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REVIEW ARTICLE

Biomarkers in tumors of the central nervous system – a review

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Until recently, diagnostics of brain tumors were almost solely based on morphology and immunohistochemical stainings for relatively unspecific lineage markers. Although certain molecular markers have been known for longer than a decade (combined loss of chromosome 1p and 19q in oligodendrogliomas), molecular biomarkers were not included in the WHO scheme until 2016. Now, the classification of diffuse gliomas rests on an integration of morphology and molecular results. Also, for many other central nervous system tumor entities, specific diagnostic, prognostic and predictive biomarkers have been detected and continue to emerge. Previously, we considered brain tumors with similar histology to represent a single disease entity. We now realize that histologically identical tumors might show alterations in different molecular pathways, and often represent separate diseases with different natural history and response to treatment. Hence, knowledge about specific biomarkers is of great importance for individualized treatment and follow-up. In this paper we review the biomarkers that we currently use in the diagnostic work-up of brain tumors.

Key words: Histopathology; molecular pathology; pathology of tumors; prognostic markers; surgical patholgy.

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