

## PubMed

U.S. National Library of Medicine  
National Institutes of Health



Display Settings:  Abstract

[Oncogene](#). 2010 Nov 15. [Epub ahead of print]

# The ecology of brain tumors: lessons learned from neurofibromatosis-1.

Pong WW, Gutmann DH.

Department of Neurology, Washington University School of Medicine, St Louis, MO, USA.

### Abstract

Traditionally, cancer studies have primarily focused on mutations that activate growth or survival pathways in susceptible pre-neoplastic/neoplastic cells. However, recent research has revealed a critical role for non-neoplastic cells within the tumor microenvironment in the process of cancer formation and progression. In addition, the existence of regional and developmental variations in susceptible cell types and supportive microenvironments support a model of tumorigenesis in which the dynamic symbiotic relationship between neoplastic and non-neoplastic cell types dictate where and when cancers form and grow. In this review, we highlight advances in neurofibromatosis type 1 (NF1) genetically engineered mouse brain tumor (glioma) modeling to reveal how cellular and molecular heterogeneity in both the pre-neoplastic/neoplastic and non-neoplastic cellular compartments contribute to gliomagenesis and glioma growth. *Oncogene* advance online publication, 15 November 2010; doi:10.1038/onc.2010.519.

PMID: 21076468 [PubMed - as supplied by publisher]

[LinkOut](#) - more resources