

Midkine Protein, Mouse

Cat. No.:	HY-P79419
Synonyms:	Midkine; Mdk; MK; Retanoic acid-responsive protein; Retinoic acid-induced differentiation factor
Species:	Mouse
Source:	E. coli
Accession:	P12025 (K23-D140)
Gene ID:	17242
Molecular Weight:	Approximately 15 kDa

PROPERTIES

AA Sequence	K K K E K V K K G S E C S E W T W G P C T P S S K D C G M G F R E G T C G A Q T Q R V H C K V P C N W K K E F G A D C K Y K F E S W G A C D G S T G T K A R Q G T L K K A R Y N A Q C Q E T I R V T K P C T S K T K S K T K A K K G K G K D
Biological Activity	1. Measured by its ability to enhance neurite outgrowth of E16-E18 rat embryonic cortical neurons. Mouse Midkine, immobilized at 125-250 ng/mL on a 96 well plate, is able to significantly enhance neurite outgrowth. 2. Measured by its binding ability in a functional ELISA. Immobilized Human Midkine Protein, premium grade at 2 µg/mL (100 µL/well) can bind Human LRP-6. The ED ₅₀ for this effect is 109.8 ng/mL.
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 µm filtered solution of PBS with Trehalose or PBS, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 500 µg/mL in ddH ₂ O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
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	Midkine (MDK) is a secreted protein functioning as a versatile cytokine and growth factor, transmitting signals through both cell-surface proteoglycan and non-proteoglycan receptors. It engages in diverse cellular processes, such as inflammatory response, cell proliferation, adhesion, survival, tissue regeneration, differentiation, and migration. MDK plays a pivotal role in inflammatory processes by orchestrating the recruitment of neutrophils and macrophages to inflammation sites,
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exhibiting dual activities that include promoting epithelial cell survival and facilitating smooth muscle cell migration following renal and vessel damage. Moreover, MDK suppresses tolerogenic dendritic cell development, inhibiting regulatory T cell differentiation, and fosters T cell expansion through NFAT signaling, influencing Th1 cell differentiation. The protein's involvement extends to tissue regeneration, contributing to heart damage recovery by negatively regulating inflammatory cell recruitment and mediating cell survival through MAPKs and AKT pathways. Additionally, MDK facilitates liver regeneration, bone repair, and brain development, promoting neural precursor cell survival, neurite outgrowth, and embryonic neurons' survival. Its interactions with various receptors, such as PTPRZ1, ITGA4:ITGB1 complex, LRP1, and GPC2, underscore MDK's intricate regulatory role in diverse physiological processes.

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

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