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Lead Inventor: Basil Rigas, Ph.D., Professor, Department of Medicine

Title: Manufacture of Platinum Nanoparticles for the Treatment of Cancer and Methods of Use

Background: It is well known that the folate receptor (FR) is frequently over expressed in cancer cells. In particular, there are three FR isoforms (FR- α , FR- β , FR- γ) that have been identified in human tissues and tumors. FR- α and FR- β are known to be greatly over expressed in many human tumors, while normal tissues typically express an insignificant level of FR- α and a low level of FR- β . FR- γ is typically found only in hematopoietic cells. Consequently, folate has been employed in the selective targeting of cancer cells. Some folate-assisted targeting methods that have been explored include delivery of liposomes, macromolecular anti-cancer therapeutic agents, carboplatin analogs, radiolabeled pharmaceuticals and gene transfer. However, there remains a need in the art for a folate receptor targeting composition which can readily induce the apoptosis of cancer cells when selectively binding thereto, while also being easier and less costly to synthesize.

Technology Description: The invention is directed to a cancer-treatment composition containing platinum nanoparticle cores coated with folic acid (FA) molecules for the treatment of cancer or pre-cancerous conditions (i.e., targeting of neoplastic cells).

Applications: Nanoparticles that are designed to selectively target breast cancer cells but not damage normal cells.

Advantages: This treatment technique advantageously provides a folate receptor targeting composition that is facile and inexpensive to synthesize while being highly effective in selectively binding to and preferentially inducing the apoptosis of neoplastic cells.

Patent Number / Publications: Patent Pending

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