Active Midkine (MK)

Catalog#:PXH12447

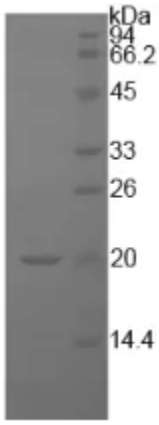
概述（Summary）

别称（Alternative Names）	MDK; ARAP; NEGF2; Neurite Growth-Promoting Factor 2; Amphiregulin-associated protein; Midgestation and kidney protein; Neurite outgrowth-promoting factor 2
纯度（Purity）	Greater than 95% as determined by reducing SDS-PAGE.
内毒素（Endotoxin level）	Please contact with the lab for this information
蛋白构建（Construction）	【Ala22-Asp143】
Accession #	P21741
表达宿主（Host）	-
种属（Species）	Homo sapiens (Human)
预测分子量（Predicted MW）	20.0 kDa
制剂（Form）	Lyophilized from a 0.2 μm filtered solution of 20mM Tris, 150mM NaCl, pH8.0, containing 1mM EDTA, 1mM DTT, 0.01% SKL, 5% Trehalose and Proclin300.
运输方式（Shipping）	The product is shipped with ice bag. Upon receipt, store it immediately at the temperature listed below.
稳定性&储存（Stability &Storage）	12 months at -20°C to -80°C in lyophilized state.6 months at -20°C to -80°C under sterile conditions after reconstitution.7-10 days at 2°C to 8°C under sterile conditions after reconstitution.Please minimize freeze-thaw cycles.
复溶（Reconstitution）	Reconstitute in 20mM Tris, 150mM NaCl (pH8.0) to a concentration of 0.1-1.0 mg/mL. Do not vortex.
背景介绍（References）	Secreted protein that functions as cytokine and growth factor and mediates its signal through cell-surface proteoglycan and non-proteoglycan receptors. Binds cell-surface proteoglycan receptors via their chondroitin sulfate (CS) groups. Thereby regulates many processes like inflammatory response, cell proliferation, cell adhesion, cell growth, cell survival, tissue regeneration, cell differentiation and cell migration. Participates in inflammatory processes by exerting two different activities. Firstly, mediates neutrophils and macrophages recruitment to

the sites of inflammation both by direct action by cooperating namely with ITGB2 via LRP1 and by inducing chemokine expression. This inflammation can be accompanied by epithelial cell survival and smooth muscle cell migration after renal and vessel damage, respectively. Secondly, suppresses the development of tolerogenic dendric cells thereby inhibiting the differentiation of regulatory T cells and also promote T cell expansion through NFAT signaling and Th1 cell differentiation. Promotes tissue regeneration after injury or trauma. After heart damage negatively regulates the recruitment of inflammatory cells and mediates cell survival through activation of anti-apoptotic signaling pathways via MAPKs and AKT pathways through the activation of angiogenesis. Also facilitates liver regeneration as well as bone repair by recruiting macrophage at trauma site and by promoting cartilage development by facilitating chondrocyte differentiation. Plays a role in brain by promoting neural precursor cells survival and growth through interaction with heparan sulfate proteoglycans. Binds PTPRZ1 and promotes neuronal migration and embryonic neurons survival. Binds SDC3 or GPC2 and mediates neurite outgrowth and cell adhesion. Binds chondroitin sulfate E and heparin leading to inhibition of neuronal cell adhesion induced by binding with GPC2. Binds CSPG5 and promotes elongation of oligodendroglial precursor-like cells. Also binds ITGA6:ITGB1 complex; this interaction mediates MDK-induced neurite outgrowth. Binds LRP1; promotes neuronal survival. Binds ITGA4:ITGB1 complex; this interaction mediates MDK-induced osteoblast cells migration through PXN phosphorylation. Binds anaplastic lymphoma kinase (ALK) which induces ALK activation and subsequent phosphorylation of the insulin receptor substrate (IRS1), followed by the activation of mitogen-activated protein kinase (MAPK) and PI3-kinase, and the induction of cell proliferation. Promotes epithelial to mesenchymal transition through interaction with NOTCH2. During arteriogenesis, plays a role in vascular endothelial cell proliferation by inducing VEGFA expression and release which in turn induces nitric oxide synthase expression. Moreover activates vasodilation through nitric oxide synthase activation. Negatively regulates bone formation in response to

mechanical load by inhibiting Wnt/beta-catenin signaling in osteoblasts. In addition plays a role in hippocampal development, working memory, auditory response, early fetal adrenal gland development and the female reproductive system.

电泳图（SDS-PAGE image）



Greater than 95% as determined by reducing SDS-PAGE.

活性图（Bioactivity image）

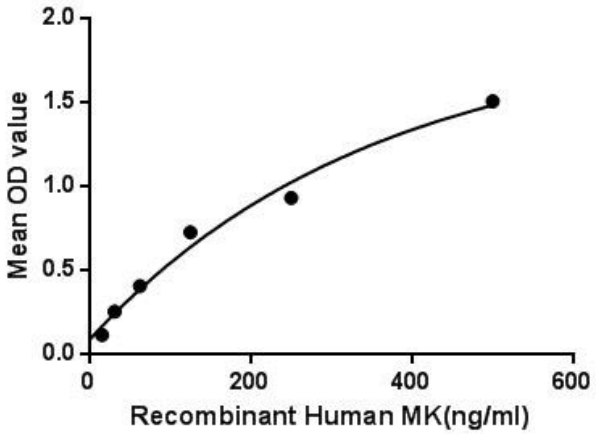


Figure. The binding activity of MK with LRP1.
Midkine (MK) also known as neurite growth-promoting factor 2 (NEGF2) is a protein that in humans is encoded by the MDK gene. MK is a basic heparin-binding growth factor of low molecular weight, and forms a family with pleiotrophin. It is pleiotropic, capable of exerting activities such as cell proliferation, cell migration, angiogenesis and fibrinolysis. MK may potentially be indirectly targeted as a cancer treatment as a result of its cancerous proliferation properties. Besides, Low Density Lipoprotein Receptor Related Protein 1 (LRP1) has been identified as an interactor of MK, thus a binding ELISA assay was conducted to detect the interaction of recombinant human MK and recombinant human LRP1. Briefly, MK were diluted serially in PBS, with 0.01% BSA (pH 7.4). Duplicate samples of 100uL were then transferred to LRP1-coated microtiter wells and incubated for 2h at 37℃. Wells were washed with PBST and incubated for 1h with anti-MK pAb, then aspirated and washed 3 times. After incubation with HRP labelled secondary antibody, wells were aspirated and washed 3 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37℃. Finally, add 50μL stop solution to the wells and read at 450nm immediately. The binding activity of MK and LRP1 was shown in Figure 1, and this effect

was in a dose dependent manner.

注意事项（Note）

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