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1-866-9 KINASE (54-6273)

Catalogue #	Aliquot Size
F01-10G -05	5 µg
F01-10G -10	10 µg

FASTK, Active

Recombinant full-length protein expressed in Sf9 cells

Catalog # F01-10G
Lot # X382-2

Product Description

Recombinant full-length human FASTK was expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag. The FASTK gene accession number is NM_006712.

Gene Aliases

FAST; FLJ13079

Formulation

Recombinant protein stored in 50mM Tris-HCl, pH 7.5, 150mM NaCl, 10mM glutathione, 0.1mM EDTA, 0.25mM DTT, 0.1mM PMSF, 25% glycerol.

Storage and Stability

Store product at –70°C. For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, avoid repeated handling and multiple freeze/thaw cycles.

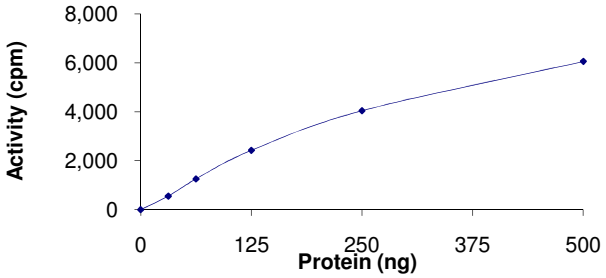
Scientific Background

FASTK or Fas-Activated Serine/Threonine Kinase is a member of the serine/threonine protein kinase family that becomes rapidly activated during Fas-mediated apoptosis in Jurkat cells and in response to Fas receptor ligation. FASTK interacts with and phosphorylates TIA1 which is an apoptosis-promoting nuclear RNA-binding protein. FAST K influences alternative pre-mRNA splicing by affecting the activity of TIA-1/TIAR (1). FASTK is a strong inducer of lymphocyte apoptosis. FASTK is the component of the molecular cascade that involved in FAS-mediated apoptosis (2). FASTK is highly expreesed in heart, brain, placenta, lung, liver, skeletal muscle, kidney, and pancreas.

References

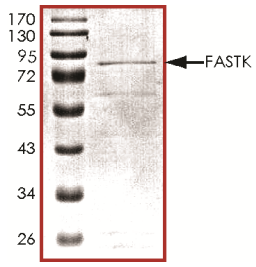
1. Izquierdo, J M. et al: Fas-activated serine/threonine kinase (FAST K) synergizes with TIA-1/TIAR proteins to regulate Fas alternative splicing. J Biol Chem. 2007 Jan 19;282(3):1539-43.
2. Tian. et.al: Fas-activated serine/threonine kinase (FAST) phosphorylates TIA-1 during Fas-mediated apoptosis. J. Exp. Med. 182: 865-874, 1995.

Specific Activity



The specific activity of FASTK was determined to be **1.0 nmol /min/mg** as per activity assay protocol.

Purity



The purity of FASTK was determined to be **>70%** by densitometry, approx. MW **84 kDa**.

FASTK, Active

Recombinant full-length human protein expressed in Sf9 cells

Catalog Number	F01-10G
Specific Activity	1.0 nmol/min/mg
Specific Lot Number	X382-2
Purity	>70%
Concentration	0.05 µg/µl
Stability	1yr At –70°C from date of shipment
Storage & Shipping	Store product at –70°C. For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, avoid repeated handling and multiple freeze/thaw cycles. Product shipped on dry ice.

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Activity Assay Protocol

Reaction Components

Active Kinase (Catalog #: F01-10G)

Active FASTK (0.1µg/µl) diluted with Kinase Dilution Buffer IV (Catalog #: K24-09) and assayed as outlined in sample activity plot. (Note: these are suggested working dilutions and it is recommended that the researcher perform a serial dilution of Active FASTK for optimal results).

Kinase Dilution Buffer IV (Catalog #: K24-09)

Kinase Assay Buffer II (Catalog #: K02-09) diluted at a 1:4 ratio (5X dilution) with 50ng/µl BSA solution.

Kinase Assay Buffer I (Catalog #: K02-09)

Buffer components: 25mM MOPS, pH 7.2, 12.5mM β-glycerol-phosphate, 20mM $MgC1_2$, 25mM $MnC1_2$, 5mM EGTA, 2mM EDTA. Add 0.25mM DTT to Kinase Assay Buffer prior to use.

[^{33}P]-ATP Assay Cocktail

Prepare 250µM [^{33}P]-ATP Assay Cocktail in a designated radioactive working area by adding the following components: 150µl of 10mM ATP Stock Solution (Catalog #: A50-09), 100µl [^{33}P]-ATP (1mCi/100µl), 5.75ml of Kinase Assay Buffer II (Catalog #: K02-09). Store 1ml aliquots at –20°C.

10mM ATP Stock Solution (Catalog #: A50-09)

Prepare ATP stock solution by dissolving 55mg of ATP in 10ml of Kinase Assay Buffer II (Catalog #: K02-09). Store 200µl aliquots at –20°C.

Substrate (Catalog #: C01-58)

PKA Substrate peptide (CGRTGRRNSI-amide) diluted in distilled H_2O to a final concentration of 1mg/ml.

Assay Protocol

Step 1. Thaw [^{33}P]-ATP Assay Cocktail in shielded container in a designated radioactive working area.

Step 2. Thaw the Active FASTK, Kinase Assay Buffer, Substrate and Kinase Dilution Buffer on ice.

Step 3. In a pre-cooled microfuge tube, add the following reaction components bringing the initial reaction volume up to 20µl:

- **Component 1.** 10µl of diluted Active FASTK (Catalog #F01-10G)
- **Component 2.** 5µl of 1mg/ml stock solution of substrate (Catalog #C01-58)
- **Component 3.** 5µl distilled H_2O (4°C)

Step 4. Set up the blank control as outlined in step 3, excluding the addition of the substrate. Replace the substrate with an equal volume of distilled H_2O.

Step 5. Initiate the reaction by the addition of 5 µl [^{33}P]-ATP Assay Cocktail bringing the final volume up to 25µl and incubate the mixture in a water bath at 30°C for 15 minutes.

Step 6. After the 15 minute incubation period, terminate the reaction by spotting 20 µl of the reaction mixture onto individual pre-cut strips of phosphocellulose P81 paper.

Step 7. Air dry the pre-cut P81 strip and sequentially wash in a 1% phosphoric acid solution (dilute 10ml of phosphoric acid and make a 1L solution with distilled H_2O) with constant gentle stirring. It is recommended that the strips be washed a total of 3 intervals for approximately 10 minutes each.

Step 8. Count the radioactivity on the P81 paper in the presence of scintillation fluid in a scintillation counter.

Step 9. Determine the corrected cpm by removing the blank control value (see Step 4) for each sample and calculate the kinase specific activity as outlined below.

Calculation of [P^{33}]-ATP Specific Activity (SA) (cpm/pmol)

Specific activity (SA) = cpm for 5 µl [^{33}P]-ATP / pmoles of ATP (in 5 µl of a 250 µM ATP stock solution, i.e., 1250 pmoles)

Kinase Specific Activity (SA) (pmol/min/µg or nmol/min/mg)

Corrected cpm from reaction / [(SA of ^{33}P-ATP in cpm/pmol)*(Reaction time in min)*(Enzyme amount in µg or mg)]*[(Reaction Volume) / (Spot Volume)]

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