

# **11 $\beta$ - HYDROXYSTEROID DEHYDROGENASE ACTIVITY IN FELINE, EQUINE, AND OSSABAW SWINE ADIPOSE TISSUE.**

Fabiana Helena Geraldo Farias

Dr. Duane H. Keisler, Thesis Supervisor

## **ABSTRACT**

Enzymatic 11 $\beta$ HSD1 amplification of glucocorticoid concentrations in adipose tissue has been associated with obesity, diabetes, hypertension, dyslipidemia, and cardiovascular disease in humans and mice. Unfortunately, very little is known about 11 $\beta$ HSD1 in other species. Therefore, three species were studied to determine if 11 $\beta$ HSD1 activity existed in adipose tissue in a species dependent manner and if so, did the amount of enzymatic activity differ with respect to specific adipose depots within that species.

Feline (carnivore): Fat samples were collected from 6 cats, each sampled from 5 different adipose depots. Immunohistochemically, 11 $\beta$ HSD1 was found in each of the adipose depots. Level of 11 $\beta$ HSD1 activity differed with depot and cat tested ( $P < 0.05$ ). Morphometric analyses revealed that adipocyte diameters differed ( $P < 0.05$ ) with adipose depot and cat, however, adipocyte volume did not correlate with level of 11 $\beta$ HSD1 activity.

Equine (herbivore): Fat samples were collected from the abdominal and subcutaneous adipose depots of 23 horses. Immunohistochemically, 11 $\beta$ -HSD1 was present in equine adipose, but level of activity did not differ with depot, nor body condition score of the horse.

Porcine (omnivore): Fat samples were collected from abdominal and subcutaneous adipose depots from 8 Ossabaw pigs. Immunohistochemical analysis revealed the presence of 11 $\beta$ -HSD1 in porcine, but the level of activity did not differ between tissue depots.