Data Sheet (Cat.No.TMPY-00669)

TargetMol

ARSA Protein, Human, Recombinant (His)

General Information

Synonyms:	arylsulfatase A;MLD
Protein Construction:	A DNA sequence encoding the human Arylsulfatase A (P15289-1) (Met1-Ala507) was expressed with a C-terminal polyhistidine tag. Predicted N terminal: Arg 19
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P15289-1
Molecular Weight:	53.4 kDa (predicted); 56.7 kDa (reducing conditions)

QC Testing

Biological Activity:	Measured by its ability to hydrolyze the substrate 4-Nitrocatechol Sulfate (PNCS). The specific activity is >50 pmoles/min/μg.
Purity:	> 97 % as determined by SDS-PAGE
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 25 mM Tris, 0.15 mM NaCl, pH 7.5. 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

Arylsulfatase A (ARSA) is synthesized as a 52KDa lysosomal enzyme. It is a member of the sulfatase family that is required for the lysosomal degradation of cerebroside-3-sulfate, a sphingolipid sulfate ester and a major constituent of the myelin sheet. Arylsulfatase A is activated by a required co- or posttranslational modification with the oxidation of cysteine to formylglycine. Metachromatic leukodystrophy (MLD) is a lysosomal storage disease in the central and peripheral nervous systems with severe and progressive neurological symptoms caused

by the deficiency of Arylsulfatase A. Deficiency of this enzyme is also found in apparently healthy individuals, a condition for which the term pseudodeficiency is introduced. ARSA forms dimers after receiving three N-linked oligosaccharides in the endoplasmic reticulum, and then the dimers are transported to the Golgi where they receive mannose 6-phosphate recognition markers. And thus, ARSA is transported and delivered to dense lysosomes in a mannose 6-phosphate receptor-dependent manner. It has been shown that within the lysosomes, the ARSA dimers can oligomerize to an octamer in a pH-dependent manner. The ARSA deficiency leads to metachromatic leucodystrophy (MLD), a lysosomal storage disorder associated with severe and progressive demyelination in he central and peripheral nervous system. Additionally, the serum level of arylsulfatase A might be helpful in diagnosis of lung and central nervous system cancer.

Reference

Laidler PM. (1991) Arylsulfatase A--physico-chemical properties and the use of enzyme radioimmunoassay in medical diagnosis Folia Med Cracov. 32(3-4): 149-68.

Jean S,et al.(2006) Ethanol decreases rat hepatic arylsulfatase A activity levels. Alcohol Clin Exp Res. 30(11): 1950-5.