Are CD44 variant isoforms involved in human tumour progression?

The transmembrane glycoprotein CD44 exists in a variety of isoforms generated by alternative splicing of the pre-mRNA. In a rat metastasis model, certain variant isoforms (containing exon 6v) are causally involved in lung metastasis formation. We have summarized the data obtained to date on the expression of CD44 variant isoforms in human tumour progression. In non-Hodgkin lymphomas, expression of exon 6v containing isoforms is an independent prognostic factor indicating an adverse prognosis. Upregulation of exon 9v containing isoforms in gastric and renal cell carcinomas relates to a poor prognosis of patients. In colorectal carcinomas, CD44-9v isoforms are strongly expressed already in early adenomas; CD44-6v isoforms are upregulated in late adenomas along with ras and TP53 mutations. No expression of variant isoforms has been detectable in neuroblastomas, but significant downregulation of CD44s correlates inversely with tumour progression and N-myc amplification. Only in breast carcinoma has no correlation of CD44 expression with survival or any other prognostic marker been established. Evaluation of CD44 isoform expression by immunohistochemistry in cases of non-Hodgkin lymphoma, gastric, colon and renal cell carcinomas, as well as neuroblastomas, may be a useful diagnostic parameter indicating invasive processes.