

ABSTRACT

Adv Exp Med Biol. 2023;1394:85-101. doi: 10.1007/978-3-031-14732-6_6.

Cell of Origin of Brain and Spinal Cord Tumors.

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A better understanding of cellular and molecular biology of primary central nervous system (CNS) tumors is a critical step toward the design of innovative treatments. In addition to improving knowledge, identification of the cell of origin in tumors allows for sharp and efficient targeting of specific tumor cells promoting and driving oncogenic processes. The World Health Organization identifies approximately 150 primary brain tumor subtypes with various ontogeny and clinical outcomes. Identification of the cell of origin of each tumor type with its lineage and differentiation level is challenging. In the current chapter, we report the suspected cell of origin of various CNS primary tumors including gliomas, glioneuronal tumors, medulloblastoma, meningioma, atypical teratoid rhabdoid tumor, germinomas, and lymphoma. Most of them have been pinpointed through transgenic mouse models and analysis of molecular signatures of tumors. Identification of the cell or cells of origin in primary brain tumors will undoubtedly open new therapeutic avenues, including the reactivation of differentiation programs for therapeutic perspectives.

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DOI: 10.1007/978-3-031-14732-6_6

PMID: 36587383 [Indexed for MEDLINE]