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Antioxidative and anticancer activities of *Julbernardia globiflora* extractHyun Ju Kwon, You Na Oh, Soojung Jin, and Byung Woo Kim
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Julbernardia globiflora, a tropical African tree widespread in Miombo woodland, has been used in folk medicine for the treatment of depression and stomach problems. However, the bioactivities of *J. globiflora* have not yet been fully determined. The objective of this study was to evaluate the antioxidative and anticancer effects of methanol extract of *J. globiflora* (MEJG) and the molecular mechanism of its anticancer activity in human colon carcinoma HT29 cells. MEJG exhibited significant antioxidative activity and cell growth inhibitory effect on HT29 cells in a dose-dependent manner. MEJG induced apoptosis of HT29 cells with the increase of apoptotic cells and apoptotic bodies using Annexin V staining and 4,6-diamidino-2-phenylindole (DAPI) staining, respectively. The MEJG-induced apoptosis was associated with the increase of Fas, a death receptor, and Bax, a pro-apoptotic protein, and the decrease of Bcl-2, an anti-apoptotic protein, resulting in the release of cytochrome c from the mitochondria into the cytosol and activation of caspase-3, -8 and -9. The apoptotic effects of MEJG were confirmed by cleavage of poly (ADP-ribose) polymerase (PARP). Collectively, these results suggest that MEJG may exert the anticancer effect in HT29 cells by inducing apoptosis via both the intrinsic and extrinsic pathways.

Recent Publications:

1. Adam J M and Cory S (2007) The Bcl-2 apoptotic switch in cancer development and therapy. *Oncogene*. 26: 1324-1337.
2. Fulda S and Debatin K M (2006) Extrinsic versus intrinsic apoptosis pathways in anticancer chemotherapy. *Oncogene*. 25: 4798-4811.
3. Galluzzi L, Lopez-Soto A, Kumar S and Kroemer G (2016) Caspases connect cell-death signaling to organismal homeostasis. *Immunity*. 44: 221-231.
4. Li P, Nijhawan D and Wang X (2004) Mitochondrial activation of apoptosis. *Cell*. 116: 57-59.
5. Riedl S J and Shi Y (2004) Molecular mechanisms of caspase regulation during apoptosis. *Nat. Rev. Mol. Cell Biol.* 5: 897-907.

Biography

Hyun Ju Kwon has completed her PhD in Bioengineering from Osaka University, Osaka, Japan. She is presently working as a Professor at Division of Applied Bioengineering, Biopharmaceutical Engineering Major, Dong-Eui University and as an Assistant Director of Blue-Bio Industry Regional Innovation Center, Dong-Eui University, Busan, Korea. Her research field is Natural Products and Oncology.

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