

Diagnostic reagent for quantitative in vitro determination of lipase in serum or plasma on photometric systems

Order Information

Cat. No.	Kit size	
01 00032 70 02 0180	R1	4 x 36 mL + R2 4 x 9 mL
01 00032 70 04 0125	R1	5 x 20 mL + R2 1 x 25 mL
CDT-Lip	R1	3 x 30 mL + R2 2 x 11.3 mL

Summary [1,2]

Lipases are enzymes which hydrolyze glycerol esters of long fatty acids. The enzyme and its cofactor colipase are produced in the pancreas, lipase being also secreted in small amounts by the salivary glands as well as by gastric, pulmonary and intestinal mucosa. Bile acids and colipase form micellar complexes with the lipids and bind lipase on the substrate/water interface. Determination of lipase is used for investigation of pancreatic disorders. In acute pancreatitis the lipase concentrations rise to 2 - 50 fold the upper reference limit within 4 – 8 hours after the beginning of abdominal pain peaking at 24 hours and decrease within 8 to 14 days. Elevated lipase values can also be observed in chronic pancreatitis and obstruction of the pancreatic duct.

Method

Enzymatic color test

A synthetically produced lipase substrate (1,2-o-dilauryl-rac-glycero-3-glutaric acid-(6-methylresorufin) ester) is added to a micro-emulsion which is specifically split by lipase in the presence of colipase and bile acids. The combination of lipase and bile acids make this specific and reliable for pancreatic lipase without any reaction due to lipolytic enzymes or esterases. The reagent composition has been thoroughly optimized so there are no serum matrix effects.

The generated methylresorufin-ester is spontaneously degraded to methylresorufin. The absorbance by this red dye is directly proportional to the lipase activity in the sample.

Principle

Lipase catalyses the reaction

1,2-o-Dilauryl-rac-glycero-3-glutaric acid(6-methylresorufin) ester

< Lipase / Colipase >

1,2-o-Dilauryl-rac-glycerin + Glutaric acid-(6-methylresorufin)-ester

Glutaric acid-(6-methylresorufin)-ester < spontaneous degradation >

Glutaric acid + Methylresorufin

The increase in absorbance is determined photometrically.

Reagents

Components and Concentrations

Reagent 1:

Goods Buffer	pH 8.0	50 mmol/L
Taurodesoxycholate		4.3 mmol/L
Desoxycholate		8.0 mmol/L
Calcium chloride		15 mmol/L
Colipase (porcine)		2.2 mg/L

Reagent 2:

Tartrate Buffer	pH 4.0	7.5 mmol/L
Taurodesoxycholate		17.2 mmol/L
Color Substrate		0.65 mmol/L
Coemulgator		

Storage Instructions and Reagent Stability

The reagents are stable up to the end of the indicated month of expiry, if stored at 2 – 8°C and contamination is avoided. Do not freeze the reagents and store them protected from light!

Note: A slight apparent red precipitate may occur in reagent 2 which does not affect the performance of the test. Please do not resuspend before use!

Waste Management

Please refer to local legal requirements.

Reagent Preparation

The reagents are ready to use. Do not shake!

Materials required but not provided

NaCl solution 9 g/L
General laboratory equipment

Warnings and Precautions

1. Reagent 2: Warning. H319 Causes serious eye irritation. P280 Wear protective gloves/protective clothing/ eye protection/face protection. P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention.
2. Reagent 1 contains sodium azide (0.95 g/L) as preservative. Do not swallow! Avoid contact with skin and mucous membranes.
3. Reagent 1: contains animal material. Handle the product as potentially infectious according to universal precautions and good clinical laboratory practices.
4. Many other clinical reagents contain lipase or high concentrations of detergents. Avoid contamination and carry over! Special care should be taken in combination with triglycerides, HDL and LDL reagents. Cuvettes and other glassware must be cleaned thoroughly after being used for other assays. In case of automated measurement refer to the instrument manual for special washing programs.
5. In very rare cases, samples of patients with gammopathy might give falsified results [11].
6. Please refer to the safety data sheets and take the necessary precautions for the use of laboratory reagents. For diagnostic purposes, the results should always be assessed with the patient's medical history, clinical examinations and other findings.
7. For professional use only!

Specimen

Serum or heparin plasma

Stability [8]:	7 days	at	20 - 25 °C
	7 days	at	4 - 8 °C
	1 year	at	-20 °C

Discard contaminated specimens! Only freeze once!

