



Catalog #	Aliquot Size
P50-21H-05	5 µg
P50-21H-10	10 µg

PTPRC (CD45), Active

Recombinant human protein expressed in Sf9 cells

Catalog # P50-21H

Lot # T4311-6

Product Description

Recombinant human PTPRC (604-end) was expressed in Sf9 insect cells using an N-terminal His tag. The gene accession number is [NM_002838](#).

Gene Aliases

CD45, LCA, T200, LY5, B220, GP180.

Formulation

Recombinant protein stored in 50mM MOPS, pH 7.0, 300mM NaCl, 150mM imidazole, 0.1mM PMSF, 0.25mM DTT, 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.

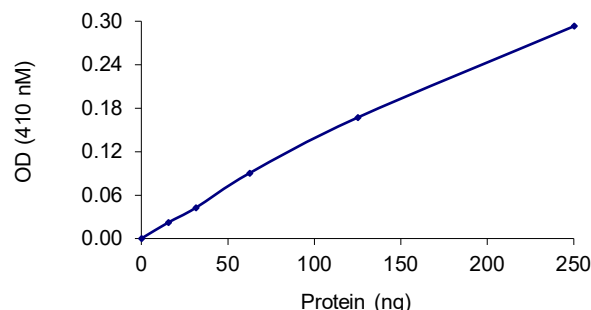
Scientific Background

PTPRC (CD45) contains an extracellular domain, a single transmembrane segment and two tandem intracytoplasmic catalytic domains and thus belongs to receptor type PTP (1). This gene is specifically expressed in hematopoietic cells (2). PTPRC has been shown to be an essential regulator of T- and B-cell antigen receptor signaling. It functions through either direct interaction with components of the antigen receptor complexes, or by activating various Src family kinases required for the antigen receptor signaling.

References

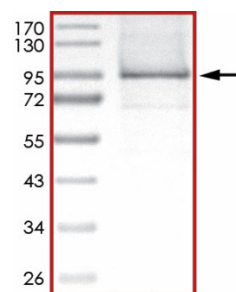
1. Ralph, S. J. et al: Structural variants of human T200 glycoprotein (leukocyte-common antigen). *EMBO J.* 6: 1251-1257, 1987.
2. Fischer, E. H. et al: Protein tyrosine phosphatases: a diverse family of intracellular and transmembrane enzymes. *Science* 253: 401-406, 1991.

Specific Activity



The specific activity of PTPRC was determined to be **789 nmol phosphate released/min/mg** as per the activity assay protocol (0.75mM pNPP), which is equivalent to **10,294 nmol phosphate released/min/mg** if using 5mM pNPP in the assay protocol.

Purity



The purity was determined to be **>85%** by densitometry. Approx. MW **95kDa**.

PTPRC (CD45), Active

Recombinant protein expressed in Sf9 cells

Catalog Number	P50-21H
Specific Activity	789 nmol/min/mg
Specific Lot Number	T4311-6
Purity	>85%
Concentration	0.05µg/ul
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 (0.1 µg/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 1.5 mM pNPP Substrate Assay Solution by diluting the Substrate Stock Solution 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 PTPRC and Phosphatase Dilution Buffer on ice.
- Step 3.** In a pre-cooled microfuge tube, add the following reaction components:

Component 1. 50 µl of diluted Active PTPRC (Catalog #P50-21H)

Component 2. 50 µl of 1.5 mM pNPP Substrate Assay Solution

- 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 at 37°C for 10 minutes.
- Step 6.** After the 10 minutes 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 410 nm.
- Step 8.** Determine the Phosphatase specific activity as outlined below.

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

$$SA = [\text{volume of Phosphatase used } (\mu\text{l}) * OD_{410\text{nm}}] / [\text{extinction coefficient} * \text{incubation time (min)} * \text{pathlength of light (cm)} * \text{Phosphatase amount in mg}]$$

The extinction coefficient is 17.8 µl/nmol/cm

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MATERIAL SAFETY DATA SHEET

Article 1 - Product Identification and Use

Product Name: PTPRC (CD45), Active

Catalog # P50-21H

This product is sold only for research use by qualified laboratory personnel, and is not to be used as a drug, medical device, food additive, cosmetic, nor household chemical. It is not to be used in diagnostic, therapeutic, consumer, agricultural, nor pesticidal applications.

Manufacturer's Name:	SignalChem Pharmaceuticals Inc.
Street Address:	550-5600 Parkwood Way
City, Prov. Postal Code:	Richmond, BC, V6V 2M2
Fax:	604-232-4601
EMERGENCY PHONE:	604-232-4600

Article 2 - Hazardous Ingredients

NOT AVAILABLE. We are not aware of any hazards associated with this product or its ingredients, but the chemical, physical, and toxicological properties of this product have not been investigated thoroughly. Observe normal laboratory precautions.

Article 3 - Physical Data

This product consists of purified protein in sodium phosphate buffer shipped on dry ice. The physical properties of this product have not been investigated thoroughly.

Article 4 - Fire and Explosion Hazard

NOT APPLICABLE

Article 5 - Reactivity Data

NOT APPLICABLE

Article 6 - Toxicologically Data

May be harmful by inhalation, ingestion, or skin absorption. The toxicological properties of this product have not been investigated thoroughly. Exercise due caution.

Article 7 - Preventative Measures

Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.

*****MULTIPLE COMPONENT SPILL OR LEAK PROCEDURES*****

- Wear protective equipment.
- Absorb on sand or vermiculite and place in closed containers for disposal.
- Observe all federal, state and local environmental regulations.

Article 8 - First Aid Measures

- If swallowed, wash out mouth with water, provided person is conscious. Call a physician.
- In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. If a rash or other irritation develops, call a physician.
- If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.
- In case of eye contact, flush with copious amounts of water for at least 15 minutes while separating the eyelids with fingers. Call a physician.

Article 9 - Preparation

Prepared by: Jun Yan

Phone#: 1-866-954-6273

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