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Knockdown of E2F1 reduces invasive potential of melanoma cells

December 23 2009

Inhibition of transcription factor E2F1 reduced epidermal growth factor receptor (EGFR) expression and reduced the invasive potential but not proliferation of metastatic melanoma cells, according to a brief communication published online December 23 in the *Journal of the National Cancer Institute*.

To investigate E2F1's role in cancer progression, Brigitte M. Pützer, M.D., Ph.D., of the department of vectorology and experimental gene therapy at the University Rostock in Germany, and colleagues used E2F1 gene silencing in melanoma cells and in mice to compare cell growth and invasive potential and tumor growth and formation of metastatic lesions. The authors also examined expression of EGFR, a protein previously found to be associated with cancer progression, and effects of its inhibition.

Melanoma cells with reduced E2F1 expression had lower invasive potential even though they grew at the same rate as control cells. Tumors in animals with reduced E2F1 expression grew at similar rates, but formed fewer and metastatic lesions than control tumors. EGFR expression was decreased in E2F1-silenced cells, and its inhibition reduced the invasive potential of these cells.

"Because elevated expression of E2F1 and EGFR has been observed in other tumor types, the established mechanistic link may also be important in other human cancers," the authors write. "This association should be explored in future studies."

Study limitations: Because the study was based on specific in vitro and in vivo models, it is still unclear whether these mechanisms are useful targets in human cancer.

More information: "E2F1 in Melanoma Progression and Metastasis," Journal of the National Cancer Institute, DOI: 10.1093/jnci/djp458

Source: Journal of the National Cancer Institute