

PTPN2 (TC-PTP), Active

Human recombinant protein expressed in E.coli cells

Catalog # P29-20G

Lot # E177-4

Product Description

Recombinant full length human PTPN2 was expressed in E.coli cells using an N-terminal GST tag. The gene accession number is [NM_080422](#).

Gene Aliases

TC-PTP, PTPT, TCELLPTP, TCPTP

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.

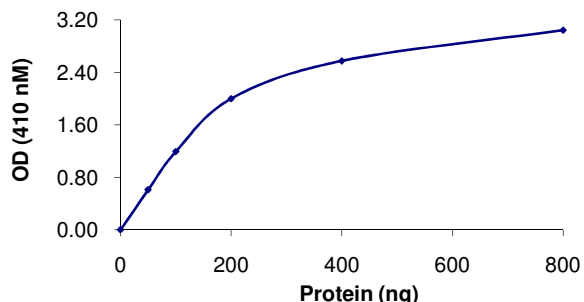
Scientific Background

Protein tyrosine phosphatase, non-receptor type 2 (PTPN2), is one of the most abundant mammalian tyrosine phosphatase. The protein encoded by this gene is a member of the protein tyrosine phosphatase (PTP) family (1). By virtue of protein tyrosine phosphatase activity, PTPN2 is known to be a signaling molecule that regulates a variety of cellular processes including cell growth, differentiation, mitotic cycle, and oncogenic transformation involved in cell communication and signal transduction (2).

References

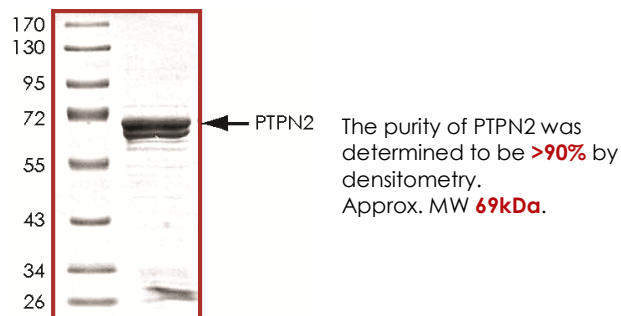
- Gupta, S. et al: A nuclear protein tyrosine phosphatase activates p53 and induces caspase-1-dependent apoptosis. *FEBS Lett.* 2002; 532(1-2):61-6.
- Yamamoto, T. et al: The nuclear isoform of protein-tyrosine phosphatase TC-PTP regulates interleukin-6-mediated signaling pathway through STAT3 dephosphorylation. *Biochem. Biophys. Res. Commun.*

Specific Activity



The specific activity of PTPN2 was determined to be **8390 nmol phosphate released /min/mg** as per activity assay protocol.

Purity



PTPN2 (TC-PTP), Active

Full-length recombinant protein expressed in E.coli cells

Catalog Number	P29-20G
Specific Activity	8390 nmol/min/mg
Specific Lot Number	E177-4
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 #: P29-20G)

Active PTPN2 (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 PTPN2 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 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 1ml 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 a fresh batch of Substrate Assay Solution.
- Step 2.** Thaw the Active PTPN2 and Phosphatase Dilution Buffer on ice.
- Step 3.** In a pre-cooled microfuge tube, add the following reaction components:

Component 1. 10µl of diluted Active PTPN2 (Catalog #P29-20G)

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 20 minutes.
- Step 6.** After the 20 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)

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

The extinction coefficient is 17.8 µl/nmol/cm

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