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Translocation in a carcinoma

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Chromosomal translocations that encode fusion oncoproteins are common in leukemias/lymphomas and sarcomas, but not in carcinomas, which constitute up to 90% of human cancers. In the August 25 *Science*, Kroll *et al.* report the detection of a Pax8-PPAR γ 1 fusion in five of eight thyroid follicular carcinomas (*Science* 2000, **289**:1357-1360). Pax8 is a transcription factor essential for formation of the thyroid follicular epithelial lineage, whereas the peroxisome proliferator-activated receptor (PPAR) γ 1 can inhibit the growth and promote the differentiation of cancer cell lines. Based on *in vitro* studies, the fusion proteins appear to be acting as dominant negatives, interfering with the normal activity of PPAR γ 1. The identification of Pax8-PPAR γ 1 may help in the differentiation of follicular carcinomas (potentially malignant) and follicular adenomas (benign, and lacking in the fusion oncoprotein).

References

1. Chromosomal translocations in human cancer.
2. Science magazine, [<http://www.sciencemag.org/>]