Hydroxymethyltransferase 2

Scholars have gradually come to appreciate the relevance of serine and glycine metabolism.

Researchers have discovered that mitochondrial serine hydroxymethyltransferase 2 (SHMT2) is overexpressed in various types of cancer. However, the function of SHMT2 in glioma is not clear.

Wang et al., sought to examine the expression of SHMT2 in glioma, the association between SHMT2 expression and clinicopathological characteristics, and the association of SHMT2 expression with prognosis in glioma patients.

They evaluated the expression of SHMT2, Ki67, O6 methylguanine DNA methyltransferase (MGMT), and Glutathione S Transferase pi (GST-pi) in 150 glioma patients using immunohistochemistry assays. The associations among the expression of SHMT2, clinicopathological parameters, and outcome of glioma patients were statistically analysed.

The expression of SHMT2 was increased in gliomas compared to normal brain tissue and gradually increased with increasing WHO grade. The SHMT2 expression was positively correlated with Ki67 expression and WHO degree ($p<0.01$) but was not correlated with other clinicopathological parameters, including sex, age, Karnofsky Performance Status (KPS), tumour diameter, MGMT, and GST-pi ($p>0.05$). Kaplan-Meier survival curves and Cox regression analyses showed that SHMT2 expression and the WHO grade were independent prognostic indicators for glioma patients.

The expression of SHMT2 in glioma was significantly increased compared to normal brain tissue. SHMT2 promoted tumour proliferation, and there was no association between SHMT2 and drug resistance mechanisms of glioma. SHMT2 may be a novel and valuable biomarker for the diagnosis of glioma and an independent prognostic parameter of glioma [1)].

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Wang B, Wang W, Zhu Z, Zhang X, Tang F, Wang D, Liu X, Yan X, Zhuang H. Mitochondrial serine hydroxymethyltransferase 2 is a potential diagnostic and prognostic biomarker for human glioma. Clin Neurol Neurosurg. 2017 Jan 16;154:28-33. doi: 10.1016/j.clineuro.2017.01.005. [Epub ahead of print] PubMed PMID: 28107674.