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Apoptotic effect of all-trans retinoic acid (ATRA) on gastric cancer cells through down-regulation of Bcl 2 and increased Caspase-3 activity

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Background: Gastric cancer is one of the most common and lethal malignancies with high mortality rate in the world. Retinoic acid and its derivatives (Retinoids) have been utilized as potential chemopreventive and chemotherapeutic agents due to their anti-proliferative,anti-oxidant, pro-apoptotic and differentiation effects. Currently, all-trans retinoic acid (ATRA) is an approved drug for the treatment of acute promyeloid leukemia (APL) patients. One underlying mechanism by which ATRA carries out its anti-cancer effectis induction of apoptosis. Despite extensive studies, the main mechanism of apoptosis induction by ATRA has not been well elucidated. Caspases are central components of cell death machinery. Caspase-3, the executioner Caspase, is a key effector molecule of apoptosis and its activation is critical to induce programmed cell death in variety of cancer cells. Bcl2, a member of anti-apoptotic proteins, appears to protect cells from apoptosis by sequestering pro-apoptotic proteins or interfering with their activities. **Methods:** In this study, AGS cells were treated by different concentrations of ATRA dependent. Caspase-3 activation was measured by luminescent kit and was confirmed by RT-PCR. Moreover, down-regulation of Bcl2 expression was also evaluated by RT-PCR. **Results:** In this study we showed that ATRA treatment of gastric cell line (AGS)induced apoptosis through Caspase-3 activation. Furthermore, ATRAled to decrease in expression of Bcl2, an anti-apoptotic protein. **Conclusion:** ATRA is a potent agent to induce apoptosis in gastric cancer cells. These data suggests that induction of apoptosis through Caspase-3 activation is a novel mechanism of action for ATRA during therapeutic intervention in gastric cancer.

Keywords: Gastric cancer, Apoptosis, Caspase-3, Bcl2

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Expression level of miR-34a, miR-126, miR-128 , miR-210 and their target genes in Non-small cell lung Cancer (NSCLC) patients

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Background: Non-small cell Lung cancer is one the most common types of lung cancer (80%). MicroRNAs are non-coding small RNAs that have key roles in cell proliferation, apoptosis,