PTPN2 (TC-PTP), Active

**Catalog # P29-20G**
Lot # U232-2

**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 20 mM MOPS, pH 7.5, 50 mM NaCl, 0.25 mM DTT, 0.1 mM 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**


**Specific Activity**

The specific activity of PTPN2 was determined to be **8150 nmol phosphate released /min/mg** as per activity assay protocol.

**Purity**

The purity was determined to be **>85%** by densitometry. Approx. MW **69kDa**.

**PTPN2 (TC-PTP), Active**

Full-length recombinant protein expressed in E.coli cells

**Catalog Number** P29-20G
**Specific Activity** 8150 nmol/min/mg
**Specific Lot Number** U232-2

Purity >85%

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)**

\[
SA = \frac{\text{volume of Phosphatase used (µl)} \times \text{OD}_{405}\text{nm}}{\text{extinction coefficient} \times \text{incubation time (min)} \times \text{pathlength of light (cm)} \times \text{Phosphatase amount in mg}}
\]

The extinction coefficient is 17.8 µl/nmol/cm.

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