



# Propofol suppresses proliferation and invasion of gastric cancer cells via downregulation of microRNA-221 expression

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**ABSTRACT.** Propofol is one of the extensively and commonly used intravenous anesthetic agents. The current study aimed to evaluate the effects of propofol on the behavior of human gastric cancer cells and the molecular mechanisms of this activity. The effects of propofol on SGC7901 and AGS cell proliferation, apoptosis, and invasion

were detected by MTT assay, flow cytometric analysis, and matrigel invasion assay. Real-time polymerase chain reaction (PCR) was used to assess microRNA (miR)-221 expression. miR-221 mimics were transfected into SGC7901 and AGS cells to assess the role of miR-221 in propofol-induced anti-tumor activity. Propofol significantly inhibited cell proliferation and invasion and promoted apoptosis of SGC7901 and AGS cells. Propofol also efficiently reduced miR-221 expression. Moreover, transfection of miR-221 mimics reversed the effects of propofol on the biological behavior of gastric cancer cells. Propofol can effectively inhibit proliferation and invasion and induce apoptosis of gastric cancer cells through, at least partly, downregulation of miR-221 expression.

**Key words:** Propofol; Gastric cancer; miR-221; Proliferation; Invasion