Data Sheet (Cat.No.TMPY-06638)

TargetMol

CES1 Protein, Mouse, Recombinant (His)

General Information

Synonyms:	carboxylesterase 1
Protein Construction:	A DNA sequence encoding the mouse CES1 (Q8VCC2) (Met1-Leu565) was expressed with a polyhistidine tag at the C-terminus. Predicted N terminal: His 19
Species:	Mouse
Expression Host:	HEK293 Cells
Accession:	Q8VCC2
Molecular Weight:	62.25 kDa (predicted); 57.32 kDa (reducing conditions)

QC Testing

Biological Activity:	Measured by its ability to hydrolyze p-nitrophenylacetate.
Purity:	≥ 90 % as determined by SDS-PAGE. ≥ 90 % 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:

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

CES1 encodes carboxylesterase-1, an important drug-metabolizing enzyme with high expression in the liver. Variants generated by the exchange of segments with CES1P1 complicate the genotyping of CES1. CES1 is involved in the hydrolysis of ester group-containing xenobiotic and endobiotic compounds including several essential and commonly used drugs. The individual variation in the efficacy and tolerability of many drugs metabolized by CES1 is considerable. However, it has been problematic to express recombinant CES1 in bacterial expression systems

due to low solubility, with the CES1 protein being mainly expressed in inclusion bodies, accompanied by insufficient purity issues. CES1 is capable of catalyzing the hydrolysis of a wide range of therapeutic agents, toxins, and endogenous compounds. Accumulating studies have demonstrated associations between the expression and activity of CES1 and the pharmacokinetics and/or pharmacodynamics of CES1 substrate medications.

Reference

Sanford JC,et al.(2016) Regulatory effects of genomic translocations at the human carboxylesterase-1 (ces1) gene locus. Pharmacogenet Genomics 26 (5): 197-207.
Rasmussen HB,et al.(2015) Individualization of treatments with drugs metabolized by ces1: Combining genetics and metabolomics. Pharmacogenomics 16 (6): 649-665.
Qian Y,et al.(2020) Natural products as modulators of ces1 activity. Drug Metab Dispos 48 (10): 993-1007.
Ferrero-Miliani L,et al.(2017) Reappraisal of the genetic diversity and pharmacogenetic assessment of ces1. Pharmacogenomics 18 (13): 1241-1257.