

# **Therapeutic concentrations of propofol protects mouse macrophages from nitric oxide-induced cell death and apoptosis**

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摘要

## **Abstract**

**Purpose** To evaluate the potential effect of a clinically relevant concentration of propofol (PPF) on cell viability and nitric oxide-induced macrophage apoptosis.

**Methods** Mouse macrophages (cell line Raw 264.7) were cultured and incubated with a nitric oxide donor sodium nitroprusside (SNP), PPF, and a combination of PPF and SNP for one, six and 24 hr. Cell viability was determined by the colorimetric 3-(4,5-dimethylthiazol-2-yl)-2, 5-diphenyltetrazolium bromide assay. Apoptotic cells were determined by analyzing the percentages of sub-G1 phase in macrophages. The amounts of nitric oxide were assayed.

**Results** The amounts of nitric oxide in macrophages were increased with time when incubated with SNP ( $P < 0.05$ ). Simultaneously SNP caused cell death of macrophages in a concentration-and time-dependent manner ( $P < 0.05$ ). PPF per se did not alter the amount of basal and SNP-provided nitric oxide in macrophages. A therapeutic concentration of PPF ( $30 \mu M$ ) exhibited no cytotoxicity. After incubation with SNP for one and six hours, PPF could completely or partially block nitric oxide-induced cell death, respectively ( $P < 0.05$ ).

Administration of SNP to macrophages resulted in a time-dependent pattern of increase of apoptotic cells ( $P < 0.05$ ). Similar to the results of the cell viability analyses, PPF was able to protect macrophages from nitric oxide-induced apoptosis in one and six hour-treated groups ( $P < 0.05$ ) but not in the 24 hr treated group.

**Conclusion** PPF at a therapeutic concentration, can protect mouse macrophages in vitro from nitric oxide-induced cell apoptosis as well as cell death.