

PLA2G2A Protein, Human (HEK293, His)

Cat. No.:	HY-P75977
Synonyms:	Phospholipase A2, membrane associated; EF; GIIC sPLA2
Species:	Human
Source:	HEK293
Accession:	P14555 (M1-C144)
Gene ID:	5320
Molecular Weight:	Approximately 19 kDa

PROPERTIES

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 μ m filtered solution of PBS, pH 7.4. Normally 5% - 8% trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/ μ g, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μ g/mL in ddH ₂ O.
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

PLA2G2A, a secretory calcium-dependent phospholipase A2, selectively targets extracellular phospholipids and holds significant implications in host antimicrobial defense, inflammatory response, and tissue regeneration. Operating with phospholipase A2 activity, it 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. PLA2G2A actively contributes to lipid remodeling in cellular membranes and the generation of lipid mediators crucial for pathogen clearance, exerting bactericidal activity against Gram-positive bacteria. During sterile inflammation, it targets membrane phospholipids of extracellular mitochondria, releasing free unsaturated fatty acids like arachidonate. This arachidonate is utilized by neighboring leukocytes for synthesizing inflammatory eicosanoids such as leukotrienes. Simultaneously, by compromising mitochondrial membrane integrity, PLA2G2A promotes the release of potent damage-associated molecular pattern molecules into circulation, activating the innate immune response. In the intestinal crypt, PLA2G2A serves as a stem cell regulator, mediating Paneth cell differentiation and supporting stem cell functions by inhibiting the Wnt signaling pathway. Secreted in the intestinal lumen during inflammation, it acts in an autocrine manner, promoting prostaglandin E2 synthesis that stimulates the Wnt signaling pathway in intestinal stem cells and contributes to tissue regeneration.

Additionally, PLA2G2A may play a role in the biosynthesis of N-acyl ethanolamines, regulating energy metabolism and inflammation, and it exhibits integrin-dependent cell proliferation by binding to and activating integrins ITGAV:ITGB3, ITGA4:ITGB1, and ITGA5:ITGB1 through distinct ligand-binding sites.

Caution: Product has not been fully validated for medical applications. For research use only.

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