Data Sheet (Cat.No.TMPY-01233)

TargetMol

LRPAP1 Protein, Human, Recombinant (His)

General Information

Synonyms:	HBP44;MYP23;low density lipoprotein receptor-related protein associated protein 1;alpha-2-MRAP;A2MRAP;RAP;MRAP;A2RAP;α-2-MRAP
Protein Construction:	A DNA sequence encoding the human LRPAP1 (NP_002328.1) (Tyr 35-Leu 357) was expressed, fused with a signal peptide at the N-terminus and a polyhistidine tag at the C-terminus. Predicted N terminal: Tyr 35
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P30533
Molecular Weight:	39.2 kDa (predicted); 43 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Measured by its binding ability in a functional ELISA. Immobilized human LRPAP1 at 0.5 μg/ml can bind human VLDLR with a range of 3.2-400 ng/ml.
Purity:	≥ 92 % as determined by SDS-PAGE. ≥ 95 % as determined by SEC-HPLC.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. 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:

Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

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

Receptor-associated protein (RAP) is a molecular chaperone for low-density lipoprotein receptor-related protein (LRP), which plays a key role in cholesterol metabolism. The lipoprotein receptor-related protein (LRP) is an endocytic receptor for several ligands, such as alpha2-macroglobulin (alpha2 M) and apolipoprotein E. LRP is

involved in the clearance of lipids from the bloodstream and is expressed in the atherosclerotic plaque. The LRP-associated protein (LRPAP in humans, RAP in mice) acts as a chaperone protein, stabilizing the nascent LRP peptide in the endoplasmic reticulum and Golgi complex. Alpha-2-macroglobulin receptor-associated protein, also known as low-density lipoprotein receptor-related protein-associated protein 1, RAP, and LRPAP1, is a 39 kDa protein and a member of the alpha-2-MRAP family. It is a receptor antagonist that interacts with several members of the low-density lipoprotein (LDL) receptor gene family. Upon binding to these receptors, LRPAP1 inhibits all ligand interactions with the receptors. LRPAP1 is present on the cell surface forming a complex with the alpha-2-macroglobulin receptor heavy and light chains. It binds with LRP1B and the binding is followed by internalization and degradation. LRPAP1 interacts with LRP1/alpha-2-macroglobulin receptor and LRP2 (previously called glycoprotein 330) and may be involved in the pathogenesis of membrane glomerular nephritis. LRPAP1 together with LRP2 forms the Heymann nephritis antigenic complex. LRP2 is expressed in epithelial cells of the thyroid, where it can serve as a receptor for the protein thyroglobulin. Intron 5 insertion/deletion polymorphism of RAP gene (LRPAP1) has been implicated in other diseases sharing etiology with gallstone disease (GSD). The LRPAP1 insertion/deletion polymorphism influences cholesterol homeostasis and may confer risk for gallstone disease and gallbladder carcinoma (GBC) incidence usually parallels with the prevalence of cholelithiasis. The genetic variations at the LRPAP1 locus may modulate Alzheimer's disease (AD) phenotype beyond risk for disease. Also, the variation in the LRPAP1 gene could contribute to the risk of developing an early episode of myocardial infarction (MI).

Reference

Gonzlez P, et al. (2002) Variation in the lipoprotein receptor-related protein, alpha2-macroglobulin and lipoprotein receptor-associated protein genes in relation to plasma lipid levels and risk of early myocardial infarction. Coron Artery Dis. 13(5): 251-4.
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