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Basic Study

Nanoparticle-linked antagonist for leptin signaling inhibition in breast cancer

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Abstract

AIM: To develop a leptin peptide receptor antagonist linked to nanoparticles and determine its effect on viability of breast cancer cells.

METHODS: The leptin antagonist, LPrA2, was coupled via EDAC [1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide] to iron oxide nanoparticles (IONP-LPrA2) to increase its efficacy. IONP-LPrA2 conjugation was confirmed by Western blot and nanoparticle tracking analysis. Human triple negative breast cancer (TNBC) MDA-MB-231, HCC1806 and estrogen receptor positive (ER+) MCF-7 cells were analyzed for the expression of the leptin receptor, Ob-R. The effects of leptin and antagonist on levels of leptin-induced STAT3 phosphorylation and cyclin D1, cell cycle progression, cell proliferation, and tumorsphere formation in breast cancer cells were determined. Doses

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