

*Abstract*

# The Effect of Kynurenic Acid on Apoptosis in Hepatocellular Carcinoma <sup>†</sup>

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**Abstract:** Kynurenic Acid (KYNA) is a metabolite of tryptophan pathway and also an endogenous antagonist of glutamate receptors. Several studies indicated that glutamate antagonists have anti-proliferative potential. Moreover, subunits of the NMDA receptor which is one of the glutamate receptors have been shown to be found in human hepatocellular carcinoma cell line (HepG2). In this study, the antitumor effects of KYNA in HepG2 cells were investigated for the first time at the molecular level. The effects of KYNA on the viability of HepG2 cells were determined by MTT analyses. Effects of KYNA on mRNA transcriptions of apoptosis related genes Bax, Bcl-2 and Caspase-3 were analyzed by qRT-PCR. mRNA expression analysis revealed that the mRNA levels of effector Caspase-3 and pro-apoptotic Bax/Bcl-2 ratio were not increased in HepG2 cells treated with KYNA. In conclusion, our findings showed that KYNA does not exert its anti-proliferative effects on HepG2 cells through caspase-mediated apoptotic cell death, but it may perform this anti-proliferative effect through a different mechanism of death. Further studies are needed to find out potential cell death mechanisms that may play a role in anti-proliferative activity of KYNA on HepG2 cells.

**Keywords:** Kynurenic Acid; anti-tumour activity; HepG2; apoptosis

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