Abstract

HEMOGLOBIN-BASED OXYGEN CARRIER-CONTAINING PHARMACEUTICAL COMPOSITION FOR CANCER TARGETING TREATMENT AND PREVENTION OF CANCER RECURRENCE

The present invention provides a pharmaceutical composition containing a hemoglobin-based oxygen carrier for treating cancer, preventing recurrence and metastasis of cancerous tumor. The composition can be used alone or in combination with at least one chemotherapeutic agent such as 5FU, Bortezomib, doxorubicin, cisplatin, or any combination thereof. The hemoglobin-based oxygen carrier in the composition is capable of targeting a surface receptor expressed on cancerous cells and facilitating the uptake of both hemoglobin-based oxygen carrier and the chemotherapeutic agent by the cancerous cells via a receptor-mediated mechanism. The hemoglobin-based oxygen carrier inhibits the expression of hypoxic response elements such as HIF1 a, VEGF, ET1, VHL, etc. The pharmaceutical composition of the present invention is also useful for inducing the apoptosis or cell death of a type of self-renewing and tumor-initiating cells called cancer stem cells which are located in the hypoxic niche of a cancerous tumor.

[Fig. 1]