PSMA-targeted Docetaxel Nanoparticles BIND-014

National Cancer Institute

Source

National Cancer Institute. PSMA-targeted Docetaxel Nanoparticles BIND-014. NCI Thesaurus. Code C95892.

A proprietary preparation of polymeric nanoparticles containing the second-generation taxane docetaxel, targeted to prostate-specific membrane antigen (PSMA), with antineoplastic activity. PSMA-targeted docetaxel nanoparticles BIND-014 carry docetaxel within a matrix of polylactic acid covered with a coating of polyethylene glycol; embedded on the surface of the polyethylene glycol coating are ligands targeted to PSMA. BIND-014 allows gradual release of docetaxel upon degradation of the polylactic acid, and the PEG encapsulation escapes the host immune response while PSMA ligands on the surface restrict the cytotoxic effect to PSMA-expressing cells. Docetaxel binds to and stabilizes the beta-tubulin subunit, thereby inhibiting microtubule disassembly which results in cell-cycle arrest at the G2/M phase and cell death. PSMA is a cell-surface antigen that is abundantly present on the surface of cancer cells and on the neovasculature that feeds a wide variety of tumor types.