

## Effect of nonylphenol on gastric epithelial cells

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Nonylphenol (NP) is an ubiquitous compound present in both aquatic and terrestrial environments besides aerial environment. It is considered an important endocrine disruptor as its toxic and estrogenic activity is well-known. Because of its large use in industrial and agriculture products, large amounts of this compound are released in the environment.

Studies aimed at evaluating ways and exposure modalities of the human population to NP have demonstrated that it may mainly occur through feeding. Moreover while NP cytotoxicity is well known and studied, its effects on cell death and related mechanisms are not fully understood.

Based on this background, we investigated the effects of NP on the human gastric cancer-derived cell line (AGS). In particular, this study focused on NP ability to regulate cell cycle and to induce apoptosis in AGS cells. The expression levels of several key regulatory apoptotic proteins such as p53, caspases 8, 9, and 3 were evaluated.

In addition, the expression of p21, a crucial cell cycle regulator, was also monitored. Our results show that NP is able to induce growth inhibition and apoptosis in AGS in a concentration- and time-dependent manner. In particular, apoptosis occurs through activation of annexin V and a dose-dependent modulation of procaspase 3. The lack of modulation of caspase 9 ruled out the possibility of mitochondrial apoptotic pathway activation.

Therefore NP induces apoptosis through caspase 8 activation. In addition, NP-induced apoptosis in AGS is p53-dependent, which peaks 6h after NP treatment.

### Key words

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Nonylphenol, gastric cells, apoptosis