

# Small Molecules

## Mitomycin C

Antibiotic; Double-stranded DNA alkylating agent

Catalog # 73274  
100-1048

10 mg  
50 mg



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TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713

INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM

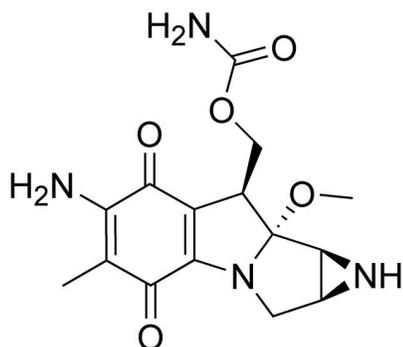
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## Product Description

Mitomycin C is an antibiotic which acts as a double-stranded DNA alkylating agent. It covalently crosslinks DNA, inhibiting DNA synthesis and cell proliferation. It acts by way of reductive activation either through low pH or NAD(P)H:quinone oxidoreductase (DT-diaphorase) or NADH cytochrome c reductase (Cummings et al.; Mao et al.).

**Molecular Name:** Mitomycin C  
**Alternative Names:** Ametycine; MMC; MitoExtra; Mitonco; Mitoplus; NSC 26980  
**CAS Number:** 50-07-7  
**Chemical Formula:** C<sub>15</sub>H<sub>18</sub>N<sub>4</sub>O<sub>5</sub>  
**Molecular Weight:** 334.3 g/mol  
**Purity:** ≥ 98%  
**Chemical Name:** 6-amino-8-[[[(aminocarbonyl)oxy]methyl]-1,1aS,2,8S,8aR,8bS-hexahydro-8a-methoxy-5-methyl-azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione

**Structure:**



## Properties

**Physical Appearance:** A crystalline solid  
**Storage:** Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.  
**Solubility:**  
· DMSO ≤ 55 mM  
· Absolute ethanol ≤ 0.3 mM  
· PBS (pH 7.2) ≤ 1.5 mM  
For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 2.99 mL of DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

## Published Applications

### MAINTENANCE AND SELF-RENEWAL

· Mitotically inactivates mouse embryonic fibroblasts for use as feeder cell layers in embryonic stem cell co-culture systems (Bryja et al.).

### CANCER RESEARCH

· Selectively inhibits DNA synthesis and mutagenesis, stimulates genetic recombination, chromosome breakage, and sister chromatid exchange, and induces DNA repair (Tomasz).

## References

Bryja V et al. (2006) Derivation of mouse embryonic stem cells. *Nat Protoc* 1(4): 2082–7.

Cummings J et al. (1998) Enzymology of mitomycin C metabolic activation in tumour tissue: implications for enzyme-directed bioreductive drug development. *Biochem Pharmacol* 56(4): 405–14.

Mao Y et al. (1999) Molecular characterization and analysis of the biosynthetic gene cluster for the antitumor antibiotic mitomycin C from *Streptomyces lavendulae* NRRL 2564. *Chem Biol* 6(4): 251–63.

Tomasz M. (1995) Mitomycin C: small, fast and deadly (but very selective). *Chem Biol* 2(9): 575–9.

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**This product is hazardous. Please refer to the Safety Data Sheet (SDS).**

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