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Malaysia explores use of nanoparticles for effective cancer drug delivery

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Novel iron oxide nanoparticles coupled with leukemia anti-cancer drug were assessed



Traditional cancer therapies such as surgery, chemotherapy and radiation methods may have incomplete eradication of cancer or destroy the normal cells. Nanotechnology solves the demerit of these traditional methods by a guide in surgical resection of tumors, target chemotherapies directly, and selective to cancerous cells. This new technology can reduce the risk to the patient and automatically increased the probability of survival.

Toward this goal, a team of researchers at Malaysia developed polymers nanoparticles with particle size less than 200 nm and anticancer drugs were dissolved, encapsulated, adsorbed or entrapped into them, in the form of nanocomposites.

Using this approach, different anticancer drugs were delivered to cancer cells, such as tamoxifen, docetaxel, psoralen, erlotinib/ doxorubicin, ciprofloxacin and betulinic acid.

The novel iron oxide nanoparticles were investigated for their cytotoxicity on normal fibroblast and leukemia cancer cell lines.

In particular, the nanoparticles were used as a carrier for anti-cancer chemotherapy drug chlorambucil (Chloramb), where the nanocomposite turned out to be a promising candidate for magnetically targeted drug delivery for leukemia anti-cancer agents.