

# IDENTIFICATION OF 6 POTENTIAL SERUM MARKERS OF ASTROCYTOMA

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Astrocytoma is the most common glial tumor of the central nervous system. The most malignant form of it is grade IV Astrocytoma, also called Glioblastoma (GBM) – less than 5% of GBM patient survive more than 5 years after diagnosis. Due to its aggressiveness and lethal nature scientist are trying to find less invasive method of early prediction of this tumor, and patients' survival time. Over the past decade, YKL-40, TIMP1, TGFβ1, IP-10, ANG-1 and OPN proteins have emerged as a potential mediators of astrocytoma progression. Therefore, the aim of our study was to investigate expression of these six candidate biomarkers in the serum of astrocytoma patients.

Study group consisted of 72 astrocytoma patients (12 grade II, 60 grade IV), 60 healthy controls and 30 meningioma patients. In order to evaluate targeted proteins suitability as astrocytoma's blood markers ELISA method was used. Results of our investigation have demonstrated that TIMP-1, OPN, YKL-40 and TGF-β1 proteins serum levels were able to distinguish astrocytoma patient's group from healthy controls ( $p < 0.05$ ). There was also a statistically significant difference between TIMP-1, YKL-40, OPN proteins expression in GBM patients compared to healthy subjects ( $p < 0.05$ ), like between TIMP-1 level in grade II astrocytoma patients serum and control group ( $p < 0.05$ ). Further evaluation of our data revealed a statistically significant association between TIMP-1, OPN, TGF-β1, ANG-1 and YKL-40 proteins expression in patient serum and patient's survival time ( $p < 0.05$ ).

Results of this research confirmed that TIMP-1, OPN, YKL-40 and TGF-β1 could be a potential astrocytoma diagnostic biomarkers.