Latin American Journal of Pharmacy
(formerly *Acta Farmacéutica Bonaerense)*
Lat. Am. J. Pharm. **31** (2): 220-5 (2012)

Regular Article
Received: August 14, 2011
Revised version: March 5, 2012
Accepted: March 7, 2012

Peroxynitrite-Induced Apoptosis in FaDu Cells is Correlated with the Up-Regulation of *PDCD4* Gene

Shasha SONG [1,2#], Mingqiang HE [1#], Lin LI [1], Guodong ZHANG [2], Wenwen LIU [2], Xiaohui BAI [2], Haibo WANG [1,2], Zhiyong YUE [1*] & Jianfeng LI [1,2*]

[1] *Department of Otolaryngology-Head and Neck Surgery, Provincial Hospital affiliated to Shandong University, Jinan, P.R. China, 250021, P.R. China*

[2] *Institute of Eye & Otolaryngology, Provincial Hospital Affiliated to Shandong University, Jinan, 250021, P.R., China*

***SUMMARY*. Peroxynitrite ($ONOO^-$) is a highly reactive species that attacks a range of biological targets. The present study was designed to investigate the effect of $ONOO^-$ on FaDu cells, a human hypopharyngeal cancer cell line, with special attention given to the *PDCD4* gene expression in response to this oxidative stress. The *in vitro* cultured FaDu cells were subjected to various concentrations of $ONOO^-$, then, the cell viability and morphological changes were examined by MTT assay and acridine orange staining, respectively. The protein expressions of Caspase-9, Caspase-3, and PDCD4 were determined by western blot and the mRNA expression of *PDCD4* was analyzed by RT-PCR. This work demonstrated that $ONOO^-$ could inhibit the proliferation and induce apoptosis of FaDu cells. The protein expressions of Caspase-9, Caspase-3, and *PDCD4* were up-regulated and, meanwhile, the mRNA expression of *PDCD4* was increased, in response to $ONOO^-$. These data suggest that $ONOO^-$ can effectively suppress proliferation of FaDu cells via triggering the apoptotic pathway. *PDCD4* gene may play an important role in $ONOO^-$-induced apoptosis in FaDu cells, which may offer a new target for the treatment of hypopharyngeal carcinoma.**

KEY WORDS: Apoptosis, FaDu cells, PDCD4 gene, Peroxynitrite.

* Authors to whom correspondence should be addressed. *E-mails:* yuezhiyong242@sohu.com or lijianfeng@hotmail.com.
#Shasha SONG and Mingqiang HE contributed equally to this work.

ISSN 0326-2383