

EXPRESSION OF THE MULTI-FACETED PROTEIN, MUC1, IN HUMAN OESOPHAGEAL CARCINOMA CELL LINES.

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MUC1, a transmembrane glycoprotein, is highly overexpressed in numerous invasive carcinomas. Originally thought to play a role in the anti-adhesive aspect of metastasis, MUC1 has recently been shown to play additional roles in enhancing cell proliferation as well as playing a role in the inhibition of apoptosis. Thus, MUC1 could potentially contribute to cancer development and progression via three simultaneous, but alternative mechanisms. Oesophageal squamous cell carcinoma (OSCC) occurs at a high incidence in South Africa, making it an ideal candidate in which to assess MUC1 expression. The aims therefore were to determine the expression and localization profile of MUC1 in OSCC. RT-PCR results indicated that the MUC1 gene was expressed in five cell lines derived from moderately differentiated OSCC. Western blotting showed that there were a number of MUC1 protein isoforms present in each cell line. Immunofluorescence identified the greatest concentration of MUC1 to be at the cell membrane in lines WHCO1, WHCO3, WHCO5 and WHCO6. The SNO line showed greatest concentration within the cytoplasm. The apparent differences in MUC1 localization in the SNO line may be due to a known mutation in the transmembrane region, preventing MUC1 from being either transported to, or incorporated in, the cell membrane. The nature of the extracellular domain of MUC1, in combination with its membrane location in lines other than SNO, may contribute to the metastatic potential of these cells.