ABCD1 Protein, Human (Cell-Free, His)

Cat. No.:	HY-P72012
Synonyms:	ABC42; Abcd1; ABCD1_HUMAN; Adrenoleukodystrophy protein; ALD; Aldgh; ALDP; AMN; ATP binding cassette; sub family D ALD; ; member 1; ATP-binding cassette sub-family D member 1; OTTHUMP00000025960; OTTMUSP00000019283; RGD1562128; RP23 373N8.2; X linked adrenoleukodystrophy ALD; gene homolog
Species:	Human
Source:	E. coli Cell-free
Accession:	P33897 (M1-T745)
Gene ID:	215
Molecular Weight:	Approximately 84.9 kDa

PROPERTIES

AA Sequence

M P V L S R P R P W	R G N T L K R T A V	L L A L A A Y G A H	K V Y P L V R Q C L
A P A R G L Q A P A	G E P T Q E A S G V	A A A K A G M N R V	F L Q R L L W L L R
L L F P R V L C R E	T G L L A L H S A A	L V S R T F L S V Y	V A R L D G R L A R
C I V R K D P R A F	G W Q L L Q W L L I	A L P A T F V N S A	I R Y L E G Q L A L
S F R S R L V A H A	Y R L Y F S Q Q T Y	Y R V S N M D G R L	R N P D Q S L T E D
V V A F A A S V A H	L Y S N L T K P L L	D V A V T S Y T L L	R A A R S R G A G T
A W P S A I A G L V	V F L T A N V L R A	F S P K F G E L V A	E E A R R K G E L R
Y M H S R V V A N S	E E I A F Y G G H E	V E L A L L Q R S Y	Q D L A S Q I N L I
L L E R L W Y V M L	E Q F L M K Y V W S	A S G L L M V A V P	I I T A T G Y S E S
D A E A V K K A A L	E K K E E E L V S E	R T E A F T I A R N	L L T A A A D A I E
R I M S S Y K E V T	E L A G Y T A R V H	E M F Q V F E D V Q	R C H F K R P R E L
E D A Q A G S G T I	G R S G V R V E G P	L K I R G Q V V D V	E Q G I I C E N I P
I V T P S G E V V V	A S L N I R V E E G	M H L L I T G P N G	C G K S S L F R I L
G G L W P T Y G G V	L Y K P P P Q R M F	Y I P Q R P Y M S V	G S L R D Q V I Y P
D S V E D M Q R K G	Y S E Q D L E A I L	D V V H L H H I L Q	R E G G W E A M C D
W K D V L S G G E K	Q R I G M A R M F Y	H R P K Y A L L D E	C T S A V S I D V E
G K I F Q A A K D A	G I A L L S I T H R	P S L W K Y H T H L	L Q F D G E G G W K
F E K L D S A A R L	S L T E E K Q R L E	Q Q L A G I P K M Q	R R L Q E L C Q I L
G E A V A P A H V P	A P S P Q G P G G L	Q G A S T	

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm sterile filtered Tris-based buffer, 50% Glycerol.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is

	recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US;may vary elsewhere.

DESCRIPTION

Background	ALDP contains six putative transmembrane domains (TMDs) and a nucleotide-binding domain (NBD). ALDP is synthesized on free polysomes, post-translationally transported to peroxisomes, and inserted into the membranes. During this process, ALDP interacts with Pex19p, a chaperone-like protein for intracellular trafficking of PMP, the complex is targeted to Pex3p on the peroxisomal membranes and then ALDP is inserted into the membranes. After integration into the membranes, ALDP is thought to form mainly a homodimer and in part a heterodimer with other peroxisomal ABC proteins such as 70-kDa peroxisomal membrane protein (PMP70/ABCD3) and adrenoleukodystrophy-related protein (ALDRP/ABCD2). Dysfunction of ABCD1 causes neurodegenerative disorder X-linked adrenoleukodystrophy (X-ALD), which is characterized by the abnormal accumulation of VLCFA due to impaired peroxisomal β-oxidation[1][2].

REFERENCES

[1]. Takahashi N, et, al. Adrenoleukodystrophy: subcellular localization and degradation of adrenoleukodystrophy protein (ALDP/ABCD1) with naturally occurring missense mutations. J Neurochem. 2007 Jun;101(6):1632-43.

[2]. Kawaguchi K, et, al. Acyl-CoA thioesterase activity of peroxisomal ABC protein ABCD1 is required for the transport of very long-chain acyl-CoA into peroxisomes. Sci Rep. 2021 Jan 26;11(1):2192.

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