnosed oligodendroglioma [2].

Complete deletion of both the short arm of chromosome 1 (1p) and the long arm of chromosome 19 (19q) is pathognomonic for oligodendroglioma [3] [4] It is strongly associated with IDH mutation and is mutually exclusive of ATRX & TP53 mutations.

---

## 1q

The long arm of Chromosome 1.

---

NOTCH2NLC is 1 of 3 nearly identical, functional human NOTCH2 (600275)-like genes on chromosome 1q21.1 The NOTCH2L proteins appear to regulate Notch signaling pathway and promote cortical neurogenesis.

---

1q21.1 microdeletion is a chromosomal change in which a small piece of chromosome 1 is deleted in each cell. The deletion occurs on the long (q) arm of the chromosome in a region designated q21.1. This chromosomal change increases the risk of delayed development, intellectual disability, physical abnormalities, and neurological and psychiatric problems. However, some people with a 1q21.1 microdeletion do not appear to have any associated feature

1)

Jenkins RB, Blair H, Ballman KV, Giannini C, Arusell RM, Law M, Flynn H, Passe S, Felten S, Brown PD, Shaw EG, Buckner JC. A t(1;19)(q10;p10) mediates the combined deletions of 1p and 19q and predicts a better prognosis of patients with oligodendroglioma. Cancer Res. 2006 Oct 15;66(20):9852-61. PubMed PMID: 17047046.

2)

van den Bent MJ. Anaplastic oligodendroglioma and oligoastrocytoma. Neurol Clin. 2007 Nov;25(4):1089-109, ix-x. Review. PubMed PMID: 17964027.

3)

Louis DN, Perry A, Reifenberger G, et al. The 2016 World Health Organization Classification of Tumors of the Central Nervous System: a sum- mary. Acta Neuropathol. 2016; 131:803–820

4)

Stupp R, Brada M, van den Bent MJ, et al. High- grade glioma: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. Ann Oncol. 2014; 25 Suppl 3:iii93–ii101