

Paclitaxel-loaded magnetic nanoparticles as a targeted drug delivery system

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Paclitaxel, a microtubule-stabilizing antineoplastic cytotoxic drug, inhibits invasiveness of several cell types. In this work, an anticancer drug delivery system that combines magnetic nanoparticles with a layer-by-layers system will be proposed. The monodisperse superparamagnetic iron oxide (SPION) was prepared by thermal decomposition. The surface of the iron oxide particles was functionalized with a carboxyl group. Functionalized Fe_3O_4 @TMS-EDTA combined with layer-by-layers system: Poly(L-lysine)/poly(L-glutamic acid) (PLL/PGA).

Next, biotinylated paclitaxel is combined with Fe_3O_4 @TMS-EDTA/PLL/PGA system. The system of Fe_3O_4 @TMS-EDTA/PLL/PGA/biotinylated paclitaxel has a strong antiangiogenic activity, a property that might contribute to its antineoplastic activity *in vivo*.

Speaker Biography

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