BOTH TYPE I AND TYPE II IGF RECEPTORS ARE PRESENT IN ANTLER CELLS

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It has been shown that the insulin-like growth factor I (IGF-I) and insulin-like growth factor II (IGF-II) both have a mitogenic effect on fibroblast zone cells from deer antler. The aims of this study were to investigate whether both type I and Type II IGF receptors were present and to make a preliminary investigation of the specificity of any binding. Primary cultures from fibroblast cells were prepared from adult red deer stags whose antlers were harvested after 60 days of growth (1). 2 x 10^5 cells/cm^2 were seeded in 24 wells plates and incubated in a humidified 5% CO_2 incubator at 37°C. When they reached confluency, they were incubated for a further 24 hr in serum free media followed by three washes with PBS containing 0.1% BSA and 0.2% azide. The cells were incubated in PBS containing 1 nM [^{125}I]IGF-I, specific activity (40 µCi/µg), or 1 nM [^{125}I] IGF-II, specific activity (113 µCi/µg), with or without 50 nM cold IGF-I or IGF-II or Insulin or antibodies (Ab) to type I and type II receptor for 1 hr at 4°C. After incubation the cells were washed three times with PBS on ice. Cells were dissolved in 0.1 N NaOH and counted by gamma counter. The table shows the geometric mean analysed by analysis of variance after logarithmic transformation (pmole/µg protein) of triplicate data.

	Labelled hormone	Cold IGF-I	Cold IGF-II	Insulin	Type I Ab	Type II Ab
IGF-I	**6.3**^{a}	**2.77**^{c}	3.91^c	5.65^b	5.59^b	6.51^a
IGF-II	**7.99**^{a}	7.34^b	**4.64**^{c}	7.77^a	8.47^a	7.16^b

Values with different superscripts are significantly different within each growth factor (P<0.01).

These results provide evidence that there are specific receptors for IGF-I and IGF-II in antler cells. Cold IGF-I, cold IGF-II, insulin, Type I Ab but not Type II Ab competed with hot IGF-I for binding. In contrast cold IGF-I, cold IGF-II, Type II Ab but not insulin or Type I Ab competed with hot IGF-II for binding. IGF-I appears to bind more specifically to Type I receptor while IGF-II binds more specifically to the Type II receptor.

(1) Sadighi, M.; Haines, S.R.; Skottner, A.; Harris, A.J.; Suttie, J.M. 1994. Journal of Endocrinology (in Press).