PLA2G2D Protein, Mouse (HEK293, Fc)

Cat. No.:	HY-P76549
Synonyms:	Group IID secretory phospholipase A2; GIID sPLA2; PLA2IID; Splash
Species:	Mouse
Source:	HEK293
Accession:	Q9WVF6-1 (G20-C144)
Gene ID:	18782
Molecular Weight:	Approximately 40-50 kDa due to the glycosylation.

PROPERTIES

AA Sequence	G L L N L N K M V T H M T G K K A F F S Y W P Y G C H C G L G G K G Q P K D A T D W C C Q K H D C C Y A H L K I D G C K S L T D N Y K Y S I S Q G T I Q C S D N G S W C E R Q L C A C D K E V A L C L K Q N L D S Y N K R L R Y Y W R P R C K G K T P A C
Biological Activity	Measured by its ability to hydrolyze 20μM 1-Hexadecanoyl-2-(1-pyrene-decanoyl)-sn-glycero-3-phosphocholine. The specific activity is 23.007 pmol/min/μg, as measured under the described conditions.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, 10% Glycerol, pH 7.4.
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 Protein is a secretory calcium-dependent phospholipase A2 that primarily targets extracellular lipids, exerting anti-inflammatory and immunosuppressive functions. It hydrolyzes the ester bond of the fatty acyl group attached at the sn-2 position of phospholipids, with a preference for phosphatidylethanolamines and phosphatidylglycerols over phosphatidylcholines. In draining lymph nodes, it selectively hydrolyzes diacyl and alkenyl forms of phosphatidylethanolamines, releasing omega-3 polyunsaturated fatty acids (PUFAs) such as eicosapentaenoate and docosahexaenoate, which are precursors of the anti-inflammatory lipid mediators known as resolvins. During the resolution

phase of acute inflammation, PLA2G2D Protein drives the synthesis of resolvin D1 derived from docosahexaenoate, which suppresses dendritic cell activation and T-helper 1 immune response. In addition to its catalytic activity, PLA2G2D Protein promotes the differentiation of regulatory T cells (Tregs) and participates in the maintenance of immune tolerance. It may also contribute to lipid remodeling of cellular membranes and the generation of lipid mediators involved in pathogen clearance. Moreover, PLA2G2D Protein displays bactericidal activity against Gram-positive bacteria by directly hydrolyzing phospholipids of the bacterial membrane.

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