

**Synonym**

MDK,MEK,Midkine,MK1,MKARAP,NEGF2,Retinoic acid-induced differentiation factor

**Source**

Human Midkine Protein, premium grade(MIE-H5117) is expressed from E. coli cells. It contains AA Val 21 - Asp 143 (Accession # [P21741-1](#)).

Predicted N-terminus: Met 1

*It is produced under our rigorous quality control system that incorporates a comprehensive set of tests including sterility and endotoxin tests. Product performance is carefully validated and tested for compatibility for cell culture use or any other applications in the early preclinical stage. When ready to transition into later clinical phases, we also offer a custom GMP protein service that tailors to your needs. We will work with you to customize and develop a GMP-grade product in accordance with your requests that also meets the requirements for raw and ancillary materials use in cell manufacturing of cell-based therapies.*

**Molecular Characterization**

**Mdk(Val 21 - Asp 143)**  
**P21741-1**

This protein carries no "tag".

The protein has a calculated MW of 13.6 kDa. The protein migrates as 16-17 kDa when calibrated against [Star Ribbon Pre-stained Protein Marker](#) under reducing (R) condition (SDS-PAGE).

**Endotoxin**

Less than 0.01 EU per  $\mu$ g by the LAL method / rFC method.

**Sterility**

Negative

**Mycoplasma**

Negative

**Purity**

>90% as determined by SDS-PAGE.

>95% as determined by SEC-HPLC.

**Formulation**

Lyophilized from 0.22  $\mu$ m filtered solution in PBS, pH7.4 with trehalose as protectant.

Contact us for customized product form or formulation.

**Reconstitution**

Please see Certificate of Analysis for specific instructions.

*For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.*

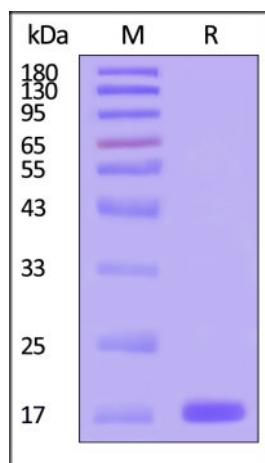
**Storage**

For long term storage, the product should be stored at lyophilized state at -20°C or lower.

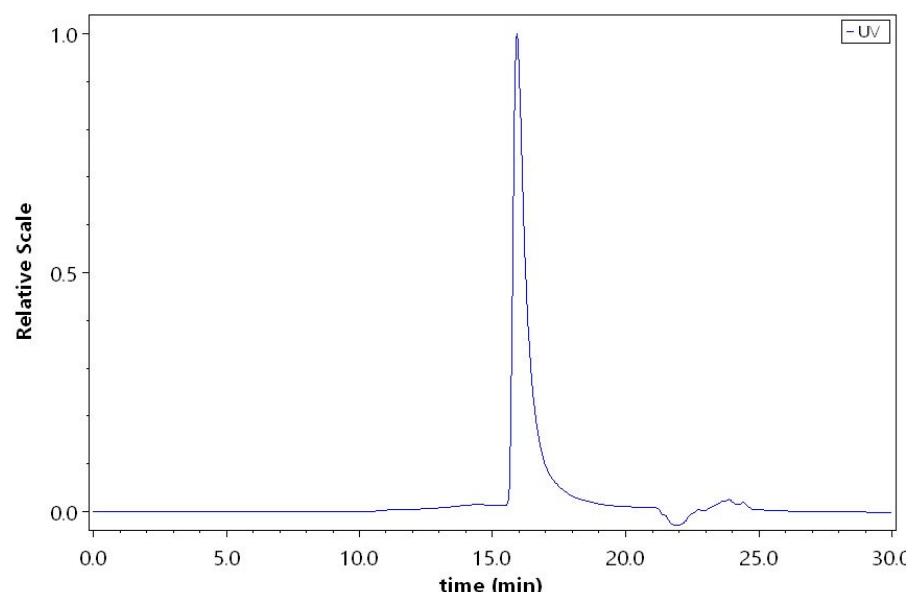
*Please avoid repeated freeze-thaw cycles.*

This product is stable after storage at:

- -20°C to -70°C for 12 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

**SDS-PAGE**

Human Midkine Protein, premium grade on SDS-PAGE under reducing (R) condition. The gel was stained with Coomassie Blue. The purity of the protein is greater than 90% (With [Star Ribbon Pre-stained Protein Marker](#)).

**SEC-HPLC**

**Discounts, Gifts,  
and more!**

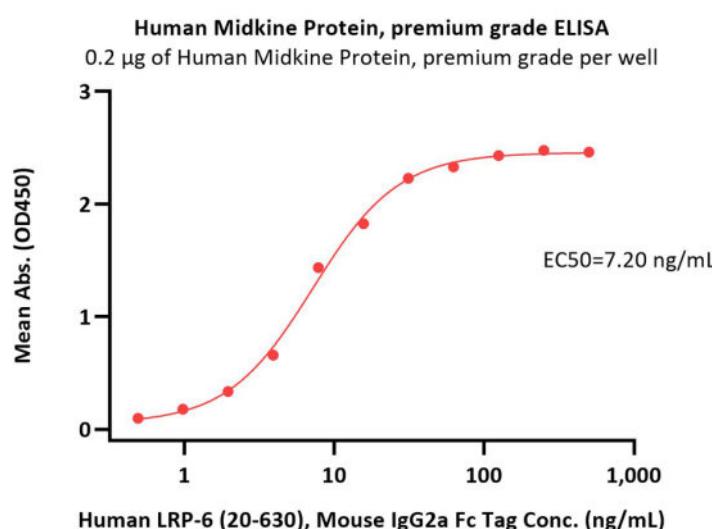
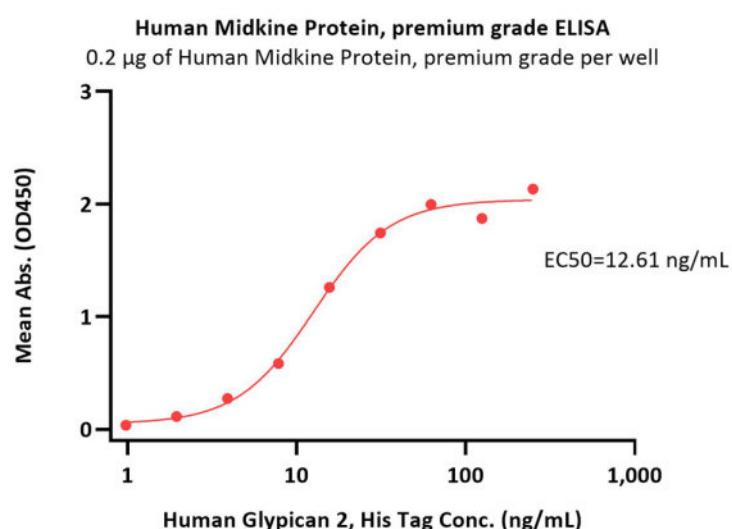


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The purity of Human Midkine Protein, premium grade (Cat. No. MIE-H5117) was greater than 95% as determined by SEC-HPLC.

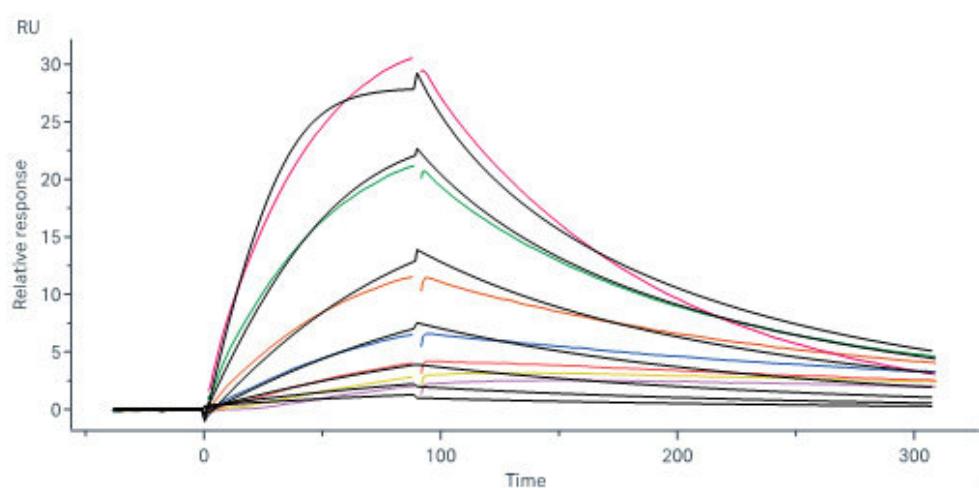
## Bioactivity-ELISA



Immobilized Human Midkine Protein, premium grade (Cat. No. MIE-H5117) at 2 µg/mL (100 µL/well) can bind Human Glycan 2, His Tag (Cat. No. GP2-H52H3) with a linear range of 1-63 ng/mL (QC tested).

Immobilized Human Midkine Protein, premium grade (Cat. No. MIE-H5117) at 2 µg/mL (100 µL/well) can bind Human LRP-6 (20-630), Mouse IgG2a Fc Tag (Cat. No. LR6-H5253) with a linear range of 1-31 ng/mL (Routinely tested).

## Bioactivity-SPR



Human Midkine Protein, premium grade (Cat. No. MIE-H5117) immobilized on CM5 Chip can bind Human Glycan 2, His Tag (Cat. No. GP2-H52H3) with an affinity constant of 44.9 nM as determined in a SPR assay (Biacore 8K) (Routinely tested).

## Background

Midkine (MK or MDK), also known as neurite growth-promoting factor 2 (NEGF2), is a protein that in humans is encoded by the MDK gene. Midkine is a basic heparin-binding growth factor of low molecular weight, and forms a family with pleiotrophin (NEGF1, 46% homologous with MK). It is a nonglycosylated protein, composed of two domains held by disulfide bridges. It is a developmentally important retinoic acid-responsive gene product strongly induced during mid-gestation, hence the name midkine. Restricted mainly to certain tissues in the normal adult, it is strongly induced during oncogenesis, inflammation and tissue repair.

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