

Product Name: Midkine (16K7) Rabbit Monoclonal Antibody
Catalog #: AMRe13897



Summary

Production Name	Midkine (16K7) Rabbit Monoclonal Antibody
Description	Rabbit Monoclonal Antibody
Host	Rabbit
Application	WB
Reactivity	Human

Performance

Conjugation	Unconjugated
Modification	Unmodified
Isotype	IgG
Clonality	Monoclonal
Form	Liquid
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.
Buffer	Supplied in 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% New type preservative N and 0.05% BSA.
Purification	Affinity purification

Immunogen

Gene Name	MDK
Alternative Names	MDK;FLJ27379;MK1;NEGF2; Midkine; NEGF2; ARAP;
Gene ID	4192.0
SwissProt ID	P21741.A synthetic peptide of human Midkine

Application

Dilution Ratio	WB: 1:1000
Molecular Weight	16kDa

Background

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Midkine, or MK, is a heparin-binding molecule involved in the regulation of growth and differentiation during embryogenesis. MK expression is tightly regulated during embryonic development by steroid receptors of the retinoic acid superfamily. The mature human MK protein is 118 amino acids in length and contains five intrachain disulfide bonds. MK is a non-glycosylated protein that shows greater than 87% identity between human and mouse. Secreted protein that functions as cytokine and growth factor and mediates its signal through cell-surface proteoglycan and non- proteoglycan receptors (PubMed:18469519, PubMed:12573468, PubMed:12122009, PubMed:10212223, PubMed:24458438, PubMed:15466886, PubMed:12084985, PubMed:10772929). Binds cell-surface proteoglycan receptors via their chondroitin sulfate (CS) groups (PubMed:12084985, PubMed:10212223). Thereby regulates many processes like inflammatory response, cell proliferation, cell adhesion, cell growth, cell survival, tissue regeneration, cell differentiation and cell migration (PubMed:12573468, PubMed:12122009, PubMed:10212223, PubMed:10683378, PubMed:24458438, PubMed:22323540, PubMed:12084985, PubMed:15466886, PubMed:10772929). 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 (PubMed:10683378, PubMed:24458438). This inflammation can be accompanied by epithelial cell survival and smooth muscle cell migration after renal and vessel damage, respectively (PubMed:10683378). Secondly, suppresses the development of tolerogenic dendritic cells thereby inhibiting the differentiation of regulatory T cells and also promote T cell expansion through NFAT signaling and Th1 cell differentiation (PubMed:22323540). Promotes tissue regeneration after

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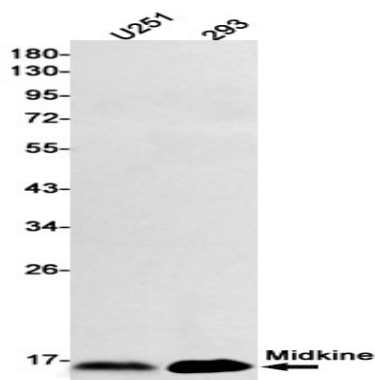


injury or trauma. After heart damage negatively regulates the recruitment of inflammatory cells and mediates cell survival through activation of anti-apoptotic signaling pathways via MAPKs and AKT pathways through the activation of angiogenesis (By similarity). Also facilitates liver regeneration as well as bone repair by recruiting macrophage at trauma site and by promoting cartilage development by facilitating chondrocyte differentiation (By similarity). Plays a role in brain by promoting neural precursor cells survival and growth through interaction with heparan sulfate proteoglycans (By similarity). Binds PTPRZ1 and promotes neuronal migration and embryonic neurons survival (PubMed: 10212223). Binds SDC3 or GPC2 and mediates neurite outgrowth and cell adhesion (PubMed: 12084985, PubMed: 1768439). Binds chondroitin sulfate E and heparin leading to inhibition of neuronal cell adhesion induced by binding with GPC2 (PubMed: 12084985). Binds CSPG5 and promotes elongation of oligodendroglial precursor-like cells (By similarity). Also binds ITGA6:ITGB1 complex; this interaction mediates MDK-induced neurite outgrowth (PubMed: 15466886, PubMed: 1768439). Binds LRP1; promotes neuronal survival (PubMed: 10772929). Binds ITGA4:ITGB1 complex; this interaction mediates MDK-induced osteoblast cells migration through PXN phosphorylation (PubMed: 15466886). 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 (PubMed: 12122009). Promotes epithelial to mesenchymal transition through interaction with NOTCH2 (PubMed: 18469519). 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 (By similarity). Negatively regulates bone formation in response to mechanical load by inhibiting Wnt/beta- catenin signaling in osteoblasts (By similarity). In addition plays a role in hippocampal development, working memory, auditory response, early fetal adrenal gland development and the female reproductive system (By similarity).

Research Area

Image Data

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Western blot detection of Midkine in U251,293 cell lysates using Midkine antibody(1:1000 diluted).

Note

For research use only.