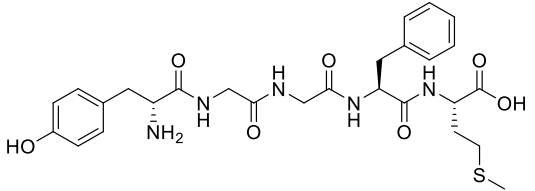


Product data sheet



MedKoo Cat#: 319923 Name: Metenkefalin CAS: 58569-55-4 Chemical Formula: C ₂₇ H ₃₅ N ₅ O ₇ S Exact Mass: 573.2257 Molecular Weight: 573.665	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Met-enkephalin, also known as metenkefalin, sometimes referred to as opioid growth factor (OGF), is a naturally occurring, endogenous opioid peptide that has opioid effects of a relatively short duration. It is one of the two forms of enkephalin, the other being leu-enkephalin. The enkephalins are considered to be the primary endogenous ligands of the δ -opioid receptor, due to their high potency and selectivity for the site over the other endogenous opioids.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	40.0	69.73
Water	6.67	11.63

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.74 mL	8.72 mL	17.43 mL
5 mM	0.35 mL	1.74 mL	3.49 mL
10 mM	0.17 mL	0.87 mL	1.74 mL
50 mM	0.04 mL	0.17 mL	0.35 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

- Liu Z, Liu Y, Gu Y, Gao L, Li A, Liu D, Kang C, Pang Q, Wang X, Han Q, Yu H. Met-enkephalin inhibits ROS production through Wnt/ β -catenin signaling in the ZF4 cells of zebrafish. *Fish Shellfish Immunol.* 2019 May;88:432-440. doi: 10.1016/j.fsi.2019.03.016. Epub 2019 Mar 9. PMID: 30862518.
- Malendowicz LK, Rebuffat P, Tortorella C, Nussdorfer GG, Ziolkowska A, Hochol A. Effects of met-enkephalin on cell proliferation in different models of adrenocortical-cell growth. *Int J Mol Med.* 2005 May;15(5):841-5. PMID: 15806307.

In vivo study

- Suo J, Zhao X, Guo X, Zhao X. Met-enkephalin improves metabolic syndrome in high fat diet challenged mice through promotion of adipose tissue browning. *Toxicol Appl Pharmacol.* 2018 Nov 15;359:12-23. doi: 10.1016/j.taap.2018.09.015. Epub 2018 Sep 14. PMID: 30222981.
- Martinić R, Sošić H, Turčić P, Konjevoda P, Fučić A, Stojković R, Aralica G, Gabričević M, Weitner T, Stambuk N. Hepatoprotective effects of Met-enkephalin on acetaminophen-induced liver lesions in male CBA mice. *Molecules.* 2014 Aug 7;19(8):11833-45. doi: 10.3390/molecules190811833. PMID: 25105920; PMCID: PMC6270943.

Product data sheet



7. Bioactivity

Biological target:

Tyr-Gly-Gly-Phe-Met-OH regulates human immune function and inhibits tumor growth via binding to the opioid receptor.

In vitro activity

In this study, the mechanism that Met-enkephalin (M-ENK) inhibits ROS production through Wnt/ β -catenin signaling was investigated in the ZF4 cells of zebrafish. The cell viability was significantly increased by 10, 20, 40, 80, and 160 μ M M-ENK. After ZF4 cells were exposed to 0, 20, 40, and 80 μ M M-ENK for 24 h, the mRNA expression of Wnt10b, β -catenin, and CCAAT/enhancer binding protein α (C/EBP α) was significantly increased by 40 and 80 μ M M-ENK. The results showed that M-ENK could induce Wnt/ β -catenin signaling, which further inhibited ROS production through the induction of C/EBP α , MMP, and the activities of antioxidant enzymes.

Reference: Fish Shellfish Immunol. 2019 May;88:432-440. <https://pubmed.ncbi.nlm.nih.gov/15806307/>

In vivo activity

The present study showed that MetEnk (Met-enkephalin) effectively prevented high fat diet (HFD) induced C57BL/6J mice weight gain, clearly enhanced glucose tolerance and insulin sensitivity, and dramatically reduced hepatic steatosis in HFD fed mice. Mechanically, MetEnk restored protein kinase A (PKA) signaling pathway in HFD challenged mice and promoted subcutaneous white adipose tissue (WAT) browning.

Reference: Toxicol Appl Pharmacol. 2018 Nov 15;359:12-23. <https://pubmed.ncbi.nlm.nih.gov/30222981/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.