Small Molecules

Mitomycin C

Antibiotic; Double-stranded DNA alkylating agent

Catalog # 73272	1 mg
73274	10 mg

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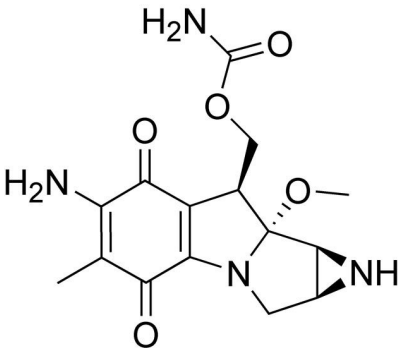
Product Description

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 (Mao et al.; Cummings et al.).

Molecular Name:	Mitomycin C
Alternative Names:	Ametycine, MitoExtra, Mitonco, Mitoplus, MMC, NSC 26980
CAS Number:	50-07-7
Chemical Formula:	$C_{15}H_{18}N_4O_5$
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. For product expiry date, please contact techsupport@stemcell.com.
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 1 mg in 299 µL 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
· Mitotically inactivates mouse embryonic fibroblasts (MEFs) for use as feeder cell layers in embryonic stem cell co-culture systems (Bryja et al.).

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· 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).