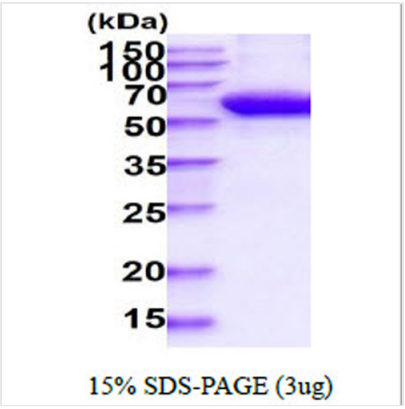
ARSA Active Protein

PRODUCT OVERVIEW

Product Name	ARSA, Active Protein
Full Product Name	Recombinant ARSA
Product Gene Name	ARSA active protein
Product Synonym Names	Arylsulfatase A isoform a; ARSA; ASA; MLD
Sequence	ADPRPPNIVL IFADDLGYGD LGCYGHPSST TPNLDQLAAG GLRFTDFYVP VSLCTPSRAA LLTGRLPVRM GMYPGVLVPS SRGGLPLEEV TVAEVLAARG YLTGMAGKWH LGVGPEGAFL PPHQGFHRFL GIPYSHDQGP CQNLTCFPPA TPCDGGCDQG LVPIPLLANL SVEAQPPWLP GLEARYMAFA HDLMADAQRQ DRPFFLYYAS HHTHYPQFSG QSFAERSGRG PFGDSLMELD AAVGTLMTAI GDLGLLEETL VIFTADNGPE TMRMSRGGCS GLLRCGKGTT YEGGVREPAL AFWPGHIAPG VTHELASSLD LLPTLAALAG APLPNVTLDG FDLSPLLLGT GKSPRQSLFF YPSYPDEVRG VFAVRTGKYK AHFFTQGSAH SDTTADPACH ASSSLTAHEP PLLYDLSKDP GENYNLLGGV AGATPEVLQA LKQLQLLKAQ LDAAVTFGPS QVARGEDPAL QICCHPGCTP RPACCHCPDP HAHHHHHH
Host	Baculovirus
Form/Format	Liquid; In Phosphate Buffered Saline (pH 7.4) Containing 10% Glycerol.
Purity/Purification	>95% by SDS-PAGE
Concentration	0.25mg/ml (determined by Absorbance at 280nm) (lot specific)
Preparation and Storage	Can be stored at 2 degree C to 8 degree C for 1 week. For long term storage, aliquot and store at -20 degree C to -80 degree C. Avoid repeated freezing and thawing cycles.
Molecular Weight	53.0kDa (498aa); 50-70KDa (SDS-PAGE under reducing conditions)
Sequence Positions	21-509aa
OMIM	250100
3D Structure	ModBase 3D Structure for P15289
Active Protein Note	Protein activity can be an ambiguous term. Please refer to the data sheet or inquire with Technical Support to determine the definition of activity for this product.
Species	Human
Endotoxin	<1.0 EU per 1ug of protein (determined by LAL method)
Tag	His-Tag
Predicted N-Terminal	Ala
Biological Activity	Specific activity is > 2,500 pmol/min/ug, and defined as the amount of enzyme that hydrolyze 4-Nitrocatechol at pH 5.0 at 37C.
Product Categories/Family for ARSA active protein	Immunology; Neuroscience; Enzymes & Proteases
Applications Tested/Suitable for ARSA active protein	Enzyme Activity, SDS-PAGE

Related Product Information for ARSA active protein	ARSA, also known as arylsulfatase A isoform a, is a member of the sulfatase family. It hydrolyzes cerebroside sulfate, namely cerebroside 3-sulfate. It is found in many tissues, but predominantly in myelin and kidney. This protein is activated by a posttranslational modification (PTM) with the oxidation of cysteine to formylglycine. It could be helpful in identification of lung and central nervous system cancer through the serum level of this protein. The ARSA deficiency results in metachromatic leukodystrophy (MLD), a lysosomal storage disease in the central and peripheral nervous systems with severe and progressive neurological symptoms. Recombinant human ARSA protein, fused to His-tag at C-terminus, was expressed in insect cell and purified by using conventional chromatography techniques.
Product References and Citations for ARSA active protein	Shahzad MA., et al, (2017) J Mol Neurosci. 63:84-90. Cesani M., et al, (2017) Hum Mutat. 37:16-27.
Other Notes	Small volumes of ARSA active protein vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.
Searchable Terms for ARSA purchase	MBS201091 is an active protein targeting ARSA. Also known as Recombinant ARSA. Host: Baculovirus.



SDS-Page of ARSA active protein
3ug by SDS-PAGE under reducing condition and visualized by coomassie blue stain

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for ARSA. It may not necessarily be applicable to this product.

NCBI GI #	313569791
NCBI GeneID	410
NCBI Accession #	NP_000478.3
UniProt Primary Accession #	P15289
UniProt Related Accession #	P15289
GenBank Nucleotide #	NP_000478.3
NCBI Official Full Name	arylsulfatase A isoform a
NCBI Official Synonym Full Names	arylsulfatase A
NCBI Official Symbol	ARSA
NCBI Official Synonym Symbols	ASA; MLD
UniProt Protein Name	Arylsulfatase A
UniProt Synonym Protein Names	Cerebroside-sulfatase
Protein Family	Arsenical pump-driving ATPase
UniProt Gene Name	ARSA

UniProt Synonym Gene Names	ASA
UniProt Entry Name	ARSA_HUMAN
NCBI Protein Information	arylsulfatase A
NCBI Summary for ARSA	The protein encoded by this gene hydrolyzes cerebroside sulfate to cerebroside and sulfate. Defects in this gene lead to metachromatic leucodystrophy (MLD), a progressive demyelination disease which results in a variety of neurological symptoms and ultimately death. Alternatively spliced transcript variants have been described for this gene. [provided by RefSeq, Dec 2010]
UniProt Comments for ARSA	ARSA: Hydrolyzes cerebroside sulfate. Defects in ARSA are a cause of leukodystrophy metachromatic (MLD). MLD is a disease due to a lysosomal storage defect. It is characterized by intralysosomal storage of cerebroside-3-sulfate in neural and non-neural tissues, with a diffuse loss of myelin in the central nervous system. Progressive demyelination causes a variety of neurological symptoms, including gait disturbances, ataxias, optical atrophy, dementia, seizures, and spastic tetraparesis. Three forms of the disease can be distinguished according to the age at onset: late- infantile, juvenile and adult. Arylsulfatase A activity is defective in multiple sulfatase deficiency (MSD). A clinically and biochemically heterogeneous disorder caused by the simultaneous impairment of all sulfatases, due to defective post-translational modification and activation. It combines features of individual sulfatase deficiencies such as metachromatic leukodystrophy, mucopolysaccharidosis, chondrodysplasia punctata, hydrocephalus, ichthyosis, neurologic deterioration and developmental delay. Arylsulfatase A activity is impaired in multiple sulfatase deficiency due to mutations in SUMF1. SUMF1 mutations result in defective post-translational modification of ARSA at residue Cys- 69 that is not converted to 3-oxoalanine. Belongs to the sulfatase family. Protein type: Hydrolase; EC 3.1.6.8; Lipid Metabolism - sphingolipid Chromosomal Location of Human Ortholog: 22q13.33 Cellular Component: extracellular space; lysosomal lumen; extrinsic to external side of plasma membrane; endoplasmic reticulum lumen; lysosome; integral to membrane; acrosome; endosome Molecular Function: arylsulfatase activity; sulfuric ester hydrolase activity; calcium ion binding; cerebroside-sulfatase activity Biological Process: response to ethanol; central nervous system development; sphingolipid metabolic process; cellular protein metabolic process; binding of sperm to zona pellucida; response to estrogen stimulus; response to methylmercury; autophagy; glycosphingolipid metabolic process; post-translational protein modification; response to nutrient; response to pH Disease: Metachromatic Leukodystrophy
Research Articles on ARSA	**1.** In one case, the homozygous pathogenic variant NM_000049.2:c.914C>A;p.Ala305Glu, which is previously reported in ClinVar, in the gene ASPA was identified causing Canavan disease. In the second case, the homozygous novel variant NM_000487.5:c.256C>G;p.Arg86Gly in the gene ARSA was identified causing metachromatic leukodystrophy.
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