

Recombinant Human K-Ras Protein (His Tag)

Catalog Number: PDEH101023

Note: Centrifuge before opening to ensure complete recovery of vial contents.

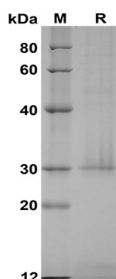
Description

Species	Human
Source	E.coli-derived Human K-Ras protein Met1-Met186, with an N-terminal His & C-terminal His
Calculated MW	20.4 kDa
Observed MW	30 kDa
Accession	P01116-2
Bio-activity	Not validated for activity

Properties

Purity	> 80% as determined by reducing SDS-PAGE.
Endotoxin	< 10 EU/mg of the protein as determined by the LAL method
Storage	Generally, lyophilized proteins are stable for up to 12 months when stored at -20 to -80°C. Reconstituted protein solution can be stored at 4-8°C for 2-7 days. Aliquots of reconstituted samples are stable at < -20°C for 3 months.
Shipping	This product is provided as lyophilized powder which is shipped with ice packs.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with 5% Trehalose and 5% Mannitol.
Reconstitution	It is recommended that sterile water be added to the vial to prepare a stock solution of 0.5 mg/mL. Concentration is measured by UV-Vis.

Data



SDS-PAGE analysis of Human K-Ras proteins, 2 µg/lane of Recombinant Human K-Ras proteins was resolved with SDS-PAGE under reducing conditions, showing bands at 30 kDa.

Background

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K-Ras belongs to the small GTPase superfamily, Ras family. As other members of the Ras family, K-Ras is a GTPase and is an early player in many signal transduction pathways. It is usually tethered to cell membranes because of the presence of an isoprenyl group on its C-terminus. K-Ras functions as a molecular on/off switch. Once it is turned on it recruits and activates proteins necessary for the propagation of growth factor and other receptors' signal, such as c-Raf and PI 3-kinase. It binds to GTP in the active state and possesses an intrinsic enzymatic activity which cleaves the terminal phosphate of the nucleotide converting it to GDP. Upon conversion of GTP to GDP, K-Ras is turned off. The rate of conversion is usually slow but can be sped up dramatically by an accessory protein of the GTPase activating protein class, for example RasGAP. In turn K-Ras can bind to proteins of the Guanine Nucleotide Exchange Factor class, for example SOS1, which forces the release of bound nucleotide. Subsequently, K-Ras binds GTP present in the cytosol and the GEF is released from ras-GTP. Besides essential function in normal tissue signaling, the mutation of a K-Ras gene is an essential step in the development of many cancers. Several germline K-Ras mutations have been found to be associated with Noonan syndrome[4] and cardio-facio-cutaneous syndrome. Somatic K-Ras mutations are found at high rates in Leukemias, colon cancer, pancreatic cancer and lung cancer.