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**Regulation of hepatocyte nuclear factor 4-alpha by a novel naphtofuran derivated compound in hepatocellular carcinoma cell**

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Naphtofuran compounds have been known to have cytotoxic activity and inhibited Hepatocyte nuclear transcription factors 4 alpha (HNF4alpha) which is associated human hepatocellular carcinoma (HCC) progression and induces the increase of proliferation rate, dedifferentiation and metastasis. In this study, we investigated whether a N-(3,5-bis(trifluoromethyl)phenyl)-5-hydroxy-1,2-dihyronaphtho[2,1-b]furan-2-carboxamide compound, naphtofuran compound, could modulate HNF4alpha activity and induced apoptotic cell death as well as expression of the apoptosis regulating genes of hepatocellular carcinoma cell. Treatment with different concentrations(1-5μg/ml) of N-(3,5-bis(trifluoromethyl)phenyl)-5-hydroxy-1,2-dihyronaphtho[2,1-b]furan-2-carboxamide compound for various periods (0-72h) inhibited liver cancer cell (HepG2, Hep3B) growth followed by induction of apoptosis in a concentration dependent manner. We also found that this compound induced apoptotic cell death as well as expression of the apoptosis regulating genes. And Pull down assay proved that this compound directly binds to HNF4alpha and inhibit its activity. These results suggest that a novel naphtofuran compound inhibited liver cancer cell growth through induction of apoptotic cell death by modulating of HNF4alpha.