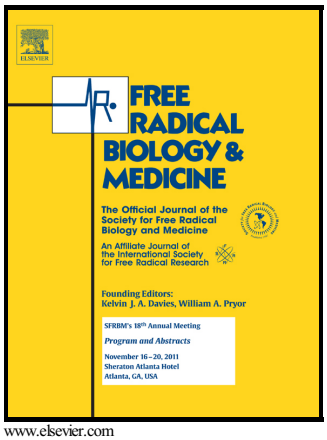

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OKN-007 decreases free radicals levels in a preclinical F98 rat glioma model

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ABSTRACT

Free radicals are associated with glioma tumors. Here, we report on the ability of an anticancer nitrone compound, OKN-007 [Oklahoma Nitrone 007; a disulfonyl derivative of α-phenyl-tert-butyl nitrone (PBN)] to decrease free radical levels in F98 rat gliomas using combined molecular magnetic resonance imaging (mMRI) and immuno-spin trapping (IST) methodologies. Free radicals are trapped with the spin trapping agent, 5,5-dimethyl-1-pyrroline *N*-oxide (DMPO), to form DMPO macromolecule radical adducts, and then further tagged by immuno-spin trapping by an antibody against DMPO-adducts. In this study, we combined mMRI with a biotin-Gd-DTPA-albumin-based contrast agent for signal detection with the specificity of an antibody for DMPO nitrone adducts (anti-DMPO probe), to detect *in vivo* free radicals in OKN-007 treated rat F98 gliomas. OKN-007 was found to significantly decrease ($p < 0.05$) free radicals levels detected with an anti-DMPO probe in treated animals compared to untreated rats. Immunoelectron microscopy was used with gold-labeled anti-biotin to detect the anti-DMPO probe