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Role of CD 90 as Cancer Stem Cell Biomarker in Hepatocellular Carcinoma (HCC).

Background:

Cancer stem cells (CSCs) have been playing a crucial role in tumor initiation, progression, and resistance to therapy. In Hepatocellualr Carcinoma (HCC), CSCs are thought to be responsible for the high recurrence and poor prognosis making their identification crucial for the diagnosis and treatment. One such biomarker is CD90/Thymosin beta-4, a membrane protein expressed on the surface of CSCs in many cancers, including HCC.

Objectives:

To understand the role of CD90 in HCC, validate its use as a biomarker for patient stratification and treatment selection.

Materials and Methods:

A systemic review of literature on the potential of CD90 as cancer biomarker from relevant research and review articles.

Results and Findings:

CD90's expression being higher in liver CSCs than non-CSCs highlights its potential as biomarker(Xu et al., 2011). A supporting study was demonstrated in an animal model of HCC which showed that targeting CD90 decreased the amount of liver CSCs and prevented tumor growth.

Furthermore, a study showed that small molecules targeting CD90 potently inhibited the self-renewal and tumor-initiating capacity of hepatic CSCs (Dong et al., 2016). Another study in Egypt (Hussein M.,2022) showed high prevalence of CD90 in HCC patients comparing with fibrosis and control group. The literature suggests CD90 as a promising biomarker for CSCs in HCCs with therapeutic potential aiming to target development of new target for the disease.

Conclusion:

As a therapeutic target for HCC, CD90 is a promising biomarker for CSCs. Further research is needed to confirm these findings and establish effective approaches.

Keywords: Hepatocellular Carcinoma (HCC), Cancer stem cell (CSC), Biomarkers, Target therapy, CD90

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