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学位論文の題名	Apigenin induces apoptosis by suppressing Bcl-xL and Mcl-1 simultaneously through signal transducer and activator of transcription 3 (STAT3) signaling in colon cancer （大腸癌においてアピゲニンは STAT3 シグナルを介して、Bcl-xL と Mcl-1 を抑制することによりアポトーシスを誘導する） International Journal of Oncology
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Abstract. Apigenin is a natural flavonoid that exhibits anti-proliferative activity and induces apoptosis in various types of cancer, including colon cancer. The aim of the present study was to determine the mechanism underlying the apoptosis-inducing effect of apigenin in colon cancer. Apigenin reduced the proliferation of colon cancer cell lines, stimulated the cleavage of PARP and induced apoptosis in a dose-dependent manner. Apigenin treatment also suppressed the expression of the anti-apoptotic proteins Bcl-xl and Mcl-1. Small interfering RNA was used to knockdown Bcl-xl and Mcl-1 expression alone and in concert, and the proliferation and apoptosis of cancer cells were subsequently measured. The knockdown of Bcl-xl and Mcl-1 expression together markedly suppressed cell proliferation and induced apoptosis. Apigenin treatment also inhibited the phosphorylation of signal transducer and activator of transcription 3 (STAT3), which targets Bcl-xl and Mcl-1. The results of the current study therefore determined that apigenin induces the apoptosis of colon cancer cells by inhibiting the phosphorylation of STAT3 and consequently downregulates the anti-apoptotic proteins Bcl-xl and Mcl-1.