PLA2G2D Protein, Human (His-SUMO)

Cat. No.:	HY-P71653
Synonyms:	2IID; EC 3.1.1.4; GIID sPLA2; Group IID secretory phospholipase A2; Phospholipase A2 group IID ; Pla2g2d; PLA2IID; stroma-associated homolog
Species:	Human
Source:	E. coli
Accession:	Q9UNK4 (22I-145C)
Gene ID:	26279
Molecular Weight:	Approximately 30.5 kDa

PROPERTIES

AA Sequence	I L N L N K M V K Q V T G K M P I L S Y W P Y G C H C G L G G R G Q P K D A T D W C C Q T H D C C Y D H L K T Q G C S I Y K D Y Y R Y N F S Q G N I H C S D K G S W C E Q Q L C A C D K E V A F C L K R N L D T Y Q K R L R F Y W R P H C R G Q T P G C
Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder
Formulation	Lyophilized after extensive dialysis against solution in 10 mM Tris-HCl, 1 mM EDTA, 6% Trehalose, pH 8.0.
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	PLA2G2D is a secretory calcium-dependent phospholipase A2 with a primary focus on extracellular lipids, showcasing anti-inflammatory and immunosuppressive functions. This protein hydrolyzes the ester bond of the fatty acyl group at the sn-2 position of phospholipids, displaying a preference for phosphatidylethanolamines and phosphatidylglycerols over phosphatidylcholines. Particularly in draining lymph nodes, it selectively hydrolyzes diacyl and alkenyl forms of phosphatidylethanolamines, releasing omega-3 polyunsaturated fatty acids like eicosapentaenoate and docosahexaenoate. These compounds act as precursors for the synthesis of anti-inflammatory lipid mediators known as resolvins. During the resolution phase of acute inflammation, PLA2G2D drives the synthesis of resolvin D1 derived from

docosahexaenoate, suppressing dendritic cell activation and the T-helper 1 immune response. Beyond its catalytic activity, PLA2G2D, via mechanisms independent of its enzymatic functions, promotes the differentiation of regulatory T cells (Tregs) and contributes to maintaining immune tolerance. Additionally, it may play a role in lipid remodeling of cellular membranes and participate in the generation of lipid mediators crucial for pathogen clearance, exhibiting bactericidal activity against Gram-positive bacteria by directly hydrolyzing phospholipids in the bacterial membrane.

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