# Data Sheet (Cat.No.TMPY-02131)

TargetMol

## Acid Phosphatase/ACP1 Protein, Human, Recombinant (GST)

### General Information

Synonyms: acid phosphatase 1, soluble;HAAP

Protein Construction: A DNA sequence encoding human ACP1 (AAI06012.1) (Met 1-His 158) was fused with the GST tag at the N-terminus. Predicted N terminal: Met

Species: Human

Expression Host: E. coli

Accession: AAI06012.1

Molecular Weight: 44.3 kDa (predicted); 40 kDa (reducing conditions)

### QC Testing

Biological Activity: Measured by its ability to cleave a substrate, pNitrophenyl phosphate (pNPP). The specific activity is >65,000 pmol/min/μg.

Purity: > 88 % as determined by SDS-PAGE

Endotoxin: Please contact us for more information.

Formulation: Lyophilized from a solution filtered through a 0.22 μm filter, containing 50 mM Tris, 150 mM NaCl, pH 8.0.Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

The low molecular weight phosphotyrosine phosphatase (LMW-PTP), also known as Acid phosphatase 1 (ACP1), belongs to the low molecular weight phosphotyrosine protein phosphatase family are involved in the regulation of important physiological functions, including stress resistance and synthesis of the polysaccharide capsule. ACP1/LMW-PTP is an enzyme involved in platelet-derived growth factor-induced mitogenesis and cytoskeleton rearrangement. LMW-PTP is able to specifically bind and dephosphorylate activated PDGF receptor, thus

modulating PDGF-induced mitogenesis. In vitro, LMW-PTP was found to efficiently dephosphorylate activated FcgammaRIIA and LAT, but not Syk or phospholipase Cgamma2. The overexpression of LMW-PTP inhibited activation of Syk downstream of FcgammaRIIA and reduced intracellular Ca(2+) mobilization. It been demonstrated that LMW-PTP is responsible for FcgammaRIIA dephosphorylation, and is implicated in the down-regulation of cell activation mediated by this ITAM-bearing immunoreceptor. In addition, ACP1 is a highly polymorphic phosphatase that is especially abundant in the central nervous system and is known to be involved in several signal transduction pathways.

Reference

Cirri P, et al. (1998) Low molecular weight protein-tyrosine phosphatase tyrosine phosphorylation by c-Src during platelet-derived growth factor-induced mitogenesis correlates with its subcellular targeting. J Biol Chem. 273(49): 32522-7.

Chiarugi P, et al. (2002) Insight into the role of low molecular weight phosphotyrosine phosphatase (LMW-PTP) on platelet-derived growth factor receptor (PDGF-r) signaling. LMW-PTP controls PDGF-r kinase activity through TYR-857 dephosphorylation. J Biol Chem. 277(40): 37331-8.

Bottini N, et al. (2002) Convulsive disorder and the genetics of signal transduction; a study of a low molecular weight protein tyrosine phosphatase in a pediatric sample. Neurosci Lett. 333(3): 159-62.

Musumeci L, et al. (2005) Low-molecular-weight protein tyrosine phosphatases of Bacillus subtilis. J Bacteriol. 187 (14): 4945-56.

Mancini F, et al. (2007) The low-molecular-weight phosphotyrosine phosphatase is a negative regulator of FcgammaRIIA-mediated cell activation. Blood. 110(6): 1871-8.