



2138: Development of an Accurate Diagnostic Assay for Canine Hypothyroidism

Principle Investigator: Dr. Jan A Mol, PhD; University of Utrecht

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Abstract: Primary hypothyroidism is one of the most common endocrine disorders in dogs. The insufficient secretion of thyroid hormones may result in severe physical and mental changes, such as lethargy, alopecia, obesity, decreased cardiac output, and decreased renal perfusion. The diagnosis of hypothyroidism is sometimes problematic. The circulating thyroxin (T4) concentration is below the reference range in most dogs with primary hypothyroidism, but T4 is not very specific as it can also be low in sick dogs with a normal thyroid function, i.e., dogs with non-thyroidal illness (NTI). However, a combination of a low T4 concentration and a clearly elevated plasma thyroid stimulating hormone (TSH) concentration is a definitive proof of hypothyroidism. Unfortunately, about 30% of dogs with primary hypothyroidism have a TSH concentration within the reference range and therefore cannot be distinguished from dogs with NTI. Consequently, either dogs with NTI are unnecessarily treated with thyroxin supplementation or dogs with primary hypothyroidism may lack proper treatment. Dr. Mol and colleagues propose to investigate 3 methods that may provide a more accurate diagnosis than the currently available tests for practitioners. They will test whether 1) a stimulation test with measurements of plasma growth hormone and TSH concentrations, 2) the plasma TRH or ghrelin concentration, or 3) a reporter assay for plasma thyroid hormone bioactivity, can be used to differentiate between dogs with primary hypothyroidism and dogs with NTI.

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