

## Midkine Murine E. coli

### Product Data Sheet

<b>Type:</b> Recombinant	<b>Cat. No.:</b>	
<b>Source:</b> E. coli	RBG20097005	(5 µg)
<b>Species:</b> Murine	RBG20097020	(20 µg)
<b>Other names:</b> MK, NEGF-2, Neurite growth promoting factor 2	RBG20097100	(100 µg)

### Description

Midkine (MK) and its functionally-related protein pleiotrophin are heparin-binding neurotrophic factors that signal through the same receptor, known as anaplastic lymphoma kinase (ALK). MK plays an important regulatory role in epithelial-mesenchymal interactions during fetal development and in postnatal lung development. MK chemoattracts embryonic neurons, neutrophils and macrophages, and exerts angiogenic, growth and survival activities during tumorigenesis. Recombinant Murine Midkine is a 13.3 kDa protein containing 120 amino acid residues including five intra-molecular disulfide bonds.

### Introduction to the Molecule

Midkine (MK, also called neurite growth promoting factor 2, NEGF-2), a product of a retinoic acid responsive gene, is a secreted 13 kDa protein belonging to the family of heparin binding growth/differentiation factors. MK shares 45% sequence identity with other member of this family called Pleiotrophin (HB-GAM). Midkine is composed of two domains held together by disulfide linkages. The C-terminally located domain contains two heparin binding sites and is usually responsible for midkine activity. Part of the MK activity is enhanced by dimerization of MK. Midkine has been found in vertebrates from human to zebrafish and is most strongly expressed in midgestation. In the adult MK expression is restricted. In addition to normal development, MK is also involved in the pathogenesis of diseases e.g. inflammatory diseases, human carcinomas such as esophageal, stomach, colon, pancreatic, thyroid, lung, urinary, hepatocellular, neuroblastoma, glioblastoma, Wilm's tumor etc. High MK levels are associated with poor prognosis in some type of cancer. The increased expression in many carcinomas indicates that MK can be applied to the diagnosis of malignancy. Midkine is expressed during the reparative stage of bone fractures, also suppresses infection of certain viruses including HIV in target cells. Anti-apoptotic and cell protecting activity of midkine makes it to be a promising in therapy.

### Research topic

Oncology

### Amino Acid Sequence

VAKKKEKVKK GSECSEWTWG PCTPSSKDCG MGFREGTCGA QTQRVHCKVP CNWKKEFGAD CKYKFESWGA CDGSTGTKAR  
QGTLKKARYN AQCQETIRVT KPCTSKTKSK TKAKKKGKGD

### Source

E. coli

### Purity

98%

### Biological Activity

Determined by its ability to chemoattract human neutrophils using a concentration range of 10-100 ng/ml.

### Endotoxin

Endotoxin level is <0.1 ng/µg of protein (<1EU/µg).

### Reconstitution

Centrifuge the vial prior to opening. Reconstitute in water to a concentration of 0.1-1.0 mg/ml. Do not vortex. For extended storage, it is recommended to further dilute in a buffer containing a carrier protein (example 0.1% BSA) and store in working aliquots at -20°C to -80°C.

### Storage, Stability/Shelf Life

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