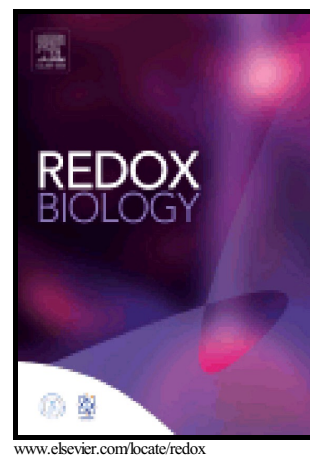


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Silver nanoparticles can attenuate nitrative stress

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Abstract:

We have reported previously that glucose availability can modify toxicity of silver nanoparticles (AgNPs) via elevation of antioxidant defence triggered by increased mitochondrial generation of reactive oxygen species. In this study, we examined the effect of glucose availability on the production of reactive nitrogen species in HepG2 cells and modification of nitrative stress by AgNPs. We found that lowering the glucose concentration increased expression of genes coding for inducible nitric oxide synthase, NOS 2 and NOS2A resulting in enhanced production of nitric oxide. Surprisingly, AgNPs decreased the level of nitric oxide accelerated denitration of proteins nitrated by exogenous peroxynitrite in cells grown in the presence of lowered glucose concentration, apparently due to further induction of protective proteins.

Keywords:

Silver nanoparticles, reactive nitrogen species, reactive oxygen species

Introduction

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