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MDK Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP12076b

Product Information

Application	WB, IHC-P, IF, E
Primary Accession	P21741
Other Accession	NP_001012334.1
Reactivity	Human
Predicted	Mouse, Rat, Bovine, Canine, Rabbit, Chicken
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB14452
Calculated MW	15585
Antigen Region	113-143

Additional Information

Gene ID	4192
Other Names	Midkine, MK, Amphiregulin-associated protein, ARAP, Midgestation and kidney protein, Neurite outgrowth-promoting factor 2, Neurite outgrowth-promoting protein, MDK, MK1, NEGF2
Target/Specificity	This MDK antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 113-143 amino acids from the C-terminal region of human MDK.
Dilution	WB~~1:1000 IHC-P~~1:100~500 IF~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	MDK Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	MDK (HGNC:6972)

Synonyms	MK1, NEGF2
Function	Secreted protein that functions as a cytokine and growth factor and mediates its signal through cell-surface proteoglycan and non-proteoglycan receptors (PubMed:10212223, PubMed:10772929, PubMed:12084985, PubMed:12122009, PubMed:12573468, PubMed:15466886, PubMed:18469519, PubMed:24458438). Binds cell-surface proteoglycan receptors via their chondroitin sulfate (CS) groups (PubMed:10212223, PubMed:12084985). Thereby regulates many processes like inflammatory response, cell proliferation, cell adhesion, cell growth, cell survival, tissue regeneration, cell differentiation and cell migration (PubMed:10212223, PubMed:10683378, PubMed:10772929, PubMed:12084985, PubMed:12122009, PubMed:12573468, PubMed:15466886, PubMed:22323540, PubMed:24458438). 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 dendric 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 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).
Cellular Location	Secreted.
Tissue Location	Expressed in various tumor cell lines. In insulinoma tissue predominantly

expressed in precancerous lesions

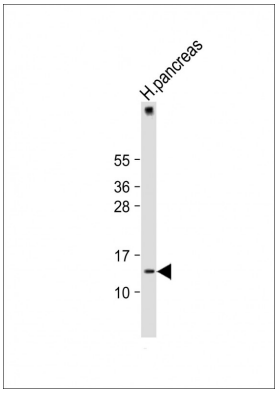
Background

Midkine is a retinoic acid-responsive, heparin-binding growth factor expressed in various cell types during embryogenesis. It promotes angiogenesis, cell growth, and cell migration. Midkine is also expressed in several carcinomas, suggesting that it may play a role in tumorigenesis, perhaps through its effects on angiogenesis (summary by Reynolds et al., 2004 [PubMed 15197188]).

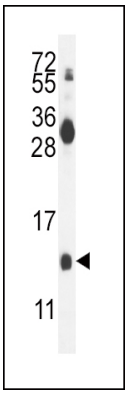
References

Ferreira, R.C., et al. Nat. Genet. 42(9):777-780(2010) Kerzerho, J., et al. J. Immunol. 185(1):418-423(2010) Yao, X., et al. Acta Pharmacol. Sin. 31(5):629-637(2010) Zhang, Z.H., et al. Cell Prolif. 43(2):184-194(2010) Rice, G.E., et al. J. Exp. Clin. Cancer Res. 29, 62 (2010) :

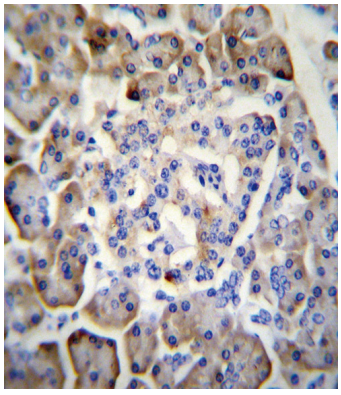
Images



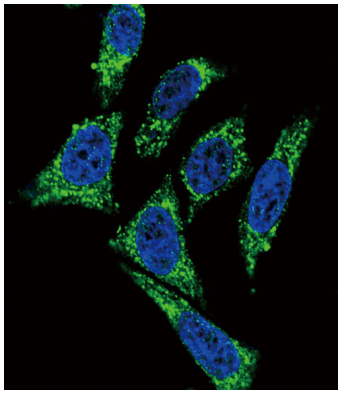
Anti-MDK Antibody (C-term) at 1:2000 dilution + Human pancreas lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 16 kDa Blocking/Dilution buffer: 5% NFDM/TBST.



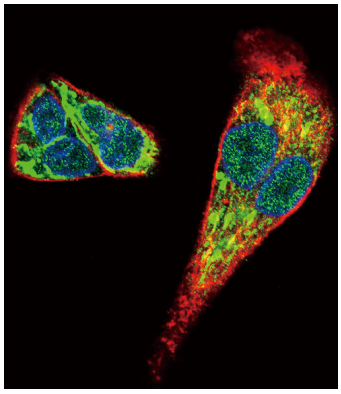
MDK Antibody (C-term) (Cat. #AP12076b) western blot analysis in mouse kidney tissue lysates (35ug/lane).This demonstrates the MDK antibody detected the MDK protein (arrow).



MDK Antibody (C-term) (Cat. #AP12076b)immunohistochemistry analysis in formalin fixed and paraffin embedded human pancreas tissue followed by peroxidase conjugation of the secondary antibody and DAB staining.This data demonstrates the use of MDK Antibody (C-term) for immunohistochemistry. Clinical relevance has not been evaluated.



Confocal immunofluorescent analysis of MDK Antibody (C-term) (Cat. #AP12076b) with Hela cell followed by Alexa Fluor攀?488-conjugated goat anti-rabbit lgG (green). DAPI was used to stain the cell nuclear (blue).



Confocal immunofluorescent analysis of MDK Antibody (C-term)(Cat#AP12076b) with HepG2 cell followed by Alexa Fluor 488-conjugated goat anti-rabbit lgG (green). Actin filaments have been labeled with Alexa Fluor555 phalloidin (red). DAPI was used to stain the cell nuclear (blue).

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.