



LD Biopharma, Inc.  
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<http://www.ldbiopharma.com>

## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human PTPRN N-terminal Fragment Protein  
**Catalog Number:** hRP-2437  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

The protein encoded by human Receptor-type tyrosine-protein phosphatase-like N (PTPRN, also named as Islet cell antigen 512 = ICA512) gene is a member of the protein tyrosine phosphatase (PTP) family. PTPs are known to be signaling molecules that regulate a variety of cellular processes including cell growth, differentiation, mitotic cycle, and oncogenic transformation. This PTP possesses an extracellular region, a single transmembrane region, and a single catalytic domain, and thus represents a receptor-type PTP. Normally, this PTPRN could be cleaved into the following 3 chains: ICA512-N-terminal fragment, ICA512-transmembrane fragment and ICA512-cleaved cytosolic fragment. This PTP was found to be an auto-antigen that is reactive with insulin-dependent diabetes mellitus (IDDM) patient sera, and thus may be a potential target of autoimmunity in diabetes mellitus. Alternate splicing results in multiple transcript variants.

ICA512 N-terminal fragment of human PTPRN (35-448 aa, derived from BC070053) gene was constructed with codon optimization gene synthesis and expressed with aT7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. It was expressed in E.coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

**Gene Symbol:** PTPRN (ICA512; R-PTP-N; IA-2)  
**Accession Number:** NP\_002837  
**Species:** Human  
**Size:** 40 µg / Vial  
**Composition:** 0.4 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.  
**Storage:** In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

### Key References



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Guerra LL, et al., *Novel prokaryotic expression of thioredoxin-fused insulinoma associated protein tyrosine phosphatase 2 (IA-2), its characterization and immunodiagnostic application.* BMC Biotechnol. 16 (1), 84 (2016)

Sosa L, et al., *Biochemical, biophysical, and functional properties of ICA512/IA-2 RESP18 homology domain.* Biochim. Biophys. Acta 1864 (5), 511-522 (2016)

Richardson CC, et al., *Influence of HLA-DR and -DQ alleles on autoantibody recognition of distinct epitopes within the juxtamembrane domain of the IA-2 autoantigen in type 1 diabetes.* Diabetologia 59 (2), 334-340 (2016)

Ort T, et al., *The receptor tyrosine phosphatase-like protein ICA512 binds the PDZ domains of beta2-syntrophin and nNOS in pancreatic beta-cells.* Eur. J. Cell Biol. 79 (9), 621-630 (2000)

Cui L, et al., *Cloning and characterization of islet cell antigen-related protein-tyrosine phosphatase (PTP), a novel receptor-like PTP and autoantigen in insulin-dependent diabetes.* J. Biol. Chem. 271 (40), 24817-24823 (1996)

## Applications

1. May be used as auto-antibodies detection reagent, which will react with sera of some auto-immuno-diseases's patients.
2. May be used for in vitro PTPRM mediated cell signaling pathway regulation study for various cells by intracellular delivery of this protein with protein delivery reagent such as ProFectin reagent kit.
3. May be used for mapping protein-protein interaction.
4. May be used as specific substrate protein for specific kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
5. As immunogen for specific antibody production.

## Quality Control

Purity: > 90% by SDS-PAGE.

## Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHHENLYFQGGFVSAHGCLFDRRLCSHLEVCIQDGLFGQCQVGVGQA  
RPLLQVTSFVLQRLQGVLRQLMSQGLSWHDDLTQYVISQEMERIPRLRPPEPRPRDRSGLAPKR  
PGPAGELLLQDIPTGSAPAAQHRLPQPPVKGKAGASSLSPLQAELLPLLEHLLLPPQPPHP  
SLSYEPALLQPYLFHQFGSRDGSRVSESGPMVSVGPLPKAEAPALFSRTASKGIFGDHPGHSY



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GDLPGPSPAQLFQDSGLLYLAQELPAPSRARVPRLPEQGSSSRAEDSPEGYEKEGLGDRGEKPA  
SPAVQPDAALQRLAAVLAGYGVELRQLTPEQLSTLLTLLQLLPKGAGRNPGGVVNVGADIKKTM  
EGPVEGRDTAELPARTSPMPGHPTASPTSSEVQQVPSVPSSEPPKAARPPVTPVLLEKK