Wilms tumor 1 gene, CD97, and the emerging biogenetic profile of glioblastoma.

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Abstract

Glioblastoma multiforme (GBM) is the most common type of primary brain tumor, and current treatment regimens are only marginally effective. One of the most vexing and malignant aspects of GBM is its pervasive infiltration into surrounding brain tissue. This review describes the role of the Wilms tumor 1 gene (WT1) and its relationship to GBM. WT1 has several alternative splicing products, one of which, the KTS(+) variant, has been demonstrated to be involved in the transcriptional activation of a variety of oncogenes as well as the inhibition of tumor suppressor genes. Further, this paper will examine the relationship of WT1 with CD97, a gene that codes for an epidermal growth factor receptor family member, an adhesion G-protein-coupled receptor, thought to promote tumor invasiveness and migration. The authors suggest that further research into WT1 and CD97 will allow clinicians to begin to deal more effectively with the infiltrative behavior displayed by GBM and design new therapies that target this deadly disease.

KEYWORDS: CD97; DAF = decay accelerating factor; EGF-TM7 = epidermal growth factor–7 transmembrane; GBM = glioblastoma multiforme; WT1 = Wilms tumor 1; WTAP = Wilms tumor 1–associated protein (pre-mRNA-splicing regulator WTAP); Wilms tumor 1 gene; glioblastoma; shRNA = short hairpin RNA

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