Datasheet for ABIN2866582

Thyroxine T4 ELISA Kit

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Overview

Quantity:	96 tests
Target:	Thyroxine T4 (T4)
Reactivity:	Various Species, Human
Method Type:	Sandwich ELISA
Application:	ELISA

Product Details

Purpose:	The DetectX® Thyroxine (T) Multi-Format Immunoassay kit is designed to quantitatively measure 4 T present in serum, plasma, urine, extracted dried fecal samples, and tissue culture media samples.
Brand:	DetectX®
Sample Type:	Cell Culture Supernatant, Fecal, Plasma (EDTA), Plasma (heparin), Serum, Urine
Analytical Method:	Quantitative
Detection Method:	Colorimetric
Components:	Coated Clear 96 Well Plates A clear plastic microtiter plate(s) coated with goat anti-mouse IgG. 1 or 5 Each Thyroxine (T) Standard 4 Thyroxine at 1,000 ng/mL in a special stabilizing solution. 40 µL or 200 µL Detectx® Thyroxine (T) Antibody 4 A mouse monoclonal antibody specific for thyroxine 3 mL or 13 mL Detectx® Thyroxine (T) Conjugate 4 A thyroxine-peroxidase conjugate in a special stabilizing solution. 3 mL or 13 mL

Product Details

	Assay buffer Concentrate A 5X concentrate that must be diluted with deionized or distilled water. 28 mL or 55 mL Dissociation reagent 1 mL or 5 mL Dissociation Reagent is to be used only with Serum and Plasma samples. Wash buffer Concentrate A 20X concentrate that must be diluted with deionized or distilled water. 30 mL or 125 mL TMB Substrate 11 mL or 55 mL Stop Solution A 1M solution of hydrochloric acid. CAUSTiC. 5 mL or 25 mL Plate Sealer 1 or 5 each
Material not included:	Distilled or deionized water. Repeater pipet with disposable tips capable of dispensing 25 µL and 100 µL. Colorimetric 96 well microplate reader capable of reading optical density at 450 nm. Software for converting raw relative optical density readings from the plate reader and carrying out four parameter logistic curve (4PLC) fitting.

Target Details

Target:	Thyroxine T4 (T4)
Alternative Name:	Thyroxine (T4) (T4 Products)
Target Type:	Amino Acid
Background:	Thyroxine is the main hormone produced by the thyroid gland. The thyroid hormones, triiodothyronine (T) and thyroxine (T), are tyrosine-based hormones produced by the thyroid gland that are primarily 3 4 responsible for regulation of metabolism. Iodine is necessary for the production of T and T . A deficiency 3 4 of iodine leads to decreased production of T and T , enlarges the thyroid tissue and will cause the 3 4 disease known as goitre. The major form of thyroid hormone in the blood is thyroxine (T), which has 4 a longer half-life than T . The ratio of T to T released into the blood is roughly 20 to 1. T is converted 3 4 3 4 to the active T (three to four times more potent than T) within cells by deiodinases (5'-iodinase). 3 4 These are further processed by decarboxylation and deiodination to produce iodothyronamine (T) 1a and thyronamine (T). All three isoforms of the deiodinases are selenium-containing enzymes, thus 0a dietary selenium is essential for T production. Hypothyroidism is the condition that results from 3 under-production of thyroxine by the thyroid gland either because the gland is naturally underactive or because radioiodine therapy or surgery for an overactive gland has resulted in underactivity. Thyroxine is taken to replace the deficiency which exists in such situations and therefore to restore normal metabolic activity. Thyroid hormone production is regulated via

Target Details

	pituitary thyrotropin (TSH) modulation of thyroxine (T) prohormone secretion by the thyroid gland and regulation of active 4 triiodothyronine (T) production in peripheral tissues via metabolic events influencing enzyme.

Application Details

Application Notes:	This assay has been validated for serum, EDTA and heparin plasma, urine and for tissue culture samples. It has also been validated for dried fecal extract samples. Samples containing visible particulate should be centrifuged prior to using. Moderate to severely hemolyzed samples should not be used in this kit. Thyroxine can be assayed in other sample types by using one of the extraction protocols . Thyroxine is identical across all species and we expect this kit may measure thyroxine from sources other than human. The end user should evaluate recoveries of thyroxine in other samples being tested.
Plate:	Pre-coated
Protocol:	This kit measures total T in 4 serum and plasma and in extracted fecal samples. The kit offers 2 standard curve ranges. For serum and plasma samples we recommend using 10 µL of standards or samples. The assay concentration range for T will be from 50 ng/mL to 0.781 ng/ 4 mL. For urine samples we recommend alternatively using 100 µL of standards or samples. Assay concentrations of T that range from 4 ng/mL to 0.0625 ng/mL can be measured. 4 A T stock solution is provided to generate standard curves for the assay and all samples should 4 be read off the standard curve. Standards or diluted samples are pipetted into a clear microtiter plate coated with an antibody to capture mouse antibodies. A T -peroxidase conjugate is added 4 to the standards and samples in the wells. The binding reaction is initiated by the addition of a monoclonal antibody to T to each well. After an hour incubation the plate is washed and substrate 4 is added. The substrate reacts with the bound T -peroxidase conjugate. After a short incubation, 4 the reaction is stopped and the intensity of the generated color is detected in a microtiter plate reader capable of measuring 450nm wavelength. The concentration of the T in the sample is 4 calculated, after making suitable correction for the dilution of the sample, using software available with most plate readers.
Sample Preparation:	Serum and Plasma Samples 10 µL Format Serum and plasma samples need to be treated with

Application Details

	the supplied Dissociation Reagent. Addition of this reagent will yield the total thyroxine concentration in serum or plasma. Dissociation reagent is to be used only with Serum and Plasma samples. Allow the Dissociation Reagent to warm completely to room temperature before use. We suggest pipetting 5 µL of Dissociation Reagent into 1 mL Eppendorf tubes. Add 5 µL of serum or plasma to the Dissociation Reagent in the tube, vortex gently and incubate at room temperature for 5 minutes or longer. Dilute with 90 µL of supplied Assay Buffer. This 1:20 dilution can be diluted further with Assay Buffer. Final serum and plasma dilutions should be ≥ 1:20. Urine Samples 100 µL Format (See page 9) Urine samples should be diluted at least 1:4 with the provided Assay Buffer. For comparison to creatinine as a urine volume marker please see our NIST-calibrated 2 and 10 plate Urinary Creatinine Detection kits, K002-H1 and K002-H5. Dried Fecal Samples: The ethanol concentration in the final Assay Buffer dilution added to the well should be <5 % .
Calculation of Results:	Average the duplicate OD readings for each standard and sample. Create a standard curve by reducing the data using the 4PLC fitting routine on the plate reader, after subtracting the mean OD's for the NSB. The sample concentrations obtained, calculated from the %B/B0 curve, should be multiplied by the dilution factor to obtain neat sample values.
Restrictions:	For Research Use only

Handling

Precaution of Use:	As with all such products, this kit should only be used by qualified personnel who have had laboratory safety instruction. The complete insert should be read and understood before attempting to use the product. The antibody coated plate needs to be stored desiccated. The silica gel pack included in the foil ziploc bag will keep the plate dry. The silica gel pack will turn from blue to pink if the ziploc has not been closed properly. This kit utilizes a peroxidase-based readout system. Buffers, including other manufacturers Wash Buffers, containing sodium azide will inhibit color production from the enzyme. Make sure all buffers used for samples are azide free. Ensure that any plate washing system is rinsed well with deionized water prior to using the supplied Wash Buffer as prepared on Page 8. The Stop Solution is acid. The solution should not come in contact with skin or eyes. Take appropriate precautions when handling this reagent.

Handling

Storage:	4 °C
Storage Comment:	All components of this kit should be stored at 4°C until the expiration date of the kit.

Publications

Product cited in:	Zena, Dillon, Hunt, Navas, Bícego, Buck: "Seasonal changes in plasma concentrations of the thyroid, glucocorticoid and reproductive hormones in the tegu lizard Salvator merianae." in: **General and comparative endocrinology**, (2018) (PubMed). Mishra, Bhardwaj, Malik, Kumar: "Concurrent hypothalamic gene expression under acute and chronic long days: Implications for initiation and maintenance of photoperiodic response in migratory songbirds." in: **Molecular and cellular endocrinology**, Vol. 439, pp. 81-94, (2016) (PubMed).

Images

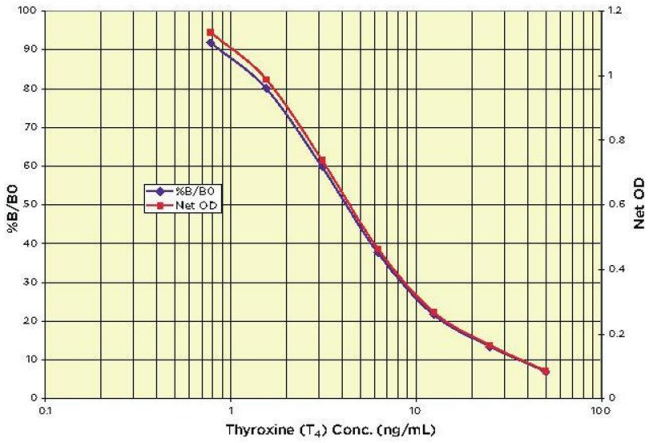

Image 1.

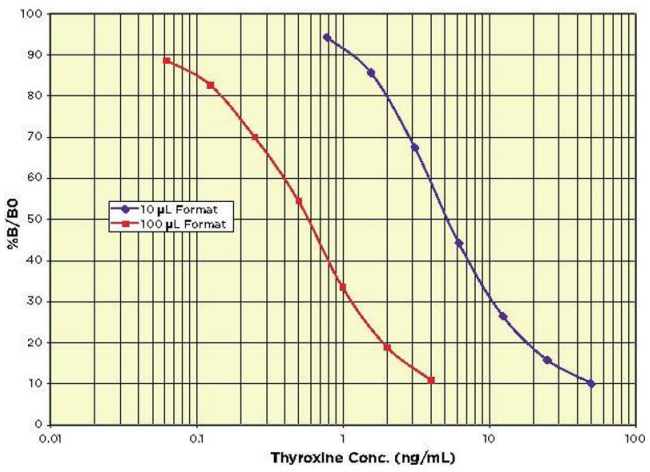

Image 2.

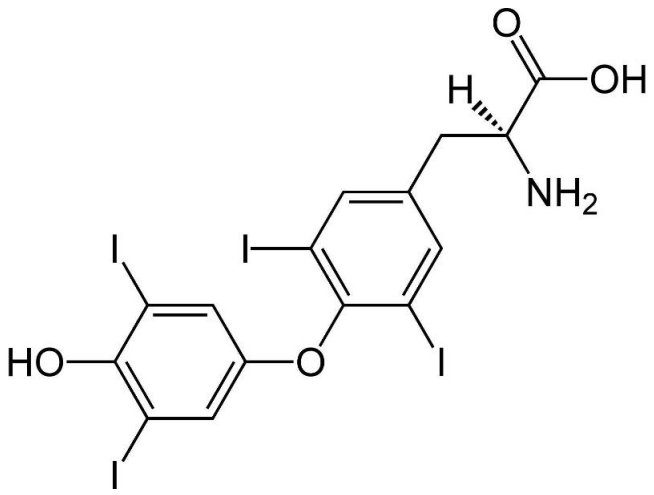

Image 3.

