

## Disaccharidases in Bowel Tissue

<b>Specimen Type</b>	Human Small Bowel Tissue		
<b>Specimen Volume</b>	9 mg		
<b>Collection</b>	Sterile containers or tissue cassettes. Specimens should be frozen within 2 hours of surgery and maintained at a minimum of -80°C.		
<b>Minimum Volume</b>	4 mg		
<b>Handling</b>	Ship frozen on dry ice.		
<b>Rejection Criteria</b>	<p>Ambient temperature specimens.</p> <p>Refrigerated temperature specimens.</p> <p>Specimens received unfrozen.</p> <p>Samples received in any type of preservative solution or gauze must be rejected.</p> <p>Samples submitted without two unique identifiers and date of collection.</p> <p>Samples submitted outside of validated stability.</p> <p><i>NOTE: For specimens arriving thawed or at an incorrect temperature, the client will be notified to determine whether the specimen should be rejected, or should be run with a disclaimer.</i></p>		
<b>Stability</b>	Frozen at -80°C for 90 days.		
<b>Methodology</b>	Enzyme Assay		
<b>Reference Range</b>	Lactase	13.00 – 105.00	μmole/min/g protein
	Sucrase	27.00 – 190.00	μmole/min/g protein
	Maltase	84.00 – 591.00	μmole/min/g protein
	Palatinase	4.00 – 67.00	μmole/min/g protein
<b>Turnaround Time</b>	Up to 1 business days.		
<b>CPT Code</b>	82657 x 4		
<b>Clinical Significance</b>	The enzymes collectively known as the mucosal disaccharidases (lactase, maltase, palatinase, and sucrase) are present in normal small intestine and fetal colon. Depending on the disease state, different enzymes are affected. A decrease in the enzyme activity of these disaccharidases has been noted in colonic adenomas, adenocarcinomas and malabsorption. Decreased disaccharidase activity is a good indicator of mucosal injury, with the exception of lactase.		
<b>Principle</b>	Tissue homogenates are prepared and added directly to maltose, lactose, sucrose, and palatinose substrate solutions. Glucose is liberated from each reaction by the actions of maltase, lactase, sucrase, and palatinase present in the sample. The reactions are terminated by boiling, and the rate of glucose release is quantified		

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from a glucose standard curve in an endpoint colorimetric assay using glucose oxidase reagent.

The rate is dependent on the amount of protein present in the sample, which requires that a second assay be performed to determine the protein concentration. The amount of protein is quantitated using a colorimetric assay in which the concentration is derived from the sample OD off of a standard curve.