Lipocalin-2/NGAL Protein, Human (HEK293, His)

Cat. No.:	HY-P71156
Synonyms:	Neutrophil gelatinase-associated lipocalin; NGAL; 25 kDa alpha-2-microglobulin-related subunit of MMP-9; Lipocalin-2; Oncogene 24p3; Siderocalin LCN2; p25; HNL; NGAL
Species:	Human
Source:	HEK293
Accession:	P80188 (Q21-G198)
Gene ID:	3934
Molecular Weight:	Approximately 21-24 kDa

PROPERTIES

AA Sequence	Q D S T S D L I P A P P L S K V P L Q Q N F Q D N Q F Q G K W Y V V G L A G N A I L R E D K D P Q K M Y A T I Y E L K E D K S Y N V T S V L F R K K K C D Y W I R T F V P G C Q P G E F T L G N I K S Y P G L T S Y L V R V V S T N Y N Q H A M V F F K K V S Q N R E Y F K I T L Y G R T K E L T S E L K E N F I R F S K S L G L P E N H I V F P V P I D Q C I D G
Biological Activity	Fully biologically active determined by the dose dependent decrease in SH-SY5Y cell number. The ED_{50} this effect is 0.1265 μg/mL, corresponding to a specific activity is 7.91×10^3 units/mg.
Appearance	Solution.
Formulation	Supplied as a 0.2 μm filtered solution of PBS, 50% Glycerol, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	N/A
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

DESCRIPTION

Background	Lipocalin-2/NGAL, an iron-trafficking protein, plays a pivotal role in diverse cellular processes, including apoptosis, innate immunity, and renal development. Through its interaction with the siderophore 2,3-dihydroxybenzoic acid (2,3-DHBA), bearing structural resemblance to bacterial enterobactin, Lipocalin-2/NGAL serves as a versatile mediator for the transport of iron into or out of cells, contingent on specific cellular requirements. The iron-bound form (holo-24p3) undergoes internalization upon binding to the SLC22A17 (24p3R) receptor, leading to the liberation of iron and a subsequent rise in

intracellular iron concentration. Conversely, the association of the iron-free form (apo-24p3) with the SLC22A17 (24p3R) receptor initiates a cascade involving an intracellular siderophore, resulting in iron chelation and subsequent extracellular iron transfer, ultimately reducing intracellular iron levels. In the context of apoptosis induced by interleukin-3 (IL3) deprivation, the iron-loaded form augments intracellular iron concentration without triggering apoptosis, while the iron-free form diminishes intracellular iron levels, inducing the expression of the proapoptotic protein BCL2L11/BIM, thereby promoting apoptosis. Lipocalin-2/NGAL's involvement in innate immunity manifests as it restricts bacterial proliferation by sequestering iron bound to microbial siderophores, such as enterobactin. Furthermore, Lipocalin-2/NGAL exhibits the ability to bind siderophores from M.tuberculosis. Its structural arrangements include a monomeric state and a homodimer linked by disulfide bonds, as well as a heterodimeric form in association with MMP9.

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