

Product data sheet



MedKoo Cat#: 597270 Name: Monosodium glutamate CAS: 142-47-2 Chemical Formula: C ₅ H ₈ NNaO ₄ Molecular Weight: 169.1118	
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:

Monosodium glutamate is one of the FLAVORING AGENTS used to impart a meat-like flavor. Medically it has been used to reduce blood ammonia levels in ammoniacal azotemia, therapy of hepatic coma, in psychosis, and INTELLECTUAL DISABILITY.

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
Water	20.07	118.68

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	5.91 mL	29.57 mL	59.13 mL
5 mM	1.18 mL	5.91 mL	11.83 mL
10 mM	0.59 mL	2.96 mL	5.91 mL
50 mM	0.12 mL	0.59 mL	1.18 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

- Jovic Z, Veselinovic M, Vasic K, Stankovic-Djordjevic D, Cekic S, Milovanovic M, Sarac M. Monosodium glutamate induces apoptosis in naive and memory human B cells. *Bratisl Lek Listy*. 2009;110(10):636-40. PMID: 20017456.
- Aruffo C, Ferszt R, Hildebrandt AG, Cérvos-Navarro J. Low doses of L-monosodium glutamate promote neuronal growth and differentiation in vitro. *Dev Neurosci*. 1987;9(4):228-39. doi: 10.1159/000111625. PMID: 3322785.

In vivo study

- Albrakati A. Monosodium glutamate induces cortical oxidative, apoptotic, and inflammatory challenges in rats: the potential neuroprotective role of apigenin. *Environ Sci Pollut Res Int*. 2023 Feb;30(9):24143-24153. doi: 10.1007/s11356-022-23954-1. Epub 2022 Nov 5. PMID: 36334201.
- Boonnate P, Waraasawapati S, Hipkhaeo W, Pethlert S, Sharma A, Selmi C, Prasongwattana V, Cha'on U. Monosodium Glutamate Dietary Consumption Decreases Pancreatic β-Cell Mass in Adult Wistar Rats. *PLoS One*. 2015 Jun 29;10(6):e0131595. doi: 10.1371/journal.pone.0131595. PMID: 26121281; PMCID: PMC4487683.

7. Bioactivity

Biological target:

L-Glutamic acid monosodium salt acts as an excitatory transmitter and an agonist at all subtypes of glutamate receptors (metabotropic, kainate, NMDA, and AMPA).

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In vitro activity

The aim of this study was to establish the existence of mGluR7 in normal B lymphocytes and analyse the effect of monosodium glutamate (MSG) on B cell apoptosis in vitro. Cells (10⁶/ml) were cultured with increasing MSG concentrations (1-100 mM). Exposure to increasing MSG concentrations displayed dose dependent effect on B cell viability altogether, ranging from 35% with 100 mM up to 80% with 1 mM MSG. Moreover, the number of late apoptotic cells as well as necrotic cells was dose dependant. Both CD27⁻ as well as CD27⁺ B cells were affected by MSG.

Reference: Bratisl Lek Listy. 2009;110(10):636-40. <https://pubmed.ncbi.nlm.nih.gov/20017456/>

In vivo activity

MSG (monosodium glutamate)-treated rats had significantly lower pancreatic β -cell mass at 1, 6 and 9 months of study. Islet hemorrhages increased with age in all groups and fibrosis was significantly more frequent in MSG-treated rats at 1 and 3 months. Serum insulin levels and glucose tolerance in MSG-treated and untreated rats were similar at all time points we investigated.

Reference: PLoS One. 2015 Jun 29;10(6):e0131595. <https://pubmed.ncbi.nlm.nih.gov/26121281/>

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.