Format: Abstract

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Zebrafish embryo proteins induce apoptosis in human colon cancer cells (Caco2).

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Abstract

Previous studies have shown that proteins extracted from Zebrafish embryo share some cytostatic characteristics in cancer cells. Our study was conducted to ascertain the biological properties of this protein network. Cancer cell growth and apoptosis were studied in Caco2 cells treated with embryonic extracts. Cell proliferation was significantly inhibited in a dose-dependent manner. Cell-cycle analysis in treated cells revealed a marked accumulation in the G(2)/M phase preceding induction of apoptosis. Embryo proteins induced a significant reduction in FLIP levels, and increased caspase-3 and caspase-8 activity as well as the apoptotic rate. Increased phosphorylated pRb values were obtained in treated Caco2 cells: the modified balance in pRb phosphorylation was associated with an increase in E2F1 values and c-Myc over-expression. Our data support previous reports of an apoptotic enhancing effect displayed by embryo extracts, mainly through the pRb/E2F1 apoptotic pathway, which thus suggests that Zebrafish embryo proteins have complex anti-cancer properties.

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