

## **Effect of transforming growth factor $\beta$ 2 on oestrogen metabolism in the MCF-7 breast cancer cell line**

### **ABSTRACT**

Transforming growth factor (TGF- ) is a multifunctional regulator of cellular growth and differentiation in many cell types and has a growth inhibitory effect on mammary epithelial cells. The TGF- 2 isoform has been shown to be present in high concentrations in breast cyst fluid and might have a protective role in breast cancer. In addition, oestrogens play an important role in breast cancer development, and oestrone sulphate (E1S) might be the main source of active oestrogens in the breast. The aim of this study was to assess the effect of TGF- 2 on oestrogen synthesis in an attempt to understand the mechanism by which TGF- 2 may exert a protective effect in breast cancer. In this study, higher concentrations of TGF- 2 significantly inhibited the conversion of E1S to oestrone (E1) and the conversion of E1 to the potent oestrogen, oestradiol (E2). TGF- 2 did not have any effect on MCF-7 cell growth or on E2 to E1 conversion. In conclusion, TGF- 2 might exert a protective role in breast cancer by reducing the amount of active oestrogens present in the breast.

**Keyword:** Breast cancer; Oestradiol-17 hydroxysteroid dehydrogenase; Oestrone sulphatase; Transforming growth factor 2