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Inhibitory effects of silver nanoparticles on H1N1 influenza A virus in vitro.

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Abstract

Silver nanoparticles have demonstrated efficient inhibitory activities against human immunodeficiency virus (HIV) and hepatitis B virus (HBV). However, the effects of **silver** nanoparticles against H1N1 influenza A virus remain unexplored. In this study, the interaction of **silver** nanoparticles with H1N1 influenza A virus was investigated. **Silver** nanoparticles with mean particle diameters of 10nm were prepared for the hemagglutination inhibition test, the embryo inoculation assay, and the Mosmann-based 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay, where these tests were used to determine the inhibitory activity of **silver** nanoparticles on H1N1 influenza A virus. MDCK cells were used as the infection model. Electron microscopy analysis and flow cytometry assay were used to determine whether **silver** nanoparticles could reduce H1N1 influenza A virus-induced apoptosis in MDCK cells. This study demonstrates that **silver** nanoparticles have anti-H1N1 influenza A virus activities. The inhibitory effects of **silver** nanoparticles on influenza A virus may be a novel clinical strategy for the prevention of influenza virus infection during the early dissemination stage of the virus.

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