

LASER HEATING OF SULPHURETTED CARBON NANOPARTICLES INHIBITS TUMOR GROWTH

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Earlier we have studied antitumor effect of carbon black nanoparticles heated by short-pulsed laser irradiation [1]. Here we show results of similar study using other tumors.

Colon carcinoma C-26 (Balb/c mice) and sarcoma S-37 (hybrid F1 mice) were used as experimental tumor models. Aqueous suspension of sulphuretted carbon nanoparticles (average size of about 300 nm) was injected intravenously in a dose of 30 mg/kg on the 10th (C-26) or 6th (S-37) day after tumor transplantation. Tumors were irradiated by Nd:YAG laser (1.06 μm wavelength, 10 ns pulse duration, 3 J/cm² pulse energy density, 60 or 120 pulses). Hair on the site of irradiation was removed several days before irradiation.

Tumor growth kinetics in treated animals was compared with control. Animal death within 7 days after treatment was the criteria of toxicity.

Biologically significant tumor growth inhibition (70%) was observed in the groups of treated animals. Death of treated mice was not observed within 2 weeks after treatment.

References

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