

Radiosensitizers in radiotherapy – gold nanoparticles

pátek 12. listopadu 2021 9:52 (3 minuty)

The application of radiosensitizers in the treatment and diagnosis of cancer is one of the most studied scientific topics. There are several types of radiosensitizers – nitro-acids, cell inhibitors, nanoparticles etc. The properties of gold nanoparticles predetermine them for wide use not only in radiotherapy. Treatment of cancer with ionizing radiation is one of the most widely used methods. Therefore, there is a great effort in scientific circles to improve this method towards the least possible damage to healthy tissue. For these reasons, I'm focusing on the study of the effects of gold nanoparticles Au-c, Au-10, Aurion 10nm and Aurion 25nm on cancer (Sk-Br-3) and healthy / normal (NHDF) cells in the process of radiosensitization. Various methods are used to study the cellular response to incubation with nanoparticles (MTT tetrazolium assays, cell viability assays and activation of apoptosis by flow cytometry etc.). We found that Au-c nanoparticles show a cytotoxic effect in the Sk-Br-3 cell line, but not in the NHDF line. The selective cytotoxicity of these nanoparticles could be useful in other industries of cancer treatment. No effect was demonstrated for the other types of nanoparticles examined, but could occur with the use of another source of ionizing radiation.

Supported by the project: DFG 20-04109 J

Přihlásit do soutěže

Ne

Hlavní autoři: DOBEŠOVÁ, Lucie (Biofyzikální ústav AV ČR, v.v.i.); TOUFAR, Jiří (Biofyzikální ústav AV ČR, v.v.i.); PAGÁČOVÁ, Eva (Biofyzikální ústav AV ČR, v.v.i.); KOPEČNÁ, Olga (Biofyzikální ústav AV ČR, v.v.i.); FALKOVÁ, Iva (Biofyzikální ústav AV ČR, v.v.i.); BAČÍKOVÁ, Alena (Biofyzikální ústav AV ČR, v.v.i.); HAUSMANN, Michael (Kirchhoff-Institute for Physics, University of Heidelberg); FALK, Martin (Biofyzikální ústav AV ČR, v.v.i.)

Přednášející: DOBEŠOVÁ, Lucie (Biofyzikální ústav AV ČR, v.v.i.)

Zařazení sekce: Biologické účinky a zdravotní hlediska

Tematická klasifikace: Biologické účinky a zdravotní hlediska