High~~ly~~ cancer selectivity and improving drug release from mesoporous silica nanoparticles in the presence of human serum albumin in cisplatin, carboplatin, oxaliplatin, and oxalipalladium treatment

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In this project, drug release was ~~investigated~~ examined ~~by~~ based on~~the~~ adsorption of cisplatin, carboplatin, oxaliplatin, and oxalipalladium on aminated mesoporous silica nanoparticles (*N-HMSNs*) and human serum albumin (HSA). These compounds were ~~specified~~ characterized by different techniques ~~and~~ where three clinical Pt-drugs, cisplatin, carboplatin, oxaliplatin, ~~and also~~plus oxalipalladium were loaded and investigated for release. The loading ability of metallodrug on *N-HMSNs* is dependent on the nature of the drug structure ~~and also~~as well as hydrophobic or hydrophilic interactions. Different adsorption and release profiles were observed for all mentioned compounds ~~were observed~~ via dialysis and ICP method analysis. Although the maximum to minimum loading ~~is related to~~occurred for oxalipalladium, cisplatin, and oxaliplatin to carboplatin, respectively, ~~releasing~~ release from a surface with ~~more controlling~~greater control ~~occurred for~~belonged to carboplatin to cisplatin systems in the absence and presence of HSA to 48 hours due to weak interaction for carboplatin drug. The quick release of all mentioned compounds from the protein level at high doses of the drug during chemotherapy ~~occurs~~ occurred very fast within the first 6 hours. In addition, cytotoxic activity of both free drugs and drug-loaded@*N-HMSNs* samples on cancerous MCF-7, HCT116, A549, and normal HFF cell lines ~~were~~ was evaluated by MTT assay. ~~According to data,~~It was found that free metallodrugs exhibited more active cytotoxic behavior on both cancerous and normal cell lines than drug-loaded@*N-HMSNs*. Data demonstrated that the Cisplatin@*N-HMSNs* with SI=6.0 and 6.6 for MCF7 and HCT116 cell lines, respectively, and Oxaliplatin@*N-HMSNs* with SI=7.4 for HCT116 cell line can be good candidates as an anticancer drug with ~~safely reduce side effect~~minimal side effects by protecting cytotoxic drugs ~~and~~ as well as controlled release and high selectivity.

To treat ovarian, head, testicular, breast, bladder, and neck cancer, commonly clinical Pt drugs are used when ~~Metates~~ metastasis occurs. They are standard chemotherapeutic agents but because of

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