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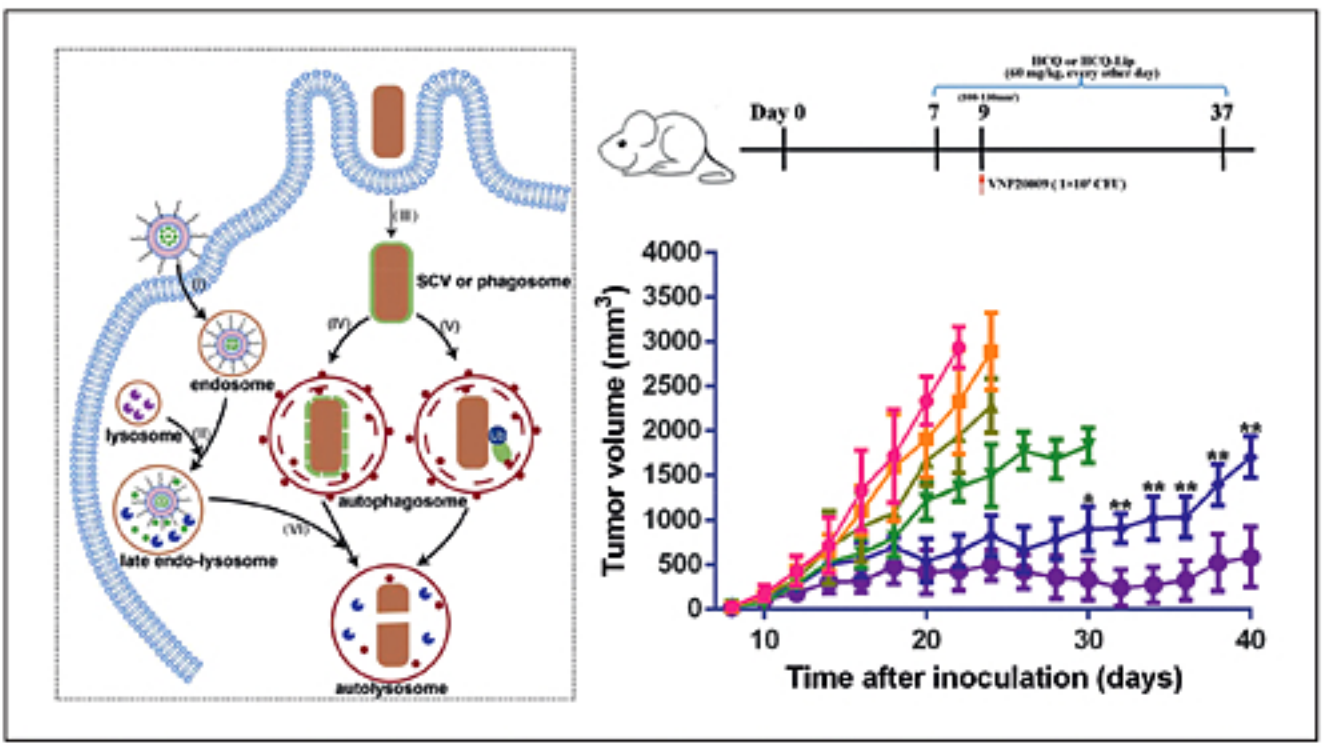

COVER STORY

Enhanced bacterial cancer therapy with hydroxychloroquine liposomes

the combination liposomes were used for systemic treatment of the fibrosis. The effect of the treatment on HSC proliferation, expression of TGFβ1, and collagen type I and III were assessed. In conclusion, our results suggest that the CXCR4-targeted combination therapy can be effectively used in the liver fibrosis.

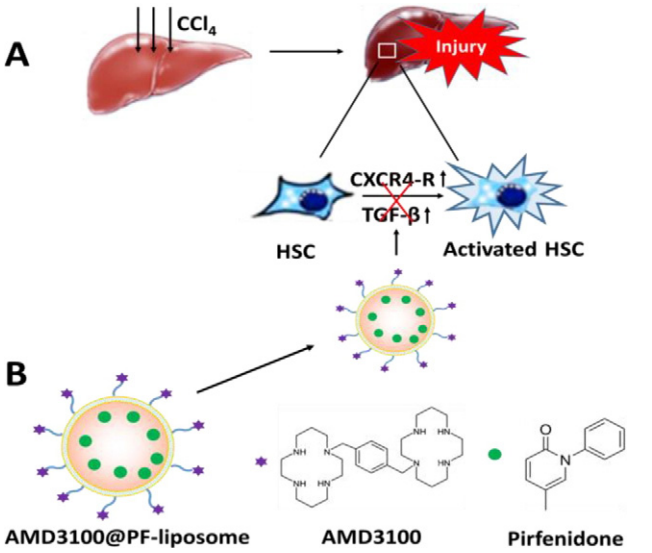

Fig. 1. Schematic representation of mechanism of action of the combination therapy.

Keywords: combination therapy, targeted liposome, AMD3100, liver fibrosis

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Calcium-induced peanut protein nanoparticles for resveratrol delivery

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Currently, biodegradable nanoparticles derived from natural compounds are widely used in the biomedical field [1]. In our previous work, the crosslinked-starch nanoparticles were developed. The release behavior of ciprofloxacin was confirmed to be a double decay exponential model ($R^2 > 0.97$) and the drug release rate was dependent on the loading and drying methods [2].

Based on this thoughtfulness, calcium-induced peanut protein nanoparticles (PPN) were prepared with Z-average diameter of 94.66 ± 0.53 nm (Fig. 1). The PPN exhibited uniform size distribution, spherical shape and excellent thermal, pH, dilution stability. The cytotoxicity assays indicated nontoxicity of PPN for human normal cells (LO2 liver cells and GES1 stomach cells). With resveratrol as a model drug, the drug-loaded PPN has 82.7% of encapsulation efficiency and exhibited superior stability under extracellular conditions. Moreover, the photostability of resveratrol was also significantly improved after PPN encapsulation. The controlled release of PPN for resveratrol lasted for 11 h due to the comprehensive effect of diffusion and skeleton dissolution, conforming to Ritger-peppas kinetic equation: $\ln Q = 0.7097 \ln t - 1.692$ ($R^2 = 0.9950$). Finally, drug-loaded PPN showed remarkable anti-cancer activities to human BGC823 gastric cancer cells (IC_{50}: 64.06 μg/mL) and HepG2 liver cancer cell (IC_{50}: 56.54μg/mL). The results suggest that this resveratrol-loaded PPN may serve as a promising delivery system for long-term anti-cancer.

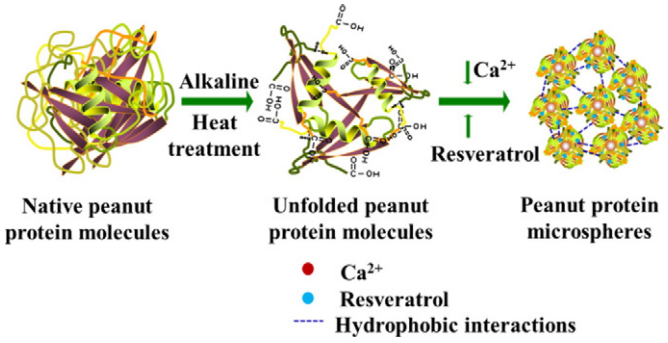

Fig. 1. Illustration of the preparation of resveratrol-loaded PPN.

Keywords: peanut protein, calcium-induced, nanoparticle, drug delivery, anti-cancer

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