Data Sheet (Cat.No.TMPY-02948)

TargetMol

SULT1A3 Protein, Human, Recombinant (His)

General Information

Synonyms:	M-PST;HAST;SULT1A3;ST1A3/ST1A4;HAST3;SULT1A4;TL-PST;STM;sulfotransferase family 1A member 3;ST1A5;ST1A3
Protein Construction:	A DNA sequence encoding the mature form of human SULT1A3 (NP_808220.1) (Glu2-Leu295) was expressed with a polyhistide tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	P0DMM9-1
Molecular Weight:	30.5 kDa (predicted); 34 kDa (reducing conditions)

QC Testing

Biological Activity:	Measured by its ability to transfer sulfate from PAPS to 1-Napthol. The specific activity is > 150 pmoles/min/μg.
Purity:	> 94 % 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 20 mM Tris, 500 mM NaCl, 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

SULT1A3 belongs to the sulfotransferase 1 family. Sulfotransferase enzymes catalyze the sulfate conjugation of many hormones, neurotransmitters, drugs, and xenobiotic compounds. They are different in their tissue distributions and substrate specificities while their gene structure (number and length of exons) is similar. SULT1A3 gene encodes a phenol sulfotransferase with thermolabile enzyme activity. Four sulfotransferase genes

are located on the p arm of chromosome 16; this gene and SULT1A4 arose from a segmental duplication. It is the most centromeric of the four sulfotransferase genes. Exons of this gene overlap with exons of a gene that encodes a protein containing GIY-YIG domains (GIYD1). SULT1A3 is expressed in liver, colon, kidney, lung, brain, spleen, small intestine, placenta and leukocyte. SULT1A3 is a sulfotransferase that utilizes 3'-phospho-5'-adenylyl sulfate (PAPS) as sulfonate donor to catalyze the sulfate conjugation of phenolic monoamines (neurotransmitters such as dopamine, norepinephrine and serotonin) and phenolic and catechol drugs.

Reference

Dajani R, et al. (1999) Kinetic properties of human dopamine sulfotransferase (SULT1A3) expressed in prokaryotic and eukaryotic systems: comparison with the recombinant enzyme purified from Escherichia coli. Protein Expr. Purif. 16 (1): 11-8.

Dajani R, et al. (2000) X-ray crystal structure of human dopamine sulfotransferase, SULT1A3. J. Biol. Chem. 274 (53): 37862-8.

Yasuda S, et al. (2011) Sulfation of chlorotyrosine and nitrotyrosine by human lung endothelial and epithelial cells: role of the human SULT1A3. Toxicol Appl Pharmacol. 251 (2): 104-9.

Hildebrandt MA, et al. (2004) Human SULT1A3 pharmacogenetics: gene duplication and functional genomic studies. Biochem Biophys Res Commun. 321 (4): 870-8.

Lu JH, et al. (2005) Crystal structure of human sulfotransferase SULT1A3 in complex with dopamine and 3'-phosphoadenosine 5'-phosphate. Biochem Biophys Res Commun. 335 (2): 417-23.