

Specific Colon Cancer Prophylaxis Using Dendritic Stem Cells and Gold Nanoparticles Functionalized with Colon Cancer Epitopes

Authors : Teodora Mocan, Matea Cristian, Cornel Iancu, Flaviu A. Tabaran, Florin Zaharie, Bartos Dana, Lucian Mocan

Abstract : Colon cancer (CC) a lethal human malignancy, is one of the most commonly diagnosed cancer. With its high increased mortality rate, as well as low survival rate combined with high resistance to chemotherapy CC, represents one of the most important global health issues. In the presented research, we have developed a distinct nanostructured colon carcinoma vaccine model based on a nano-biosystem composed of 39 nm gold nanoparticles conjugated to colon cancer epitopes. We prove by means of proteomic analysis, immunocytochemistry, flow cytometry and hyperspectral microscopy that our developed nanobioconjugate was able to contribute to an optimal prophylactic effect against CC by promoting major histocompatibility complex mediated (MHC) antigen presentation by dendritic cells. We may conclude that the proposed immunoprophylactic approach could be more effective than the current treatments of CC because it promotes recognition of the tumoral antigens by the immune system.

Keywords : anticancer vaccine, colon cancer, gold nanoparticles, tumor antigen

Conference Title : ICBEB 2015 : International Conference on Biomedical Engineering and Biotechnology

Conference Location : Bali, Indonesia

Conference Dates : October 11-12, 2015