

Hinokitiol induces differentiation of teratocarcinoma F9 cells.

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Abstract:

Hinokitiol, a constituent of the wood of *Chamaecyparis taiwanensis*, was found to induce differentiation of teratocarcinoma F9 cells. When examined by the agar-overlay method, in which expression of plasminogen activator as a differentiation marker protein was detected, this compound exhibited a dose- and time-dependent induction. Induction of differentiation by hinokitiol occurred irreversibly and required its addition for more than 12h. Among its structure-related compounds tested, tropolone and two colchicine-related compounds exerted potent activities comparable to that of hinokitiol. These findings indicate that free tropolone structure in the molecules plays an essential role in inducing differentiation of F9 cells. Hinokitiol showed a strong inhibitory effect of DNA synthesis in very early stages of culture, suggesting that this effect may be responsible for triggering differentiation of F9 cells.