

Product data sheet



MedKoo Cat#: 317976 Name: Glyburide CAS: 10238-21-8 Chemical Formula: C ₂₃ H ₂₈ ClN ₃ O ₅ S Exact Mass: 493.14382 Molecular Weight: 494.0030	
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:

Glyburide is an antidiabetic sulfonylurea derivative with actions similar to those of chlorpropamide that can potentially be used to decrease cerebral edema. Upon administration, glyburide binds to and blocks the sulfonylurea receptor type 1 (SUR1) subunit of the ATP-sensitive inwardly-rectifying potassium (K(ATP)) channels on the membranes of pancreatic beta cells. This prevents the inward current flow of positively charged potassium (K⁺) ions into the cell, and induces a calcium ion (Ca²⁺) influx through voltage-sensitive calcium channels, which triggers exocytosis of insulin-containing granules.

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	175.0	354.25
Water	0.1	0.20

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.02 mL	10.12 mL	20.24 mL
5 mM	0.40 mL	2.02 mL	4.05 mL
10 mM	0.20 mL	1.01 mL	2.02 mL
50 mM	0.04 mL	0.20 mL	0.40 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

- Nunes PR, Bueno Pereira TO, Bertozzi Matheus M, Grandini NA, Siqueira JS, Correa CR, Abbade JF, Sandrim VC. Glibenclamide Increases Nitric Oxide Levels and Decreases Oxidative Stress in an In Vitro Model of Preeclampsia. *Antioxidants (Basel)*. 2022 Aug 20;11(8):1620. doi: 10.3390/antiox11081620. PMID: 36009339; PMCID: PMC9404919.
- Yang J, Yang J, Huang X, Xiu H, Bai S, Li J, Cai Z, Chen Z, Zhang S, Zhang G. Glibenclamide Alleviates LPS-Induced Acute Lung Injury through NLRP3 Inflammasome Signaling Pathway. *Mediators Inflamm*. 2022 Feb 11;2022:8457010. doi: 10.1155/2022/8457010. PMID: 35185385; PMCID: PMC8856806.

In vivo study

- Ma Y, Chen X. Glibenclamide Ameliorates the Expression of Neurotrophic Factors in Sevoflurane Anaesthesia-induced Oxidative Stress and Cognitive Impairment in Hippocampal Neurons of Old Rats. *J Vet Res*. 2021 Dec 2;65(4):527-538. doi: 10.2478/jvetres-2021-0064. PMID: 35112009; PMCID: PMC8775723.

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2. Jiang B, Zhang Y, Wang Y, Li Z, Chen Q, Tang J, Zhu G. Glibenclamide Attenuates Neuroinflammation and Promotes Neurological Recovery After Intracerebral Hemorrhage in Aged Rats. *Front Aging Neurosci.* 2021 Aug 26;13:729652. doi: 10.3389/fnagi.2021.729652. PMID: 34512312; PMCID: PMC8427510.

7. Bioactivity

Biological target:

Glibenclamide (Glyburide) is an orally active ATP-sensitive K⁺ channel (K_{ATP}) inhibitor. Glibenclamide inhibits P-glycoprotein. Glibenclamide directly binds and blocks the SUR1 subunits of K_{ATP} and inhibits the cystic fibrosis transmembrane conductance regulator protein (CFTR).

In vitro activity

Endothelial cells incubated with a pool of NT (normotensive) plasma induce higher NO levels when compared with the PE (preeclamptic) group ($p < 0.05$) after 40 min of incubation (Figure 2a). In this group, GB (glibenclamide) treatment increased NO levels ($p < 0.05$) after 20 min of incubation (Figure 2b) compared with cells without treatment.

Reference: *Antioxidants (Basel)*. 2022 Aug 20;11(8):1620. <https://pubmed.ncbi.nlm.nih.gov/36009339/>

In vivo activity

In comparison, a significant difference was observed in the time spent in platform quadrants ($P = 0.0077$) and platform crossings ($P = 0.013$) between rats with low-dose sevoflurane–inflicted cognitive impairment which received GBC (glibenclamide) and rats which were administered the same low dose but no GBC. These results show that cognitive impairment in rats developed following inhalation of sevoflurane but that memory deficits improved after GBC administration to cognition-deficient rats.

Reference: *J Vet Res.* 2021 Dec 2;65(4):527-538. <https://pubmed.ncbi.nlm.nih.gov/35112009/>

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.