

Antitumor effect by combined therapy of Anti-CD 47 siRNA particles and low dose whole radiation

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Abstract

The particles consisted from hyaluronic acid (HA) and Protamine (P), which release anti-CD siRNA with response to radiation, were generated, and their ability to increase antitumor effect and to reduce adverse effect was tested IN VIVO in C3He/N mice. Hyaluronic acid and Protamine were mixed into the solution, containing anti-siRNA and carboplatin, and placed in room temperature for 30 minutes. In this way, particles for tumor treatment were generated. Those particles were subcutaneously injected around the MM 48 tumor in the left hind leg of C3He/N mice. Subsequently, a single doses of 10 Gy 140 keV soft X-rays was given. 24 hours after local radiation to tumours, mice were exposed to 3 cGy of whole-body 140 KeV soft X-ray radiation, at 24 h intervals for 5 days. The particles, which were placed around the tumor, released anti-CD 47 siRNA with response to radiation. Released anti-CD 47 siRNA silenced the CD-47 signal (don't eat me signal), which made tumors easily phagocytosed by immunogenic cells. The whole body irradiation activated the immune-systems of mice, and attacked tumors whose "don't eat me signal" was sliced. Those treatments increased antitumor effect and reduced adverse effect of anti-CD siRNA.