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**Lab Dept:** Chemistry

**Test Name:** THYROID-STIMULATING IMMUNOGLOBULIN (TSI)

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***General Information***

**Lab Order Codes:** TSIS

**Synonyms:** Autoimmune Thyroid Stimulator; LATS (Long-Acting Thyroid Stimulator); Thyroid Receptor Antibody; TSH Receptor Antibody

**CPT Codes:** 84445 – Thyroid stimulating immune globulins (TSI)

**Test Includes:** TSI index value

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***Logistics***

**Test Indications:** Useful for second-order testing for autoimmune thyroid disease, including:

Differential diagnosis of etiology of thyrotoxicosis in patients with ambiguous clinical signs and/or contraindicated (e.g., pregnant or breast-feeding) or indeterminate thyroid radioisotope scans.

Diagnosis of clinically suspected Graves' disease (e.g., extrathyroidal manifestations of Graves' disease; endocrine exophthalmos, pretibial myxedema, thyroid acropachy) but normal thyroid function tests.

Determining the risk of neonatal thyrotoxicosis in a fetus of a pregnant female with active or past Graves' disease.

Differential diagnosis of gestational thyrotoxicosis versus first trimester manifestation of recurrence of Graves' disease.

Assessing the risk of Graves' disease relapse after antithyroid drug treatment.

A combination of TSI and Thyrotropin Receptor Antibody is useful as an adjunct in the diagnosis of unusual cases of hypothyroidism (e.g., Hashitoxicosis)

**Lab Testing Sections:** Chemistry - Sendouts

**Referred to:** Mayo Clinic Laboratory (MML Test: TSI)

**Phone Numbers:** MIN Lab: 612-813-6280

STP Lab: 651-220-6550

**Test Availability:** Daily, 24 hours

**Turnaround Time:** 2-6 days, test performed Monday – Friday

**Special Instructions:** N/A

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***Specimen***

**Specimen Type:** Blood

**Container:** SST (Gold, marble or red) tube

**Draw Volume:** 1.5 mL (Minimum: 0.9 mL) blood

**Processed Volume:** 0.5 mL (Minimum: 0.3 mL) serum

Note: Submission of the minimum volume does not allow for repeat analysis and could result in a QNS (quantity not sufficient) test result.

**Collection:** Routine venipuncture

**Special Processing:** Lab staff: Centrifuge specimen, remove serum aliquot into a screw-capped plastic vial. Store and ship at frozen temperatures.

Specimen stable frozen (preferred) for 60 days, refrigerated for 7 days, ambient for 24 hours.

**Patient Preparation:** None

**Sample Rejection:** Specimens other than serum; mislabeled specimens; gross hemolysis

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***Interpretive***

**Reference Range:**  $\leq 1.3$  TSI index

Reference values apply to all ages.

**Critical Values:** N/A

**Limitations:** Positive results are strongly indicative of Graves' disease, but do not always correlate with the presence and severity of hyperthyroidism.

Patients with Hashimoto's disease may have an elevated TSI index, which can be  $>1.8$ . A TSI index of  $>1.3$  and  $\leq 1.8$  also is occasionally observed in various other thyroid disorders, including nodular goiter, and subacute thyroiditis.

**Methodology:** Recombinant bioassay

**References:** [Mayo Clinic Laboratories](#) September 2024

**Updates:**

1/3/2017: Storage moved from refrigerated to frozen.

11/14/2017: Collection container update.

9/26/2024: Temporary TAT extension, updated minimum volumes, added stability.

11/25/24: Normal TAT resumed.