## ABSTRACT

## PHARMACEUTICAL COMPOSITION COMPRISING RECOMBINANT HEMOGLOBIN PROTEIN OR SUBUNIT-BASED THERAPEUTIC AGENT FOR CANCER TARGETING TREATMENT

The present invention provides a pharmaceutical composition containing recombinant hemoglobin protein or tetramer or dimer or subunit for tissue oxygenation and treating cancer. The recombinant hemoglobin protein or tetramer or dimer or subunit-based therapeutic agent is also effective for treating cancer. The recombinant hemoglobin or tetramer or dimer or its subunit moiety can target cancer cells and the therapeutic moiety (i.e. active agent/therapeutic drug) can kill the cancer cells efficiently. The recombinant hemoglobin or tetramer or dimer or its subunit-based therapeutic agent used in the present invention can be used in the treatment of various cancers such as pancreatic cancer, leukemia, head and neck cancer, colorectal cancer, lung cancer, breast cancer, liver cancer, nasopharyngeal cancer, esophageal cancer, prostate cancer, stomach cancer and brain cancer. The composition can be used alone or in combination with other therapeutic agent(s) such as chemotherapeutic agent, radiotherapeutic agent, anti-cancer protein drug to give a synergistic effect on cancer treatment, inhibiting metastasis and/or reducing recurrence.

[Figure 2]