

Targeted Liposomes and Theranostic Applications in Cancer Treatment

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Traditional chemotherapy is not recommended in the clinical settings due the severe complications patients exercising during use. Some of these complications include: severe systemic problems, [MDR] and toxicity. The reasons of such off-targeted side effects are due to the poor specificity and selectivity of drug deliver systems to target the biological molecule in the site of cancerous tissue. Therefore, advancement in the targeted delivery systems using nanotechnology techniques and nanocarriers are the area of interest and attention of many researchers, scientists and academians.

Currently, significant developments, approaches and strategies are utilized to target the cancerous tissue. From these strategies of targeting the drug delivery is using nanocarriers such as liposomes, polymer nanoparticles, dandrimers etc. In addition to strengthen the conjugation to the selected extracellular and intracellular biological molecules such as receptors, carbohydrate determinant antigen, antibody etc.

Further more, utilizing the biological microenvironment surrounding the cancerous tumor, such as in passive tragetting, and PEGylated liposomes to overcome the biological barriers through its journey to the cancerous tissue or cells.

Moreover, the nanocarrier can be functionalized with directed ligands [active targeting] and physical responsive stimuli using the relevant techiques for a particular application.

This presentattion will high lights various current and recent strategives to overcome the limitation of conventional chemotherapy.

However, nanotechnology is still in infancy since alot of toxicity of the used nanomaterials and ethical issues have not been resolved yet.

Cell receptors via surface-attached ligands that direct drug uptake into tumor cells or tumor-associated stromal cells, and so can increase the selectivity of drug delivery.

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