MAYO CLINIC LABORATORIES

Test Definition: DLAC

D-Lactate, P

Overview

Useful For

An adjunct to urine D-lactate (preferred) for the diagnosis of D-lactate acidosis

Special Instructions

- Biochemical Genetics Patient Information

Method Name

Enzymatic

NY State Available

Yes

Specimen

Specimen Type

Plasma NaFl-KOx

Ordering Guidance

Urine is the preferred specimen for D-lactate determination, order DLAU / D-Lactate, Urine.

For determination of L-lactate (lactic acid), order LACS1 / Lactate, Plasma

Specimen Required

Collection Container/Tube: Sodium Fluoride/Potassium Oxalate Tube, 2 mL (T275)

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions: Centrifuge, aliquot plasma into plastic vial, and freeze immediately.

Reject Due To

Gross hemolysis	OK
Gross lipemia	OK
Gross icterus	OK

Specimen Minimum Volume

0.55 mL

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Plasma NaFl-KOx	Frozen (preferred)	365 days	
	Ambient	7 days	
	Refrigerated	7 days	

Clinical & Interpretive

Clinical Information

D-lactate is produced by bacteria residing in the colon when carbohydrates are not completely absorbed in the small intestine. When large amounts of D-lactate are present, individuals can experience metabolic acidosis, altered mental status (from drowsiness to coma), and a variety of other neurologic symptoms, in particular dysarthria and ataxia. Although a temporal relationship has been described between elevations of plasma and urine D-lactate and the accompanying encephalopathy, the mechanism of neurologic manifestations has not been elucidated.

D-lactic acidosis is typically observed in patients with a malabsorptive disorder, such as short-bowel syndrome, or following a jejunoileal bypass. In addition, healthy children presenting with gastroenteritis may also develop the clinical presentation of D-lactic acidosis.

Routine lactic acid determinations in blood will not reveal abnormalities because most lactic acid assays measure only L-lactate. Accordingly, D-lactate analysis must be specifically requested (eg, this test). However, as D-lactate is readily excreted in urine, it is the preferred specimen for D-lactate determinations; see DLAU / D-Lactate, Urine.

Reference Values

0.0-0.25 mmol/L

Interpretation

Increased levels are consistent with D-lactic acidosis. However, because D-lactate is readily excreted, urine determinations are preferred.

Cautions

The test performed was D-lactate. This is a product of bacterial overgrowth in the gastrointestinal tract. It should not be confused with L-lactate, which accumulates in some metabolic acidosis.

Clinical Reference

1. Petersen C: D-lactic acidosis. Nutr Clin Pract. 2005;20(6):634-645

2. Kowlgi NG, Chhabra L: D-Lactic acidosis: An underrecognized complication of short bowel syndrome. Gastroenterol Res Pract. 2015;2015:476215. doi: /10.1155/2015/476215

Performance

Method Description

D-lactate is oxidized to pyruvate in the presence of D-lactate dehydrogenase and nicotinamide adenine dinucleotide (NAD+). The reaction proceeds because the pyruvate is continually removed as a pyruvate-hydrazone complex. The quantity of NADH produced is directly proportional to the amount of D-lactate oxidized and is measured spectrophotometrically at 340 nm.(Brandt RB, Siegel SA, Waters MG, Bloch MH: Spectrophotometric assay for D-(-)-lactate in plasma. Anal Biochem.1980;102(1):39-46; Cowan T, Pasquali M: Laboratory investigations of inborn errors of metabolism. In: K Sarafoglou, GF Hoffman, KS Roth, eds. Pediatric Endocrinology and Inborn Errors of Metabolism. 2nd ed. McGraw-Hill Education; 2017:1139-1158)

PDF Report

No

Specimen Retention Time

1 month

Performing Laboratory Location

Rochester

Fees & Codes

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

83605

LOINC® Information

Test Definition: DLAC

D-Lactate, P

Test ID	Test Order Name	Order LOINC Value
DLAC	D-Lactate, P	14045-9

Result ID	Reporting Name	LOINC®
8878	D-Lactate, P	14045-9