Growth Hormone and IGF-1 Measurements in Beagle Dogs by ELISA: Assay Implementation and Variations in Baseline Levels

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Scope:
Measurements of GH and IGF-1 in Beagle dogs are complicated by several technical and biological issues. In this poster, we present data from ELISA methods that were specially adapted and qualified at our facility for the quantification of GH & IGF-1 in canine serum. During assay implementation and routine use, several observations have been made with these hormone baseline levels and some biological & technical parameters.

Experimental Procedures:
Beagle dog serum was obtained from males and females, originating from two different breeders; Marshall and Covance. Samples were tested from dogs housed at three different preclinical testing facilities; ITR Laboratories Canada Inc. ("ITR") and two other undisclosed facilities ("Lab B" & "Lab C"). A commercial GH ELISA kit designed for rathmus GH and another commercial human IGF-1 ELISA kit were adapted and qualified for use with dog serum samples.

Results:
Typical basal GH levels in Beagle dogs vary from 6.25 to 40 ng/mL. No significant differences were observed in the GH basal levels between different genders, breeding source or test facility. However, GH levels generally increased with higher body weight and age. GH varied between individuals of the same study. Typical basal IGF-1 levels in Beagle dogs varied greatly, from < 42 to 150 ng/mL, for Marshall-bred dogs housed at ITR, while the normal range increased to 150-500 ng/mL with Covance-bred dogs housed at "Lab B". Age and body weight only had minor impact on the IGF-1 basal levels, while a gender difference was only seen within the Covance-bred dogs housed at "Lab B". Age and body weight only had minor impact on the IGF-1 basal levels, while a gender difference was only seen within the Covance-bred dogs housed at "Lab B".

Conclusions:
The GH/IGF-1 data gathered internally from several preclinical studies with Beagle dogs have shown that basal IGF-1 levels can vary significantly depending on the dog breeding source in addition to age and body weight. It was also found that due to the natural cyclic activity of GH, multiple pre-dose samplings are useful, with the last pre-dose being taken as close as possible to dosing with the test item.

References: