Data Sheet (Cat.No.TMPY-06345)

TargetMol

KRAS Protein, Human, Recombinant (His & Avi), Biotinylated

General Information

Synonyms:	RASK2;K-RAS2A;RALD;C-K-RAS;NS3;Kirsten rat sarcoma viral oncogene homolog;K-RAS2B;CFC2;KI-RAS;KRAS1;K-RAS4B;NS;K-RAS4A;KRAS2;K-RAS
Protein Construction:	A DNA sequence encoding the human KRAS (P01116-2) (Thr2-Cys185（G12D）) was expressed with a N-terminal polyhistidine tag followed by an AVI tag. The expressed protein was biotinylated in vivo by the Biotin-Protein ligase (BirA enzyme) which is co-expressed. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	P01116-2
Molecular Weight:	23.78 kDa (predicted)

QC Testing

Biological Activity:	The specific activity of KRAS was measured by GTPase-Glo assay.
Purity:	> 95 % as determined by SDS-PAGE.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing 50 mM Tris, pH8.0. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

K-Ras belongs to the small GTPase superfamily, Ras family. Like 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 that 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 are associated with Noonan syndrome and Cardio-Facio-Cutaneous syndrome. Somatic K-Ras mutations are found at high rates in Leukemias, colon cancer, pancreatic cancer, and lung cancer.Cancer ImmunotherapyImmune CheckpointImmunotherapyTargeted Therapy

Reference

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Matallanas D,et al.(2011) Mutant K-Ras activation of the proapoptotic MST2 pathway is antagonized by wild-type K-Ras. Mol Cell. 44(6):893-906.

Regala RP,et al.(2011) Matrix metalloproteinase-10 promotes Kras-mediated bronchio-alveolar stem cell expansion and lung cancer formation. PLoS One. 6(10):e26439.

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