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Previous studies on insulin-like growth factor (IGF) binding to antler tissues have shown that IGF-I binds specifically and preferentially to cartilage tissues (1), and IGF-II to pre-cartilage tissues (2). Specific binding of IGFs comprises binding to receptors and insulin-like growth factor binding proteins (IGFBPs), and it is the aim of this study to determine the presence of IGFBPs in growing antler tissues.

Antler tips from three fallow deer bucks were collected during mid-growth phase. Pre-cartilaginous and cartilaginous tissues were dissected out, chopped finely, washed twice in saline and cultured in serum free DMEM under aseptic conditions. *De novo* synthesis of protein was confirmed by ³⁵S-methionine uptake and samples of media were taken from each tissue culture at 18 and 42 hours. The samples were analysed for IGFBPs using Western-ligand blotting with either ¹²⁵I-IGF-I or ¹²⁵I-IGF-II as the tracer, and quantified by densitometry.

Autoradiographs of IGF-I and IGF-II binding showed that total secretion of IGFBPs by cartilage tissue (107 ± 5.4 & 4313 ± 136 OD units, respectively) was less ($p < 0.001$) than secretion of IGFBPs by pre-cartilage tissue (158 ± 5.4 & 4989 ± 136 OD units, respectively). This binding consisted of an array of four IGFBPs, including: IGFBP-3 (43 kDa), the 29 kDa IGFBP-4, and two IGFBP-2 related binding proteins - one at 32 kDa and the other at 20 kDa. In addition, the pre-cartilaginous tissue secreted a lower molecular weight binding protein of 16 kDa which was specific for IGF-II.

These results suggest that IGFBPs are of greater functional importance in pre-cartilage than in cartilage tissue in the growing antler. The intense specific binding of IGF-I in cartilage tissue does not seem to be reflected by corresponding excessive secretion of IGFBPs, indicating little interference of IGF-I binding to the type 1 IGF receptor in this tissue. The results also indicate that the high specific binding of IGF-II in pre-cartilage tissue would partially be to IGFBPs, which could be of regulatory significance.

(1) Elliott, Oldham, Ambler, Bass, Spencer, Hodgkinson, Breier, Gluckman & Suttie (1992) *Endocrinology* 130(5):2513-2520

(2) Elliott, Oldham, Ambler, Molan, Spencer, Hodgkinson, Breier, Gluckman, Suttie & Bass (1993) *J Endo* (in press)