Test Definition: IODCU

Iodine/Creat Ratio, Random, U

Overview

Useful For

Assessment of iodine toxicity or recent iodine exposure in a random urine collection

Monitoring iodine excretion rate as index of replacement therapy

Profile Information

Test ID	Reporting Name	Available Separately	Always Performed
IODC	Iodine/Creat Ratio, U	No	Yes
CRETR	Creatinine, Random, U	No	Yes

Special Instructions

- Trace Metals Analysis Specimen Collection and Transport

Method Name

IODC: Inductively Coupled Plasma Mass Spectrometry (ICP-MS)

CRETR: Enzymatic Colorimetric Assay

NY State Available

Yes

Specimen

Specimen Type

Urine

Ordering Guidance

Due to the significant variation in the rate of secretion over the course of a day, a 24-hour collection is preferred. For more information see UIOD / Iodine, 24 Hour, Urine.

Specimen Required

Patient Preparation: High concentrations of gadolinium and iodine are known to interfere with most metal tests. If either gadolinium- or iodine-containing contrast media has been administered, wait a minimum of 96 hours before starting collection.

Supplies: Urine Tubes, 10 mL (T068)

Collection Container/Tube: Clean, plastic urine collection container

Submission Container/Tube: Plastic, 10-mL urine tube or a clean, plastic aliquot container with no metal cap or glued insert

Specimen Volume:3 mL

Collection Instructions:

1. Collect a random urine specimen.

2. SeeTrace Metals Analysis Specimen Collection and Transport in Special Instructionsfor complete instructions.

Specimen Minimum Volume

2 mL

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Urine	Refrigerated (preferred)	30 days	
	Frozen	30 days	
	Ambient	14 days	

Clinical and Interpretive

Clinical Information

Iodine is an essential element for thyroid hormone production.

The measurement of urinary iodine is preferred for assessment of toxicity, recent exposure, and monitoring iodine excretion rate as an index of replacement therapy.

Reference Values

0-17 years: not established

> or =18 years: <584 mcg/g creatinine

Interpretation

Measurement of urinary iodine excretion provides the best index of dietary iodine intake and deficiency is generally indicated when the concentrations are below 100 mcg/L. For deficiency, 10 repeat random urines are recommended.

World Healthcare Organization (WHO) Criteria for Assessing Iodine Status(1)

Children >6 years old and adults

Median urinary iodine (mcg/L)	Iodine intake	Iodine status
<20	Insufficient	Severe deficiency
20-49	Insufficient	Moderate deficiency
50-99	Insufficient	Mild deficiency
100-199	Adequate	Adequate nutrition

200-299	Above requirements	May pose a slight risk of more than adequate
>299	Excessive	Risk of adverse health consequences

Pregnant women

Median urinary iodine (mcg/L)	Iodine intake
<150	Insufficient
150-249	Adequate
250-499	Above requirements
>499	Excessive

Lactating women and children <2 years old

Median urinary iodine (mcg/L)	Iodine intake
<100	Insufficient
>99	Adequate

Cautions

Administration of iodine-based contrast media and drugs containing iodine, such as amiodarone, will yield elevated results.

Clinical Reference

1. Rifai, N, Horwath AR, Wittwer CT, eds: Tietz Textbook of Clinical Chemistry and Molecular Diagnostics. 6th ed. Elsevier; 2018

2. Knudsen N, Christiansen E, Brandt-Christensen M, Nygaard B, Perrild H: Age- and sex-adjusted iodine/creatinine ratio. A new standard in epidemiological surveys? Evaluation of three different estimates of iodine excretion based on casual urine samples and comparison to 24 h values. Eur J Clin Nutr. 2000 Apr;54(4):361-363

3. Liberman CS, Pino SC, Fang SL, Braverman LE, Emerson CH: Circulating iodine concentrations during and after pregnancy. J Clin Endocrinol Metab. 1998 Oct;83(10):3545-3549

4. Pfeiffer CM, Sternberg MR, Schleicher RL, Haynes BMH, Rybak ME, Pirkle JL: CDC's Second National Report on Biochemical Indicators of Diet and Nutrition in the US Population is a valuable tool for researchers and policy makers. J Nutr. 2013 Jun;143(6):938S-947S

5. U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry: Toxicological Profile for Iodine. HHS; 2004. Accessed November 25, 2020. Available at www.atsdr.cdc.gov/ToxProfiles/tp158.pdf

6. Leung AM, Braverman LE: Consequences of excess iodine. Nat Rev Endocrinol. 2014 Mar;10(3):136-142. doi:

10.1038/nrendo.2013.251

Performance

Method Description

Iodine:

Iodine in urine is analyzed by inductively coupled plasma mass spectrometry (ICP-MS) in standard mode using tellurium (Te) as an internal standard and an aqueous acidic calibration.(Unpublished Mayo method)

Creatinine:

The enzymatic method is based on the determination of sarcosine from creatinine with the aid of creatininase, creatinase, and sarcosine oxidase. The liberated hydrogen peroxide is measured via a modified Trinder reaction using a colorimetric indicator. Optimization of the buffer system and the colorimetric indicator enables the creatinine concentration to be quantified both precisely and specifically.(Package insert: Creatinine plus ver 2. Roche Diagnostics; V15.0, 03/2019)

PDF Report

No

Day(s) Performed

Monday, Wednesday, Friday

Report Available

1 to 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 was developed, and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

83789

82570

LOINC® Information

Test Definition: IODCU

Iodine/Creat Ratio, Random, U

Test ID	Test Order Name	Order LOINC Value
IODCU	Iodine/Creat Ratio, Random, U	55928-6

Result ID	Test Result Name	Result LOINC Value
CRETR	Creatinine, Random, U	2161-8
614424	Iodine Concentration Interpretation	77202-0
614370	Iodine Concentration	2495-0
610709	Iodine/Creat Ratio, U	55928-6