

## Overview

### Useful For

Free triiodothyronine (T3) is a second- or third-level test of thyroid function; it provides further confirmation of hyperthyroidism, supplementing the tetraiodothyronine (T4), sensitive thyrotropin (sTSH), and total T3 assays

Evaluating clinically euthyroid patients who have an altered distribution of binding proteins

Monitoring thyroid hormone replacement therapy

### Method Name

ImmunoenzymaticAssay

### 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

**Specimen Volume:** 0.6 mL

### Specimen Minimum Volume

0.5 mL

### Reject Due To

Gross hemolysis	Reject
Gross lipemia	OK

## Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	7 days	
	Frozen	90 days	

## Clinical and Interpretive

### Clinical Information

Normally triiodothyronine (T3) circulates tightly bound to thyroxine-binding globulin and albumin. Only 0.3% of the total T3 is unbound (free); the free fraction is the active form.

In hyperthyroidism, both thyroxine (tetraiodothyronine; thyroxine: T4) and T3 levels (total and free) are usually elevated, but in a small subset of hyperthyroid patients (T3 toxicosis) only T3 is elevated. Generally, free T3 (FT3) measurement is not necessary since total T3 will suffice. However, FT3 levels may be required to evaluate clinically euthyroid patients who have an altered distribution of binding proteins (eg, pregnancy, dysalbuminemia).

Some investigators recommend the FT3 assay for monitoring thyroid replacement therapy, although its clinical role is not precisely defined.

### Reference Values

> or =1 year: 2.8-4.4 pg/mL

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

### Interpretation

Elevated free triiodothyronine (FT3) values are associated with thyrotoxicosis or excess thyroid hormone replacement.

### Cautions

Free triiodothyronine (FT3) is not a sensitive test for hypothyroidism.

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.

### Clinical Reference

1. Demers LM, Spencer CI: The thyroid: pathophysiology and thyroid function testing. In Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. Fourth edition. Edited by CA Burtis, ER Ashwood, DE Bruns. St. Louis, Elsevier Saunders Company. 2006, pp 2053-2087
2. FT3 Validation 2005 and AIA Retrospective Validation V-139, 2009. Unpublished data

## Performance

### Method Description

The instrument used is a Beckman Coulter Dxl 800. The Access free triiodothyronine (T3) assay is a competitive-binding immunoenzymatic assay. A sample is added to a reaction vessel with an anti-T3 monoclonal antibody conjugated to alkaline phosphatase. During the incubation, free T3 in the sample reacts with the anti-T3 antibody. Particles coated with streptavidin and biotinylated T3 analog are then added to the mixture. Unoccupied binding sites on the anti-T3 antibody are bridged to the particle through the T3 analog. After incubation in a reaction vessel, materials bound to the solid phase are held in a magnetic field, while unbound materials are washed away. Chemiluminescent substrate Lumi-Phos 530 is added to the vessel and the light generated by the reaction is

measured with a luminometer. The light production is inversely proportional to the concentration of free T3 in the sample. The amount of analyte in the sample is determined from a stored, multipoint calibration curve. ( Beckman Coulter Instructions for Use, Beckman Coulter, Brea, CA, 2018)

**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**

84481

**LOINC® Information**

Test ID	Test Order Name	Order LOINC Value
FRT3	T3 (Triiodothyronine), Free, S	83127-1

Result ID	Test Result Name	Result LOINC Value
FRT3C	T3 (Triiodothyronine), Free, S	83127-1