

Recombinant Thyrotropin (TSH): Standard for the Next Generation of Canine TSH Immunoassays with Improved Sensitivity

Researcher: Duncan Ferguson, DVM, PhD, University of Georgia

Hypothyroidism, a failure of the thyroid gland, is the most common hormonal abnormality in dogs, causing a variety of medical problems in many breeds, including hair loss and skin infections.

The measurement of serum levels of the pituitary hormone thyrotropin (TSH) has been used as a reliable and sensitive screening test for thyroid glandular insufficiency in human medicine for many years, but the "first generation" assays for canine TSH (cTSH) are missing as many as 1 out of 4 cases of hypothyroidism, resulting in no improvement in diagnostic sensitivity compared to total T4 measurement. Furthermore, the available assays have not been sensitive enough to distinguish low values of cTSH from those in the normal range. Towards the goal of improving current and future immunoassay sensitivity based upon a pure recombinant canine TSH (cTSH) hormone standard, our laboratory has succeeded in cloning and sequencing the two peptide subunits of canine TSH and have expressed them in small quantities. Using techniques recently developed in our parallel work on equine TSH, we plan to express and purify recombinant canine TSH in high quantities and validate its use as a pure immunoassay standard to facilitate its worldwide use.

Other References

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