

## FFA (Free Fatty Acids) NEFA

**Analyte:** Non-esterified Free Fatty Acid

**Specimen Type:** Serum (fasting recommended); Inquire for additional option(s)

**Optimum Volume:** 0.5 mL

**Stability:**

2-8 Degrees C	-20 Degrees C	-70 Degrees C
TBD	2 weeks	6 months

**Reporting Units:** mEq/L

**Method:** Enzymatic

**Biological or Clinical Significance:**

Fatty acids are straight-chain carboxylic acids (either saturated or unsaturated). They are derived from the hydrolysis of fats or can be synthesized from two carbon units (acetyl- or malonyl-CoA) in the liver, mammary gland and, to some extent adipose tissue. Nearly all have an even number of carbon atoms. Individual fatty acids, free fatty acids (FFA), or the non-esterified fatty acids (NEFA), circulate primarily in association with albumin. They are an important metabolic fuel.

Fatty acids play a central role in providing energy to tissues, particularly during fasting. The liver, kidneys, myocardium, and skeletal muscles, but not the brain. The major storage form of fatty acids is in triglycerides (large amounts are also esterified to cholesterol or in phospholipids), and the enzymes lipoprotein lipase and hepatic lipase hydrolyze the triglycerides to fatty acids and glycerol, thereby releasing them as energy sources for the various tissues. FFA that have been released from triglyceride by the actions of lipoprotein lipase and hepatic lipase are elevated in blood of subjects with central obesity, insulin resistance and type II diabetes.

**Principle of Test Method:**

The FFA assay is an automated enzymic method.

**References:**

1. Stich V, Berlan M. Physiological regulation of NEFA availability: lipolysis pathway. Proc Nutr Soc. 2004 May;63(2):369-74.
2. Boden G. Free fatty acids (FFA), a link between obesity and insulin resistance. Front Biosci. 1998 Feb 15;3:d169-75.
3. Frayn KN. Non-esterified fatty acid metabolism and postprandial lipaemia. Atherosclerosis. 1998 Dec;141 Suppl 1:S41-6.