

P035 Bone marrow stromal cell-derived insulin-like growth factor (IGF) II enhances growth and survival of prostate cancer cells and potentiates androgen action

Cross NA, Papageorgiou M, Lippitt, J, Nyambo R, Hamdy FC and Eaton CL.

Academic Urology Unit, School of Medicine, University of Sheffield, UK, S10 2RX

Prostate cancer frequently metastasises to the skeleton, and it has been hypothesised that this environment selectively supports the growth of these tumours. We have examined the capacity of human bone marrow stromal cells (hBMSCs) to produce factors that support prostate cancer cell growth and differentiation *in vitro*. Challenge of the androgen sensitive cell line LNCaP with androgens increased growth. This effect could be completely replaced by challenge with 50% hBMSC conditioned medium under the same conditions. Immunoprecipitation of IGFs from hBMSC conditioned medium removed this activity. Challenge of LNCaP cells with conditioned medium increased the expression and release of prostate specific antigen (PSA), and combined treatment with androgens synergistically increased PSA expression. Production of IGFII, but not IGF1 was confirmed in cultures of hBMSC by qRT-PCR and by Western blot. This study indicates that hBMSCs are potentially an important source of IGFII that is available to tumour cells colonising bone. IGFII can enhance tumour growth, but also enhances responses to androgen. This latter activity may be important when circulating levels of this steroid are reduced following anti-androgen therapies, where hBMSC-derived IGFII could potentiate and sustain responses to androgens.