Natural compound dendropanoxide-induced autophagy can either suppress or promote cell death in colon cancer cell lines

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The autophagy expression has recently been regarded as the key cellular factor to induce cell death, especially in promotion of cancer cell death. One of the natural compounds, dendropanoxide (DP), is isolated from the Korean medicinal plant Dendropanax moribifera that is well known to have the anti-cancer and anti-diabetic effects. Here, we show that DP induces both apoptosis and autophagy in p53 wild-type (wt) and p53 knockout (p53 -/-) colon cancer cells. DP treatment with autophagy inhibitor (3-MA) promoted the DP-induced cell death in wt p53 HCT116, whereas it reduced the DP-induced cell death in p53 knockout HCT116 cells. Recent studies indicate the role for p53 in regulation of autophagy. To confirm whether p53 is related with autophagy and apoptosis in wt p53 HCT116 cells, p53 inhibitor, pithrin-α, with DP treated in wt HCT116. p53 inhibitor, pithrin-α, was treated with DP in wt HCT116 cells. These results suggest that existence of p53 can serve an appropriate activation of autophagy which provides the resistance of DP-induced cell death mechanism. Therefore, the study provides a potential therapeutic strategy that DP with p53 inhibitor or autophagy inhibitor can be used for the treatment of p53 wild type colon cancer.

Biography

Sun-Hyung Ha Graduated from Biotechnology Department, DongA University, Busan, Korea in 2014. Presently master-doctor integrated coursed student at the Molecular and Cellular Glycobiology Lab, Department of Biological Science, Sungkyunkwan University, Suwon under supervisor Prof Cheorl-Ho Kim.

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