

Product data sheet



MedKoo Cat#: 558641 Name: Iodoacetic acid CAS: 64-69-7 Chemical Formula: C ₂ H ₃ IO ₂ Exact Mass: 185.9178 Molecular Weight: 185.9485	
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:

Iodoacetic acid is a reagent for the modification of sulfhydryl groups. It reacts with cysteine moiety in proteins to prevent the reformation of disulfide bonds during protein sequencing.

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
TBD	TBD	TBD

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	5.38 mL	26.89 mL	53.78 mL
5 mM	1.08 mL	5.38 mL	10.76 mL
10 mM	0.54 mL	2.69 mL	5.38 mL
50 mM	0.11 mL	0.54 mL	1.08 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

- Jiao X, Gonsioroski A, Flaws JA, Qiao H. Iodoacetic acid disrupts mouse oocyte maturation by inducing oxidative stress and spindle abnormalities. *Environ Pollut.* 2021 Jan 1;268(Pt A):115601. doi: 10.1016/j.envpol.2020.115601. Epub 2020 Oct 10. PMID: 33126034; PMCID: PMC7746578.
- Gonsioroski A, Meling DD, Gao L, Plewa MJ, Flaws JA. Iodoacetic acid inhibits follicle growth and alters expression of genes that regulate apoptosis, the cell cycle, estrogen receptors, and ovarian steroidogenesis in mouse ovarian follicles. *Reprod Toxicol.* 2020 Jan;91:101-108. doi: 10.1016/j.reprotox.2019.10.005. Epub 2019 Nov 3. PMID: 31693920; PMCID: PMC6980769.

In vivo study

- Liang Y, Huang X, Fang L, Wang M, Yu C, Guan Q. Effect of iodoacetic acid on the reproductive system of male mice. *Front Pharmacol.* 2022 Aug 26;13:958204. doi: 10.3389/fphar.2022.958204. PMID: 36091762; PMCID: PMC9461136.
- Gonzalez RVL, Weis KE, Gonsioroski AV, Flaws JA, Raetzman LT. Iodoacetic Acid, a Water Disinfection Byproduct, Disrupts Hypothalamic, and Pituitary Reproductive Regulatory Factors and Induces Toxicity in the Female Pituitary. *Toxicol Sci.* 2021 Oct 27;184(1):46-56. doi: 10.1093/toxsci/kfab106. PMID: 34453833; PMCID: PMC8557421.

7. Bioactivity

Biological target:

Iodoacetic acid is a reagent for the modification of sulfhydryl groups.

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In vitro activity

Next, comparison between the three groups was made using the Kruskal-Wallis test, and these results showed that the average focus number in 5 μM and 10 μM IAA (iodoacetic acid)-treated oocytes was significantly higher than in control (2.94 ± 1.96 in 5 μM , $P < 0.05$; 4.16 ± 2.10 in 10 μM , $P < 0.01$ versus 1.48 ± 1.50 in control) (Fig. 5B). Meanwhile, IAA induced oocyte DNA breaks in a dose-dependent manner and the average foci number in 10 μM IAA-treated oocytes was significantly higher than in the 5 μM group ($P < 0.05$, Fig. 5B).

Reference: Environ Pollut. 2021 Jan 1;268(Pt A):115601. <https://pubmed.ncbi.nlm.nih.gov/33126034/>

In vivo activity

This study found that oral administration of IAA (iodoacetic acid) (35 mg/kg body weight per day for 28 days) in male mice increased serum LH levels and reduced sperm motility, affecting average path velocity and straight line velocity of sperm. In addition, IAA promoted the expression of γH2AX , a marker for DNA double-strand breaks. Moreover, IAA downregulated the protein expression of the scavenger receptor class B type 1 (SRB1), and decreased lipid droplet transport into Leydig cells, which reduced the storage of testosterone synthesis raw materials and might cause a drop in testosterone production.

Reference: Front Pharmacol. 2022 Aug 26;13:958204. <https://pubmed.ncbi.nlm.nih.gov/36091762/>

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.