Cell biology:

**Tumor promoter aides stem cell reproduction**
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A signalling pathway known to promote tumors is also involved in the pluripotent regulation of embryonic stem cells (ESCs), according to research published online in the journal APS (*Acta Pharmacologica Sinica*). Given its dual role the research team speculates that this pathway, known as midkine, could be useful in better understanding how cancerous tumors proliferate.

Midkine is a molecule that is expressed in many types of tumors, promoting tumor growth and metastasis. Ming Zhang and colleagues investigated *in vitro* the potential roles of midkine in mouse and human ESCs and mouse embryonic fibroblasts (MEFs). They demonstrate that midkine is expressed in all three cell types. While it is known that multiple signaling pathways are involved in ESC self-renewal, the relative roles of these pathways have remained poorly understood.

The findings presented in this study show for the first time the mechanisms by which midkine promotes the growth of ESCs: by preventing apoptosis and by inducing the transition from the G1 phase to the S phase of the cell cycle.

Midkine expression occurs in most human tumors, but its expression is also restricted in normal adult tissues. Although the findings are preliminary, the team believe it could be a useful target for therapy against many cancers.

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