Amylase

General:

Amylase is the name given to glycoside hydrolase enzymes that break down starch into glucose molecules. Amylase is also known as ptyalin. In human physiology, both the salivary and pancreatic amylases are α-amylases and can be detected in human serum and saliva. **Biochemistry:** α-amylase (synonyms 1,4-α-D-glucan glucanohydrolase, glycogenase, ptyalin) are calcium metalloenzymes, completely unable to function in the absence of calcium. By acting at random locations along the starch chain, α-amylase breaks down long-chain carbohydrates, ultimately yielding maltotriose and maltose from amylose, or maltose, glucose and "limit dextrin" from amylopectin. They are also found in plants (barley), fungi (ascomycetes and basidiomycetes) and bacteria (Bacillus). **Macroamylase:** a complex in which normal serum amylase is bound to a variety of specific binding proteins, forming a complex too large for renal excretion. It is not correlated with any specific disease state; however, in hyperamylasemia or pancreatitis, it can result in urinary amylase levels not rising concomitantly with serum levels.

The following tests are available:

- **Alpha-amylase in serum**

General:

Alpha-amylase is synthesized in the secretory epithelium cells of all mouth salivary glands and in the acini of the pancreas. It is almost exclusively secreted into the intestinal tract. After complete glomerular filtration amylase is tubularly reabsorbed by approx. 50%.

Indication:	Verification and exclusion of acute pancreatitis (acute upper abdominal symptoms), chronic pancreatitis (relapse), obstructive chronic pancreatitis, parotitis, suspicion of macroamylasemia (high molecular immune complex formation with alpha-amylase, no glomerular filtration, thus it remains in serum).
Material:	1 ml serum
Stability:	1 month at 2 to 8°C
TAT:	same day, FML
Method:	photometry
Units:	U/l
Ref.- range:	28-100
Note:	Children in the first months of life almost exclusively secrete saliva amylase, normal serum levels are detected at the end of the first year.

Updated 07/02/2022

- **Amylase isoenzymes in serum**

  Indication: Differentiation between pancreatic amylase and salivary amylase (amylase & pancreas specific amylase)

  Material: 2 ml serum

  TAT: 7-10 days*

  Method: photometry, gel electrophoresis

  Ref.- range: see report

- **Alpha-amylase in urine^**

General:

The determination in 24-hour urine improves the accuracy as episodic increases are also covered.

Indication: Suspicion of pancreatitis, macroamylasemia, verification or exclusion of renal insufficiency.

Material: 10 ml 24h urine

Stability: 10 days at 2 to 8°C

Preanalytics: 24 h collection period, please indicate collected urine quantity!

TAT: same day, FML

Method: photometry

Units: U/l

Ref.- range: up to 460

Note: Interference by bacterial contaminations!

- **Amylase in aspirate^**

  Indication: Test is suitable for the assignment of cyst origin, such as saliva or pancreatic cysts.

  Material: 1 ml aspirate

  TAT: same day, FML

  Method: photometry

  Units: U/l

  Ref.- range: see report

For complete list of laboratory test offered at Freiburg Medical Laboratory, please visit http://www.fml-dubai.com/parameter-listings/