## CD133

CD133 antigen also known as prominin-1 is a glycoprotein that in humans is encoded by the PROM1 gene.

It is a member of pentaspan transmembrane glycoproteins (5-transmembrane, 5-TM), which specifically localize to cellular protrusions. While the precise function of CD133 remains unknown, it has been proposed to act as an organizer of cell membrane topology.

CD133 has been identified as a cancer stem cell (CSC) marker in gliomas<sup>1)</sup>.

## **Prognostic marker**

Nevertheless, the clinical and prognostic value of CD133 in glioma patients remains controversial. Therefore, Han et al. conducted a systematic metaanalysis to evaluate the correlation of CD133 with World Health Organization (WHO) grade, age, gender, overall survival (OS), and progression free survival (PFS) in glioma patients. Eligible studies on this subject were included, and then pooled odds ratios (ORs) and hazard ratios (HRs) with 95 % confidence intervals (95 % Cls) were estimated. Publication bias was assessed by the funnel plots, and heterogeneity and sensitivity were analyzed as well. In the study, 21 articles with the total number of 1535 patients were included. High expression of CD133 in glioma patients was associated with high WHO grade (III + IV) (n = 11, OR 5.10, 95 % Cl 2.99-8.69; p = 0.000), rather than age (n = 4, OR 2.54, 95 % Cl 0.68-9.52; p = 0.167) and gender (n = 4, OR 0.71, 95 % Cl 0.21-2.45; p = 0.587). In addition, survival analysis demonstrated a significant association between CD133 high expression and poor 2-year OS (n = 11, HR 2.18, 95 % Cl 1.29-3.7; p = 0.004), 5-year OS (n = 4, HR 10.39, 95 % Cl 2.59-41.63; p = 0.001), as well as PFS (n = 10, HR 2.34, 95 % Cl 1.62-3.37; p = 0.000). Taken together, this study suggests that CD133 expression correlates to higher grade of gliomas and worse prognosis in glioma patients. Thus, CD133 could be recommended as a useful pathological and prognostic biomarker in clinical practice <sup>2</sup>.

CD133 positive (CD133+) glioma cancer stem-like cells (GCSCs) markedly promote drug resistance and exhibit increased DNA damage repair capability; thus they have a key role in determining tumor chemosensitivity. Although CD133, DNA-dependent protein kinase (DNA-PK), and MDR1 are elevated in CD133+ GCSCs, the relationship among these molecules has not been elucidated.

## 1)

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Han M, Guo L, Zhang Y, Huang B, Chen A, Chen W, Liu X, Sun S, Wang K, Liu A, Li X. Clinicopathological and Prognostic Significance of CD133 in Glioma Patients: A Meta-Analysis. Mol Neurobiol. 2015 Jan 15. [Epub ahead of print] PubMed PMID: 25589004.

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