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Abstract: CLI-06

Bioinformatic analysis of versican (VCAN) expression as a potential prognostic biomarker in gliomas

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INTRODUCTION: Gliomas are neuroepithelial tumors that originate from glial cells and supporting cells of the central nervous system. They account for 24% of all primary brain tumors and can be classified as ependymomas, astrocytomas, glioblastomas, oligodendrogliomas, oligoastrocytomas, and other subtypes. Ependymomas are benign tumors, whereas astrocytomas are low-grade tumors; glioblastomas, oligodendrogliomas, and oligoastrocytomas are high-grade tumors. The extracellular matrix plays a crucial role in glioma growth and invasion. Versican (VCAN), a chondroitin sulfate proteoglycan found in the extracellular matrix, is produced by tumor and stromal cells, tumor-associated myeloid cells, and infiltrating lymphocytes. **OBJECTIVE:** This study investigated VCAN gene expression in gliomas using bioinformatic tools. **METHOD:** GENT2 (<http://gent2.appex.kr/gent2/>) is an online tool that enables gene-expression analysis in 72 types of normal and tumor tissues using public databases comprising a total of 68,000 samples. This software was used to investigate and compare VCAN expression in healthy tissues (control, n=876) and several glioma subtypes (astrocytoma, n=557; ependymoma, n=314; glioblastoma, n=433; oligodendroglioma, n=149; and oligoastrocytoma, n=61), as well as glioma overall (n=3,438). **RESULTS:** VCAN expression was increased in gliomas compared with healthy brain tissue. When gliomas were separated by subtype, ependymoma samples, representing a benign glioma, showed no significant change in VCAN expression compared with normal samples. However, expression was significantly increased in all other glioma subtypes—oligoastrocytoma, oligodendroglioma, glioblastoma, and astrocytoma—which represent high- and low-grade malignant tumors, respectively. **DISCUSSION:** Given the importance of VCAN in tumor progression, it has been studied as a potential biomarker in several neoplasms, including liver and prostate tumors, in which high expression has already been associated with a worse prognosis. **CONCLUSION:** VCAN expression is increased in malignant gliomas compared with benign gliomas and normal brain tissue and may therefore serve as a potential prognostic biomarker in gliomas.

KEYWORDS: Versican; Glioma; Biomarkers.