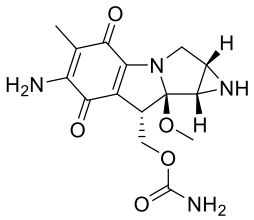
Product data sheet

MedKoo Cat#: 100630 Name: Mitomycin C CAS#: 50-07-7 Chemical Formula: $C_{15}H_{18}N_4O_5$ Exact Mass: 334.12772 Molecular Weight: 334.33	
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:

Mitomycine C is a methylazirinopyrroloindoledione antineoplastic antibiotic isolated from the bacterium Streptomyces caespitosus and other Streptomyces bacterial species. Bioreduced mitomycin C generates oxygen radicals, alkylates DNA, and produces interstrand DNA cross-links, thereby inhibiting DNA synthesis. Preferentially toxic to hypoxic cells, mitomycin C also inhibits RNA and protein synthesis at high concentrations.

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	39.81	119.07
DMF	20.0	59.82
Ethanol	0.1	0.30
PBS (pH 7.2)	0.5	1.50
Water	1.67	5.0

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.99 mL	14.96 mL	29.91 mL
5 mM	0.60 mL	2.99 mL	5.98 mL
10 mM	0.30 mL	1.50 mL	2.99 mL
50 mM	0.06 mL	0.30 mL	0.60 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

1. Pal-Ghosh S, Tadvalkar G, Lieberman VR, Guo X, Zieske JD, Hutcheon A, Stepp MA. Transient Mitomycin C-treatment of human corneal epithelial cells and fibroblasts alters cell migration, cytokine secretion, and matrix accumulation. Sci Rep. 2019 Sep 25;9(1):13905. doi: 10.1038/s41598-019-50307-9. PMID: 31554858; PMCID: PMC6761181.
2. Sato N, Haga J, Anazawa T, Kenjo A, Kimura T, Wada I, Mori T, Marubashi S, Gotoh M. Ex vivo Pretreatment of Islets with Mitomycin C: Reduction in Immunogenic Potential of Islets by Suppressing Secretion of Multiple Chemotactic Factors. Cell Transplant. 2017 Aug;26(8):1392-1404. doi: 10.1177/0963689717721233. PMID: 28901184; PMCID: PMC5680981.

In vivo study

1. Hiller BM, Marmion DJ, Gross RM, Thompson CA, Chavez CA, Brundin P, Wakeman DR, McMahon CW, Kordower JH. Mitomycin-C treatment during differentiation of induced pluripotent stem cell-derived dopamine neurons reduces proliferation

without compromising survival or function in vivo. Stem Cells Transl Med. 2021 Feb;10(2):278-290. doi: 10.1002/sctm.20-0014. Epub 2020 Sep 30. PMID: 32997443; PMCID: PMC7848297.
2. Wang S, Li X, Yan L, Chen H, Wang J, Sun Y. Upregulation of P27Kip1 by mitomycin C induces fibroblast apoptosis and reduces epidural fibrosis. Int J Clin Exp Pathol. 2017 Dec 1;10(12):11779-11788. PMID: 31966541; PMCID: PMC6966039.

7. Bioactivity

Biological target:

Mitomycin C is an antineoplastic antibiotic by inhibiting DNA synthesis and inducing apoptosis in a caspases-dependent and Fas/CD95-independent manner.

In vitro activity

In the current study, short-term MMC (Mitomycin C) treatment increased LN332 deposition by HCLE cells and attenuated the ability of vitamin C and TGFβ1 to enhance collagen deposition by HCFs. Also, epithelial-derived CMM blocked vitamin C and TGFβ1 mediated collagen deposition in HCFs, but fibroblast-derived CMM did not. These results indicate for the first time that the ability of MMC to reduce fibrosis is due to its ability to both enhance epithelial basement membrane protein deposition by corneal epithelial cells and to reduce expression of αSMA and FN by corneal fibroblasts.

Reference: Sci Rep. 2019; 9: 13905. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6761181/

In vivo activity

The surgery was well tolerated by all animals without any sign of wound infection, neurological deficit and cerebrospinal leak. The recovery of all rats was uneventful after the operations. Six rats in each group were selected for the histological analysis (Figure 5). The results showed that extensive and dense epidural scar tissue that adhered to the dura matter was found in the laminectomy defects in control group. In 0.1 mg/ml MMC (Mitomycin C) group or 0.2 mg/ml MMC group, moderate epidural scar tissue with a decreased density of fibroblasts were found in the laminectomy defects compared with those of control group. However, loose or little epidural scar tissue without significant adhesion was observed in the laminectomy defects in 0.5 mg/ml MMC group. These results demonstrated that MMC could reduce epidural fibrosis and showed in a concentration manner.

Reference: Int J Clin Exp Pathol. 2017; 10(12): 11779–11788. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6966039/

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.