

alpha-Ketoglutarate Assay Kit

alpha-Ketoglutarate Assay Kit (Colorimetric)

CATALOG #

AAA44676

PRODUCT SYNONYMS

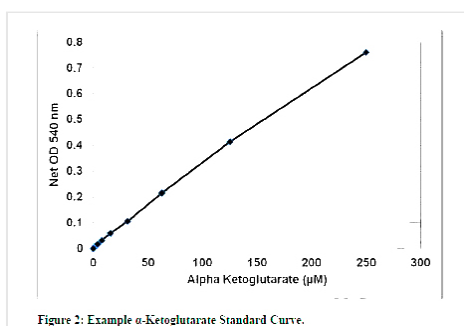
alpha-Ketoglutarate; alpha-Ketoglutarate Assay Kit (Colorimetric); alpha-Ketoglutarate assay kit

PRODUCT SPECIFICATIONS

Preparation and Storage

Upon receipt, store the alpha-KG Substrate Mix and 10X Assay Buffer at 4 degree C. Store the remaining components at -20 degree C.

IMAGES



Standard Curve (Sample)

ADDITIONAL INFORMATION

Related Product Information for alpha-Ketoglutarate assay kit	Principle of the Assay: The alpha-Ketoglutarate Assay Kit measures alpha-ketoglutarate through coupled enzymatic reactions. alpha-Ketoglutarate is transaminated with the production of pyruvate. Pyruvate is then detected with the colorimetric probe. Samples and standards are incubated for 60-120 minutes and then read with a standard 96-well spectrophotometric plate reader (540-570 nm). Samples are compared to a known concentration of alpha-ketoglutarate standard within the 96-well microtiter plate format. Background/Introduction: alpha-Ketoglutarate (alpha-KG, or 2-oxoglutarate), is an important molecule with a variety of roles within multiple metabolic pathways. alpha-KG is produced by the oxidative decarboxylation of isocitrate via isocitrate dehydrogenase and is also the keto acid product of the deamination of glutamate via glutamate dehydrogenase. alpha-Ketoglutarate exerts its influence in the tricarboxylic acid (TCA) cycle as a rate determining intermediary of cellular energy metabolism. Anaplerotic reactions can refuel the cycle by generating alpha-ketoglutarate from glutamate via glutamate dehydrogenase. alpha-Ketoglutarate acts as a nitrogen transporter that facilitates amino acid synthesis, while also inhibiting protein degradation in muscles. L-Alanine or L-Aspartate can react with alpha-ketoglutarate via the transaminase enzymes alanine aminotransferase (ALT) or aspartate aminotransferase (AST) to produce glutamate, which is the basis of nitrogen utilization and elimination. Amino groups from amino acids attach to alpha-KG where they are transported to the liver and can enter the urea cycle. These transamination and deamination pathways are also important for ammonia detoxification, as well as formation of the neurotransmitters glutamate and gamma-aminobutyric acid (GABA). Other characteristics of alpha-ketoglutarate include antioxidant activity by quenching of hydrogen peroxide build up and facilitating its elimination. It also generates ATP via oxidative decarboxylation for energy in intestinal cell processes and redox homeostasis. The molecule can influence hydroxylation of proline to hydroxyproline, thus increasing the formation of collagen and bone matrix formation. Recently, alpha-KG has been noted to extend cell lifespan and delay age-related diseases (Figure 1). The alpha-Ketoglutarate Assay Kit is a simple colorimetric assay that measures the activity of alpha-ketoglutarate present within plasma, serum, tissue homogenates, or cell suspensions in a 96-well microtiter plate format. Each kit provides sufficient reagents to perform up to 100 assays, including blanks, standards and samples. The kit has a detection sensitivity limit of ~3.9 uM alpha-ketoglutarate.
Product Categories/Family for alpha-Ketoglutarate assay kit	Metabolism Research; Amino Acid Metabolism

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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Online datasheet: <https://stage.aaabiotech.com/assay-kits/alpha-ketoglutarate/44676>