



# Propofol suppresses proliferation and invasion of pancreatic cancer cells by upregulating microRNA-133a expression

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**ABSTRACT.** Propofol is a commonly used intravenous anesthetic. We evaluated its effects on the behavior of human pancreatic cancer cells and the underlying molecular mechanisms. The effects of propofol on Panc-1 cell proliferation, apoptosis, and invasion were determined by 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay, caspase-3 activity measurement, and Matrigel invasion assay. Quantitative polymerase chain reaction (qPCR) was used to assess microRNA-133a (miR-133a) expression. Anti-miR-133a was transfected into Panc-1 cells to assess the role of miR-133a in propofol-induced antitumor activity. Propofol significantly inhibited Panc-1 cell proliferation and invasion, and promoted apoptosis. Propofol also efficiently elevated miR-133a expression. Moreover, transfection of anti-miR-133a reversed the effects of propofol on the biological

behavior of Panc-1 cells. Propofol can effectively inhibit proliferation and invasion, and induce apoptosis of pancreatic cancer cells, at least partly through the upregulation of miR-133a expression.

**Key words:** Propofol; Pancreatic cancer; miR-133a; Proliferation; Invasion