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• 計畫中文名稱	Wogonin 與 Fisetin 抑制肝腫瘤細胞增生之體外與體內活性與機轉研究---p53 與 p21 在天然物抗腫瘤之角色探討		
• 計畫英文名稱	In Vitro and in Vivo Anti-Tumoral Activities and Mechanisms of Wogonin and Fisetin in Human Hepatocellular Carcinoma---p53 and p21 in Anti-Tumor Effects of Natural Pproducts		
• 主管機關	行政院國家科學委員會	• 計畫編號	NSC91-2320-B038-040
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• 英文關鍵字	Wogonin; Fisetin; Liver tumor; Tumor cell; Antitumor		
• 中文摘要	查無中文摘要		
• 英文摘要	Wogonin and fisetin are flavonoids and widely distributed in plants. Our recent study demonstrated that wogonin and fisetin showed the most potent apoptosis inducing activities in human promyeloleukemic cells HL-60 among seven structurally related flavonoids. In the present study, we performed molecular studies to assess the apoptotic effects of wogonin and fisetin on hepatocellular carcinoma cells SK-HEP-1. Both wogonin and fisetin show the dose dependent cytotoxic effects on SK-HEP-1 cells, accompanied by the occurrence of DNA fragmentation. Microscopic observation showed that wogonin and fisetin, at the dose of 80 .mu.M, induced cellular swelling and appearance of apoptotic bodies by Giemsa staining, characteristics of apoptosis, in SK-HEP-1 cells. And, flow cytometry analysis showed an increase of hypodiploid cells in wogonin- and fisetin-treated SK-HEP-1 cells. These data demonstrated that wogonin and fisetin were effective apoptotic inducers on SK-HEP-1 cells. Treatment with an apoptosis-inducing concentration of wogonin or fisetin causes induction of caspase 3/CPP32 activity, but not caspase 1 activity. And, a caspase 3 inhibitor Ac-DEVD-CHO, but not caspase 1 inhibitor Ac-YVAD-CHO, reverses the cytotoxic effects of wogonin and fisetin on SK-HEP-1 cells. Further, cleavage of caspase 3 substrates including poly(ADP-ribose) polymerase (PARP) and D4-GDI, and decrease of pro-caspase 3 protein were detected in wogonin- and fisetin-treated SK-HEP-1 cells. Increase of p53 protein was associated with wogoninand fisetin-induced apoptosis, however a p53 controlled gene p21Waf/Cip-1 was only induced in wogonin (not fisetin)-treated SK-HEP-1 cells.		

Serum starvation elevated p21Waf/Cip-1 protein expression, and enhanced the apoptotic induction activity of wogonin (not fisetin) in SK-HEP-1 cells. Our study provided molecular evidences to demonstrate that wogonin and fisetin showed the effective cytotoxic effects through apoptosis induction in hepatocellular carcinoma cells SK-HEP-1; activation of caspase 3 cascade, induction of p53 protein and alternative expression of p21Waf/Cip-1 protein were involved.