

INHIBITION OF CANCER SIGNALLING PATHWAY USING TARGETED ANTAGONIST THERAPIES MIGHT PROVIDE NOVEL STRATEGY FOR CANCER TREATMENT

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Inhibition of cancer pathway is considered as a promising tool to overcome cancer invasion. Hepatocellular carcinoma cells (HCCs) as invasive cancer is mostly Cause aggressive growth, rapid division and wide dispersion. They are programmed and adapted genetically to form new blood vessels (angiogenesis), having ability to be separated from mother tumor (in term of migration) and forming new tumor (metastasis). With these complications, HCCs can enhance their survival growth in spite of their hypoxic tumor environment by pushing rate of their glycolysis. Furthermore, HCCs can furthermore resist drug therapies not only because cells grew in distance far away from blood vessels that can be exposed to low concentrations of drug related to limited drug access but also, HCCs have very complicated network called sinusoid that can cause filtration for foreign and big molecules. Structure, behaviour and physiology of HCCs cause strong challenge for people working on cancer therapy. Nowadays, Nanotechnology has expressed its ability to solve these complicated and challenged issues. For such HCCs, targeted nano carriers are optimized. In this study, chitosan integrated into lipid ring has been used as a vector of bromopyruvic acid. The structure was optimized additionally by folic acid coupled Bovine serum albumin. This assembly was used to inhibit Hexokinase enzyme resulting in block key energy of cancer cells. In second work, polygalacturonic acid (PgA) is not degraded by acidic condition like stomach pH while it can be dissolved by alkaline solution similar to that present in colon. The strategy is to overcome dissolution of PgA in colon and use it for oral administration in HCCs animal model. PgA blocked by polyacrylic acid was also optimized by folic acid conjugated polyethylene glycol. The assembly was used to derive LY- 2157299. It is concluded that for complicated therapies of HCCs, drug delivery system can provide successful application.

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