Test Definition: DSAC

Disaccharidase Activity Panel, Tissue

Overview

Useful For

Evaluation of patients who present with signs or symptoms suggestive of disaccharidase disorders

This test is **not intended for** carrier detection.

Genetics Test Information

Diagnostic testing for patients with clinical signs and symptoms suspicious of a disaccharidase deficiency.

Method Name

Spectrophotometry

NY State Available

Yes

Specimen

Specimen Type

Tissue

Shipping Instructions

Freeze immediately after collection and ship frozen.

Specimen Required

Specimen Type: Tissue
Source: Intestinal biopsy
Supplies: 15 mL Tissue Tube-DSAC (T993)
Container/Tube: 15 mL tissue tube
Specimen Volume: 5 mg
Collection Instructions:
1. Place specimen in tissue tube.
2. Specimen **should not** be placed on gauze, filter paper, or swabs/wooden sticks and **should not** have any saline, water, support, or embedding material added.

Forms

If not ordering electronically, complete, print, and send 1 of the following forms with the specimen:
Biochemical Genetics Patient Information (T602)
Gastroenterology and Hepatology Test Request (T728)

Specimen Minimum Volume

See Specimen Required

Reject Due To

Specimens sent in formaldehyde, saline, or any supportive media Specimens placed on gauze, filter paper, foil, or swabs/wooden sticks	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Tissue	Frozen	28 days	

Clinical & Interpretive

Clinical Information

Disaccharidases in the small intestines are responsible for the breakdown of disaccharides (double sugars) into monosaccharides (simple sugars). Patients with a deficiency of one or more disaccharidase can experience intolerance to foods containing complex sugars resulting in a range of gastrointestinal symptoms, including diarrhea or constipation, abdominal pain and cramping, gas, bloating, and nausea. In addition, patients may experience malnutrition, weight loss, or failure to thrive. Given the nonspecificity and frequency of abdominal symptoms, misdiagnosis or a diagnostic delay of disaccharide deficiencies may occur.

Primary and secondary causes of disaccharidase deficiencies exist, and age of onset may vary from birth through adulthood. Primary causes are rare and result from genetic alterations in a variety of genes. Secondary deficiencies typically result from small intestinal mucosal damage. Treatment of both primary and secondary disaccharidase deficiencies involves dietary management. While primary deficiencies require lifelong treatment, secondary disaccharidase deficiencies may require treatment only until the intestinal lining recovers.

Reference Values

Lactase: > or =14.0 nmol/min/mg protein
Sucrase: > or =19.0 nmol/min/mg protein
Maltase: > or =70.0 nmol/min/mg protein
Palatinase: > or =6.0 nmol/min/mg protein
Glucoamylase: > or =8.0 nmol/min/mg protein

Interpretation

Quantitative values of lactase, sucrase, maltase, palatinase, and glucoamylase are reported. Clinical interpretation of results is provided.

Cautions

This test will not distinguish between primary and secondary causes of disaccharidase deficiencies.

Clinical Reference

1. Cohen SA, Oloyede H, Gold BD, Mohammed A, Elser HE. Clinical characteristics of disaccharidase deficiencies among children undergoing upper endoscopy. J Pediatr Gastroenterol Nutr. 2018;66 Suppl 3:S56-S60
2. Semenza G, Auricchio S, Mantei N. Small-intestinal disaccharidases. In: Valle DL, Antonarakis S, Ballabio A, Beaudet AL, Mitchell GA, eds. The Online Metabolic and Molecular Bases of Inherited Disease. McGraw Hill; 2019. Accessed November 18, 2024. Available at https://ommbid.mhmedical.com/content.aspx?bookid=2709&sectionid=225081608

Performance

Method Description

Disaccharidase activities are measured by incubating intestinal homogenates with an appropriate disaccharide substrate, which releases glucose. Glucose production is determined by a glucose oxidase reagent mixture that oxidizes glucose to produce peroxide, which reacts with phenol aminophenazone to form a red quinoneimine dye. The concentration of quinoneimine is determined spectrophotometrically, and the concentration of liberated glucose is calculated from a glucose standard curve. The amount of glucose produced is proportional to the disaccharidase activity in the intestinal homogenate. Disaccharidase activities are expressed as nanomoles of glucose per minute per milligram of protein (nmol/min/mg prot).(Unpublished Mayo method)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

3 to 4 days

Specimen Retention Time

Biopsy homogenate: 1 month

Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Main Campus

Fees & 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 account representative. 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. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

82657

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
DSAC	Disaccharidase Activity Panel, Ts	57765-0

Result ID	Test Result Name	Result LOINC® Value
608237	Lactase	81315-4
608238	Sucrase	30372-7
608239	Maltase	30315-6
608240	Palatinase	81314-7
608241	Glucoamylase	81322-0
608242	Interpretation	57779-1
608243	Reviewed By	18771-6