

PTPN7 (LC-PTP), Active

Full-length recombinant protein expressed in E.coli cells

Catalog # P34-20G

Lot # B024-1

Product Description

Recombinant full length human PTPN7 was expressed in E.coli cells using an N-terminal GST tag. The gene accession number is [NM_002832](#).

Gene Aliases

LC-PTP, LPTP, HEPTP, PTPNI, BPTP-4.

Formulation

Recombinant protein stored in 20mM MOPS, pH 7.5, 50mM NaCl, 10mM glutathione, 0.25mM DTT, 0.1mM PMSF, 30% 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.

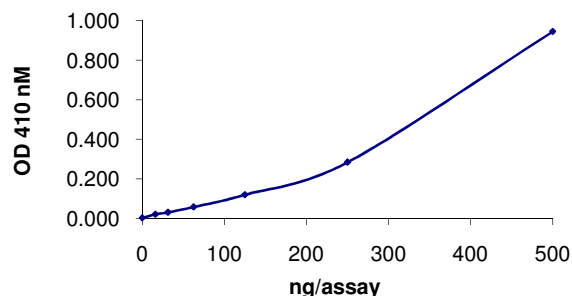
Scientific Background

PTPN7 gene is preferentially expressed in a variety of hematopoietic cells, and is an early response gene in lymphokine stimulated cells (1). The noncatalytic N-terminus of this PTP can interact with MAP kinases and negatively regulates ERK2 and p38 MAP-kinases activity (2). The PTPN7 was shown to be involved in the regulation of T cell antigen receptor (TCR) signaling, which was thought to function through dephosphorylating the molecules related to MAP kinase pathway (3).

References

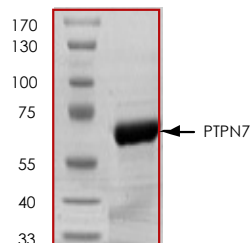
1. Adachi, M. et al: Protein-tyrosine phosphatase expression in pre-B cell NALM-6. *Cancer Res.* 52: 737-740, 1992.
2. Pettiford, S M. et al: The MAP-kinase ERK2 is a specific substrate of the protein tyrosine phosphatase HePTP. *Oncogene.* 2000 Feb 17;19(7):858-69.
3. Oh-hora, M. et al: Direct suppression of TCR-mediated activation of extracellular signal-regulated kinase by leukocyte protein tyrosine phosphatase, a tyrosine-specific phosphatase. *J Immunol.* 1999 Aug 1;163(3):1282-8.

Specific Activity



The specific activity of PTPN7 was determined to be **1540 nmol phosphate released /min/mg** as per activity assay protocol.

Purity



The purity of PTPN7 was determined to be **>90%** by densitometry. Approx. MW **67kDa**.

PTPN7 (LC-PTP), Active

Full-length recombinant protein expressed in E.coli cells

Catalog Number	P34-20G
Specific Activity	1540 nmol/min/mg
Specific Lot Number	B024-1
Purity	>90%
Concentration	0.1µg/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 Phosphatase (Catalog #: P34-20G)

Active PTPN7 (0.1µg/µl) diluted with Phosphatase Dilution Buffer I (Catalog #: P21-09) 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 PTPN7 for optimal results).

Phosphatase Dilution Buffer I (Catalog #: P21-09)

Phosphatase Assay Buffer I (Catalog #: P01-09) diluted at a 1:4 ratio (5X dilution) with a solution containing 5 mM DTT and 65 ng/µl BSA.

Phosphatase Assay Buffer I (Catalog #: P01-09)

Buffer components: 125 mM HEPES pH 7.2, 250 mM NaCl, 12.5 mM EDTA.

Substrate Assay Solution

Prepare 50 mM pNPP Substrate Assay Solution by diluting the Substrate Stock Solution at a 1:9 ratio (10X dilution) with Phosphatase Dilution Buffer I (Catalog #: P21-09). Prepare fresh before assay.

Substrate Stock Solution

Prepare 500 mM p-nitrophenyl phosphate (pNPP) Substrate Stock Solution by dissolving 131.5 g pNPP in 1 ml of Phosphatase Dilution Buffer I (Catalog #: P21-09). Store at -20°C. Avoid direct light exposure.

Stopping Solution

2M NaOH.

Assay Protocol

Step 1. Prepare fresh batches of Phosphatase Dilution Buffer and Substrate Assay Solution. Keep them cool on ice.

Step 2. Thaw the Active PTPN7 on ice.

Step 3. In a pre-cooled microfuge tube, add the following reaction components in total volume of 200µl:

Component 1. 10µl of diluted Active PTPN7 (Catalog #P34-20G)

Component 2. 20µl of 50 mM pNPP Substrate Assay solution

Component 3. 170µl Phosphatase Dilution Buffer I (Catalog #P21-09)

Step 4. Set up the blank control as outlined in step 3, excluding the addition of the Active Phosphatase. Replace the Active Phosphatase with an equal volume of Phosphatase Dilution Buffer (Catalog #P21-09).

Step 5. Start the reaction by incubating the mixture in a water bath at 37°C for 10 minutes.

Step 6. After the 10 minute incubation period, terminate the reaction by the addition of 50 µl of 2M NaOH Stopping Solution.

Step 7. Measure the absorbance of the reaction solution in a spectrophotometer at 405 nm.

Step 8. Determine the Phosphatase specific activity as outlined below.

Phosphatase Specific Activity (SA) (nmol/min/mg)

$$SA = \frac{\text{volume of Phosphatase used } (\mu\text{l}) * OD_{405\text{nm}}}{\text{extinction coefficient} * \text{incubation time (min)} * \text{pathlength of light (cm)} * \text{Phosphatase amount in mg}}$$

The extinction coefficient is 17.8 µl/nmol/cm

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