



XENOTRANSPLANTATION OF SPONTANEOUS PRIMARY CANINE OSTEOSARCOMA AND CULTURED CANINE OSTEOSARCOMA CELLS INTO NUDE MICE

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Introduction

To facilitate preclinical trials, we aimed to create serial subcutaneous and lung xenotransplantation models of both primary and secondary canine osteosarcoma (COS) in mice. Methods: Material from 6 primary osteosarcomas and 3 osteosarcoma cell lines⁽¹⁾ was transplanted sub-

cutaneously and intravenously into nude mice. Xenografts were characterized employing zymography, immunohistochemistry and light and electron microscopy.

Results

Tumours were successfully xenotransplanted in one case each of cultured (xenografts T₁) and primary (T₂) COS cells. The produced xenografts retained donor tumour characteristics, but produced low MMP levels and were self-limiting in nature. Both showed intense positive immunohistochemical staining for MMP-9 in the surrounding tissues, while the tumour cells were mostly negative.

Similarly for zymography, the skin surrounding T₂ produced higher MMP levels, including the 62 kDa form.

Conclusions

The overall tumour intake rate was very low and the xenotransplanted tumours lacked the stability and consistency that are prerequisites for a useful in vivo model. This may be due to a range of factors, including the nature of the material transplanted, the nude mouse as the recipient species, the xenotransplantation techniques used, and the route of cell administration. To our knowledge, there are no other reports of subcutaneously xenotransplanted primary COS. Intraosseous transplantation or the use of a suitable cell substrate may increase the tumour cell intake rate in future studies.

References

1. Loukopoulos P, O'Brien T, Ghoddusi M, Mungall BA, Robinson WF. Characterisation of three novel canine osteosarcoma cell lines producing high levels of matrix metalloproteinases. *Research in Veterinary Science* 2004;77:131-141.