Recombinant Mouse Midkine

Catalog Number: 9760-MD

DESCRIPTION

Source	*E. coli*-derived Lys23-Asp140, with an N-terminal Met Accession # P12025
N-terminal Sequence Analysis	Met
Predicted Molecular Mass	13 kDa

SPECIFICATIONS

SDS-PAGE	15 kDa, reducing conditions
Activity	Measured by its ability to enhance neurite outgrowth of E16-E18 rat embryonic cortical neurons. Recombinant Mouse Midkine, immobilized at 125-250 ng/mL on a 96 well plate, is able to significantly enhance neurite outgrowth.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Midkine (MK), also known as Neurite Growth Promoting Factor 2 (NEGF2), belongs to a family of neurotrophic and developmentally-regulated heparin-binding molecules consisting of MK and pleiotrophin (1). MK is a highly basic, non-glycosylated polypeptide consisting of two domains stabilized by five intrachain disulfide bonds (2). Mature mouse MK is 118 amino acids (aa) in length, approximately 13 kDa, and shares 85% and 95% aa sequence identity with the human and rat protein, respectively. MK was originally identified as being over-expressed during embryogenesis but having minimal expression in adult tissue (3). While early evidence suggested MK promoted neurite outgrowth (4), MK has since been implicated in diverse biological processes ranging from angiogenesis and neurogenesis to inflammation and disease (5, 6). Depending on the function, MK signals through a wide range of varied receptors from Receptor-like Protein Tyrosine Phosphatase β (RPTP-β) to syndecans to Lipoprotein receptor-related proteins (Lrp1) (5, 6). MK may play a significant role in tumorigenesis as over-expression has been observed in many cancers and research has focused on the utility of using MK as a biomarker for cancer and other diseases (5, 7, 8). The presence of MK in the senile plaques of patients with Alzheimer's disease is believed to suppress progression of the disease (9), while MK over-expression in pancreatic or breast cancer is associated with poor prognosis (7, 10, 11).

References:

1. Bohlen, P. and I. Kovesdi (1991) Prog. Growth Factor Res. **3**:143.
2. Fabri L *et al.* (1993) J Chromatogr. **646**:213.
3. Muramatsu, T. (1993) Int. J. Dev. Biol. **37**:183.
4. Asai, T. *et al.* (1997) Biochem. Biophys. Res. Commun. **236**:66.
5. Muramatsu, T. (2010) Proc Jpn Acad Ser B Phys Biol Sci **86**:410.
6. Sorrelle N *et al.* (2017) J Leukoc Biol. **102**:277.
7. Wellstein, A. (2012) Front Oncol. **2**:192.
8. Kadomatsu K and Muramatsu T (2004) Cancer Lett. **204**:127.
9. Salama RH *et al.* (2005) Prog Neuropsychopharmacol Biol Psychiatry. **29**:611.
10. Jono H and Ando Y (2010) Cancers **2**:624.
11. Ibusuki M *et al* (2009) Cancer Sci. **100**:1735.

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