

Overview

Useful For

Second-order testing for hyperthyroidism in patients with low thyroid-stimulating hormone values and normal thyroxine levels

Diagnosis of triiodothyronine toxicosis

Testing Algorithm

See [Thyroid Function Ordering Algorithm](#) in Special Instructions.

Special Instructions

- [Thyroid Function Ordering Algorithm](#)

Method Name

Electrochemiluminescence Immunoassay

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Patient Preparation: For 12 hours before this test do not take multivitamins or dietary supplements containing biotin (vitamin B7), which is commonly found in hair, skin, and nail supplements and multivitamins.

Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Specimen Minimum Volume

0.5 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	OK
Gross icterus	OK

Adult (> or =20 years): 80-200 ng/dL

For SI unit Reference Values, see <https://www.mayocliniclabs.com/order-tests/si-unit-conversion.html>

Interpretation

Triiodothyronine (T3) values >200 ng/dL in adults or > age related cutoffs in children are consistent with hyperthyroidism or increased thyroid hormone-binding proteins.

Abnormal levels (high or low) of thyroid hormone-binding proteins (primarily albumin and thyroid-binding globulin) may cause abnormal T3 concentrations in euthyroid patients.

Cautions

Triiodothyronine (T3) is not a reliable marker for hypothyroidism.

T3 is not useful for general screening of the population without a clinical suspicion of hyperthyroidism. Therapy with amiodarone can lead to depressed T3 values.

Phenytoin, phenylbutazone, and salicylates cause release of T3 from the binding proteins, thus leading to a reduction in the total T3 hormone level at normal free T3 levels.

Autoantibodies to thyroid hormones can interfere with the assay.

Binding protein anomalies may cause values that deviate from the expected results. Pathological concentrations of binding proteins can lead to results outside the reference range, although the patient may be in a euthyroid state. Free T3 or free T4 testing is indicated in these cases.

Some patients who have been exposed to animal antigens, either in the environment or as part of treatment or imaging procedures, may have circulating antianimal antibodies present. These antibodies may interfere with the assay reagents to produce unreliable results.

T3 has a 15-fold higher affinity for thyroid receptor compared to T4.

Clinical Reference

1. Hay ID, Klee GG: Linking medical needs and performance goals: clinical and laboratory perspectives on thyroid disease. Clin Chem 1993;39:1519-1524

2. Klee GG: Clinical usage recommendations and analytic performance goals for total and free triiodothyronine measurements. Clin Chem 1996;42:155-159

Performance

Method Description

Testing is performed on a Roche cobas instrument. The Roche triiodothyronine assay (T3) is a competitive assay using electrochemiluminescence detection. Bound T3 is released from binding proteins by 8-anilino-1-naphthalene sulfonic acid (ANS). The patient specimen is incubated with a sheep polyclonal anti-T3 antibody labeled with ruthenium. Streptavidin-coated microparticles and biotinylated T3 are added for a second incubation during which the still free binding sites of the labeled antibody become occupied. The resulting immunocomplex becomes bound to the solid phase by interaction of biotin and streptavidin. The reaction mixture is aspirated into the measuring cell where the microparticles are magnetically captured onto the surface of the electrode. Unbound substances are removed and application of a voltage to the electrode induces the electrochemiluminescent emission. This signal is measured against a calibration curve to determine patient results. (Package insert: Roche cobas. Roche Diagnostics,

Indianapolis, IN.)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Friday; 5 a.m.-12 a.m.

Saturday; 6 a.m.-6 p.m.

Analytic Time

Same day/1 day

Maximum Laboratory Time

3 days

Specimen Retention Time

14 days

Performing Laboratory Location

Rochester

Fees and Codes**Fees**

- Authorized users can sign in to [Test Prices](#) for detailed fee information.
- Clients without access to Test Prices can contact [Customer Service](#) 24 hours a day, seven days a week.
- Prospective clients should contact their Regional Manager. For assistance, contact [Customer Service](#).

Test Classification

This test has been cleared or approved by the U.S. Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information

84480

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
T3	T3 (Triiodothyronine), Total, S	83124-8

Result ID	Test Result Name	Result LOINC Value
T3	T3 (Triiodothyronine), Total, S	83124-8